

2025/Q2



Internationalization Training Curriculum

Version: 25.2

Prepared by: Pierre Cadieux

Table of Contents

Session Planner.....	3
All About Internationalization.....	4
Automating Localization Workflow.....	9
C/C++ Internationalization.....	12
Java and Java EE Internationalization	15
.NET Internationalization for WPF/XAML.....	19
ASP.NET Core Internationalization.....	26
.NET Internationalization for WinForm Applications.....	33
.NET Core Internationalization	40
Creating Multilingual Web Sites	48
Oracle Internationalization	52
SQL Server Internationalization	55
Internationalization & Localization Testing	58
Globalization Project Management.....	62
All About Globalization Requirements.....	65
All About Arabic	68
All About Arabic <i>for Programmers</i>	71
Managing Multilingual XML Content.....	75
Documentation: Reducing the Cost of Translation	78

Also available:

- Creating Multilingual Websites with XML
- Perl Internationalization

Session Planner

Our workshops are designed for all professionals involved in the globalization process. For each step of the process, and for each technology involved, we have targeted workshops of unique clarity and structure that deliver best practices with numerous examples and code samples which provide true in-depth understanding.

The table below summarizes workshops currently available and provides their duration (in days) with or without exercises. Exercises are highly recommended as they significantly improve the learning retention rate.

Internationalization Topic	Workshop Title	Duration without exercises	Duration with exercises
For all: managers, product managers, writers, translators, testers, programmers, etc.			
Intro	All About Internationalization (part 1)	1.5	n/a
Management	Globalization Project Management	n/a	1
Requirements	All About Globalization Requirements	n/a	1
Testing	Internationalization & Localization Testing	2	2.5
Documentation	Documentation: Reducing Translation Cost	1	tbd
Translation	Automating Localization Workflow	1	n/a
Web sites	Creating Multilingual Web Sites	1	1.5
XML	Managing Multilingual XML Content	1	1.5
Arabic	All About Arabic (for all)	1	1.5
For programmers: software developers, web developers, system architects, DBAs, etc.			
Intro	All About Internationalization	3	n/a
C/C++	C/C++ Internationalization	1	1.5
Java	Java and Java EE Internationalization	1.5	2
.NET WPF	.NET Internationalization for WPF/XAML	2	3
ASP.NET	ASP.NET Internationalization	2	3
.NET WinForms	.NET Internationalization for WinForms	2	3
.NET Core	.NET Core Internationalization	2	3
Oracle	Oracle Internationalization	1	1.5
SQL Server	SQL Server Internationalization	1	1.5
Arabic	All About Arabic for Programmers	2	3

All About Internationalization

■ Overview

If you plan to offer your product in other languages, **internationalization** is a critical element of your overall development process.

Internationalization is the first step of a two-step process. It consists in generalizing your product to support as many languages as required. The second step - localization - consists in adapting the product to meet the needs of different languages and cultures. Internationalization reduces cost and time to market by making localization easier and avoiding work duplication.

Unfortunately, the complexity of internationalization is often underestimated, resulting in missed deadlines and cost overruns. This complexity arises primarily from the large number of issues involved and from their inherent pervasiveness: language issues can potentially affect every system, component, third-party tool, line of code, document, help file, test script, and business process involved in releasing your product.

Our workshop is designed to deliver maximum value in a minimum amount of time. It is hosted at the location of your choice, either at your site or at a remote conference facility, which minimizes distractions.

It is now also available in a self-paced eLearning format, allowing organizations to train all new and old staff at any time, at any place, at any pace.

■ Target Audience

- The first day is intended for all audiences: Software Architects/Managers, Software Engineers, Test Engineers, Tech Writing, Product Managers, Solution Managers, User Experience, Release Management, Customer Support, Directors, and any other stakeholders. Technical concepts are presented in a non-technical manner using visually intuitive and compelling graphics.
- The remaining time is targeted more for technical staff, but much of it remains understandable by all. Software architects, managers, and engineers, as well as product managers, should attend.

■ Benefits

This workshop will prepare you for all aspects of an internationalization project. You will know the issues, you will know the pitfalls, and you will know the solutions. The workshop will provide you with a clear understanding of industry best practices, how to apply them, and what their benefits are.

All attending stakeholders within your organization will share a **common terminology**, which is the most critical ingredient to enabling clarity of design, good communication, and true understanding.

■ Duration

The agenda described below is for a 3-day session. The first part (chapters 1 to 6) can also be used as an independent introductory module for all stakeholders.

In its eLearning format, the course lasts roughly 12.5 hours; it can comfortably be taken in 10 sessions of 60-90 minutes each. We recommend giving developers 3 weeks total to take it (with a final one-week extension if needed)

■ Pre-requisites: none

■ Agenda

PART 1- for all audiences: executives, product managers, developers, testers, support...

1. The Problem Domain: What Are We Up Against?

The characteristics of different languages and writing systems are presented visually. Particular attention is paid to the requirements of Asian and Arabic languages. Differences in cultural conventions are also highlighted. This chapter tells us WHAT issues programmers, web admins, designers, and managers should be concerned with (and often are not aware of).

- The globalization dimension; languages and scripts
- Asian & Middle-Eastern languages
- Visual presentation of linguistic & cultural differences that impact development
- Text processing: searching, sorting, transcoding, etc.
- Cultural formats: date, time, calendars, currency, etc.

2. Key Globalization Concepts

Internationalization and Localization. Translation and what translators need. Levels of internationalization complexity. This chapter tells us WHY we should be concerned with the issues presented above, i.e., WHY we should prepare for translation.

- Globalization, Internationalization, Localization, Translation
- Internationalization complexity: dimensions and levels
- Ensuring translation quality
- Maintaining a global product: localizing the next version!
- Optimizing localization: glossaries & translation memories

3. A Visual Model of Internationalization

An animated graphical model that illustrates the three basic tasks of internationalization: resource externalization, cultural generalization, and preparation of the localization kit. Each of the three tasks is explored in more detail. This chapter shows us HOW, in general terms applicable to both software and Web sites, to prepare for translation

- Graphical model of core internationalization tasks
- Resource externalization
- Cultural generalization
- Localization kit generation and strategy

4. Managing Internationalization

From the business case to customer support, through requirements, architecture & analysis, development, and testing. Avoiding the pitfalls; managing risk.

- Business case and ROI
- Multilingual requirements
- Risk management: the “baseline and compare” strategy
- Evaluation & planning;
- Roles and responsibilities
- Common myths and pitfalls

5. Dos and Don'ts

Numerous practical examples from real projects are visually illustrated.

- Dimensions of evil: concatenation, alignment, abbreviation
- Pluralization and message formatting
- Indexes and sorted lists
- Clueless Manipulation

6. Testing internationalization

A brief and visual overview of internationalization testing issues for all (programmers, managers, etc.)

- A model of multilingual testing
- Testing resource externalization & pseudo-translation
- Testing cultural generalization & regression tests and pseudo-translation
- Testing the localization kit/infrastructure and localization process
- Managing multilingual testing: platform coverage and bug workflow

PART 2 - for technical staff: architects, programmers, web developers, test script writers...

7. Coded Character Sets: Past, Present and Future

- Single-byte character sets
- Multi-byte Asian character sets on Windows and Unix
- Unicode: a 21-bit character set

8. Unicode: Character Set & Standard

- The 10 Unicode design principles
- The Unicode standard, annexes, and technical reports
- UCD: Unicode Character Database
- Unicode resources: tools, books, etc.

9. Unicode Representation

- Standard encodings: UTF-8, UTF-16, UTF-32
- Encoding size comparisons
- Serialization & the Byte-Order Mark (BOM)
- Compression schemes: SCSU & BOCU-1
- Data stability: Unicode normalization
- The four Unicode normalization forms

10. Unicode Implementation

- Unicode books, tools and libraries
- Transcoding and its complexity for bidirectional languages
- Text Boundaries: Grapheme Clusters, Words, Lines, Sentences
- Collation-Based Processes, Multilingual Collation Standards
- Data structures for efficient Unicode processing

11. Locales

- Locale identification: BCP 47
- Locale architecture (locale vs. language and country)
- Locale negotiation
- Complexities of language selection & suggested strategies
- Practical advice

12. Resources

- Resource organization & naming strategies
- The localization process
 - inventory resource types & simplify
 - create extraction and merging tools
 - pseudo-translation
- Practical advice

13. Input and Output

- Input methods and reading fields
- Fonts & text rendering
- Pan-Unicode fonts, font linking, Noto font
- Font attributes
- Debugging tips

■ Handouts

Onsite attendees will receive a 650+ page booklet with ample room for notes, a table of contents, and a glossary. The booklet is designed as a practical, easy-to-use reference “book” for regular use during an internationalization project.

eLearning attendees will receive a PDF certification document if they pass the quizzes. The glossary mentioned above is available in HTML format on the eLearning site while the booklets can be purchased separately.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

Automating Localization Workflow

■ Overview

Are you suffering from chronic "cut & paste" syndrome? Are manual operations introducing errors and eating up your localization budget? Do you feel the need for more automation? Would you like documents (or Web content) to be automatically routed to the translation vendor, and back? Would you like to automate many of the steps of the localization process itself?

Such automation capabilities exist today to some degree in various systems of various price/capability ranges. They are called "globalization management systems" (GMS) or "translation management systems" (TMS). Some are available for purchase; others are provided by the translation vendors themselves, some are leased, etc.

In order to understand and compare such different systems with disparate terminology, a generic model of automated localization workflow is described. A practical scenario is demonstrated by animating the model. The model is also used to visualize where existing industry standards apply in the localization process.

Finally, with the model well understood, a detailed evaluation framework is presented and applied to the available commercial systems. The evaluation framework covers a wide range of issues, both technical and business, relating to supported formats, translation tools, etc. The workshop concludes with an insightful discussion of the most significant, topical and current issues related to automating localization workflow.

■ Target Audience

This course is intended for localization managers, product managers, executives, international directors, translators and localization engineers... anyone whose budget or daily activity is impacted by localization.

■ Benefits

This workshop will help you understand what is involved in automating localization and help you decide whether you should consider purchasing a system or simply build a connector to existing systems.

■ Duration

The agenda described below is for a one-day session.

■ Pre-requisites

None.

■ Agenda

1. Concepts: Globalization, Workflow, Translation & the Web

An overview of the basic concepts to ensure all attendees are on the same page: globalization, translation memories, workflow, content types and repositories, CMS, GMS and the difference between the two, etc.

2. ALW (Automated Localization Workflow) model

This section builds up graphically, item by item, a complete reference model of the localization process, starting from arbitrary source content and going through all the steps (change detection, analysis, leveraging, costing, workload management, translation, quality assurance, etc.) to produce localized content in several languages.

3. ALW model: an animated scenario

The ALW model just built up is now animated with a simple scenario: the urgent production of a product brochure for simultaneous deployment on several country web sites. The step by step animation provides a deeper understanding of real issues that occur in actual usage of GMS or TMS.

4. Applying the ALW model

This section uses the model to contrast existing systems. It then shows how several major technologies map to the model. Standards such as XLIFF, TWS, TMX, SRX, TBX, OLIF, GMX, etc. are mapped onto the model.

5. ALW evaluation framework & comparisons

Each element of the model is now reviewed and evaluation criteria are specified. What functions should be available to the project manager? To the translator? How flexible should change detection be? Where is testing performed and how are bugs handled? You will be provided with a printed checklist of hundreds of questions. Comparisons of the major technologies will be presented.

6. Significant issues

The Workshop concludes with a discussion of the most significant criteria discovered in this analysis. It presents those factors that are most likely to impact the cost, quality and ultimately success of your globalization effort.

■ Handouts

Each attendee will receive a workshop booklet, one slide per page, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as

a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

C/C++ Internationalization

■ Overview

The C/C++ Internationalization workshop will provide attendees with a broad understanding of internationalization processes, issues and pitfalls. Numerous practical examples, from real projects, will be presented.

The workshop covers how C/C++ deal with: character sets and Unicode (including surrogates, UTF encodings, normalization forms and transcoding), locales and locale models for client-server applications, formatting for messages and for date/time/currency/numbers, text processing functions including search & sort, etc.

■ Target Audience

This course is intended for software developers, software architects, software technical project managers and team leaders. It is highly recommended that attendees have a working knowledge of C or C++ (and have taken the pre-requisite "All About Internationalization" workshop).

■ Benefits

This workshop provides software professionals with a solid foundation on software internationalization and a practical, extensive coverage of C/C++ internationalization techniques.

■ Duration

The agenda described below is for a one-day session (or 1.5 days with supervised hands-on exercises).

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop.

■ Agenda

1. Internationalization with C/C++

- POSIX C standard internationalization API
- C++ standard internationalization API
- Win 32 API

2. Character sets and Unicode with C/C++

- C/C++ vs. Unicode (version by version)
- The standard `wchar_t` type
- The TCHAR strategy
- Unicode file I/O in C/C++

3. Locales in C/C++

- Definition
- Identification, ISO 639, ISO 3166
- Selection: install, start-up, run-time
- C (POSIX) locales
- C++ locales and facets

4. Resources in C/C++

- UNIX Message catalogs
- Catgets and `gettext`
- Windows Resource files
- Message formatting

5. Formatting and Parsing in C/C++

POSIX i18N APIs and C++ facets described for:

- Working with date, time, numbers
- Working with currency
- Working with calendars
- Message formatting in C++ (lack of)

6. Text Processing in C/C++

POSIX i18N APIs and C++ facets described for:

- Searching and Sorting
- Boundaries: character, word, line, sentence
- Basic character operations
- Character properties

7. Wrap-up

- Evaluation of the Microsoft TCHAR approach
- Presentation of the ZCHAR approach
- Summary evaluation of C/C++ internationalization support

■ Handouts

Each attendee will receive a 200+ page booklet, one slide per page, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

Java and Java EE Internationalization

■ Overview

The Java and Java EE Internationalization workshop provides attendees with a broad understanding of internationalization processes, issues and pitfalls.

This workshop shows how Java and Java EE deal with: character sets and Unicode (including surrogates, UTF encodings, normalization forms and transcoding), locales and locale models for client-server applications, resources and resource maintenance, sorting & searching, date & time processing, formatting of numbers and currency, text processing functions, etc.

Attendees will leave with a clear understanding of how to correctly and efficiently internationalize their Java-based applications.

■ Target Audience

This course is intended for software developers, software architects, software technical project managers and team leaders. It is highly recommended that attendees have a working knowledge of Java (and have taken the pre-requisite "All About Internationalization" workshop).

■ Benefits

This workshop provides software professionals with a solid foundation on software internationalization and a practical, extensive coverage of Java internationalization techniques.

■ Duration

The agenda described below is for a 1.5-day session (or 2 days with supervised hands-on exercises).

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop.

■ Agenda

1. Internationalization with Java and Java EE

- Java platforms: Java SE and Java EE
- JSP and JSTL
- Internationalization features of Java versions
- books and useful resources

2. Java and Unicode

- Java versions vs. Unicode versions; supplementary character support
- Characters vs. Code Points; Character and code-point interfaces
- What needs to change for full Unicode support
- Unicode normalization in Java
- Basic transcoding for Files and Strings
- Reliable transcoding with the CharSet class
- Character sets for JSP and the Web
- IDN and IRL support (international domain names and URL)

3. Java Locales

- Identification, ISO 639, ISO 3166, BCP 47
- Features of BCP 47 locales
- Enumeration
- Selection: install, start-up, run-time
- Locale-aware functions
- Locale hierarchies: resource container selection
- User-defined locales
- Locales with JSP and JSTL

4. Java Resources

- Resource bundles
- GetBundle search order
- GetLocale and GetString
- ListResourceBundle

- PropertyResourceBundle
- Non-text resources
- ResourceBundle.Control (with many examples)
- JSP resources
- Performance caveats, subclassing pitfalls

5. Formatting & Parsing

- Formatting & parsing numbers and currency; format customization
- Formatting & parsing date and time; format customization
- Working with calendars
- Formatting messages with Java Formatter and Java MessageFormat
- How to handle plural agreement in messages

6. Text Processing

- Searching and sorting text
- Collation and collation-based processes
- Collation rules and collation performance
- Word and character boundaries
- Line and sentence boundaries
- Case conversion
- Character properties

7. Text Input and Output

- Input methods and the Java IMF (Input Method Framework)
- Input method types: host input method support vs. built-in input methods
- When do you need to use input method APIs ?
- Text rendering and GUI layout
- The ComponentOrientation property
- Logical and physical fonts
- The Java font mechanism
- Three options for fonts: logical fonts, platform fonts or embedded fonts

■ Handouts

Each attendee will receive a 250+ page booklet, one slide per page, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

.NET Internationalization for WPF/XAML

■ Overview

The .NET Internationalization workshop provides attendees with a broad understanding of internationalization processes, issues and pitfalls. Numerous practical examples, from real projects, will be presented.

The workshop shows how .NET deals with: character sets and Unicode (including surrogates, UTF encodings, normalization forms, IDNs and transcoding), locales and locale models for client-server applications, resources and resource maintenance, sorting & searching, date & time processing, formatting of numbers and currency, text and character processing functions, etc. The basic classes and interfaces of the six globalization namespaces in .NET are covered.

This is an in-depth review of .NET internationalization features which will help your developers avoid all known pitfalls! They will leave with a clear understanding of how to correctly and efficiently internationalize their .NET-based applications.

■ Target Audience

This course is intended for software developers, software architects, software technical project managers and team leaders. It is highly recommended that attendees have a working knowledge of .NET (and have taken the pre-requisite "All About Internationalization" workshop).

■ Benefits

This workshop provides software professionals with a solid foundation on software internationalization and a practical, extensive coverage of .NET internationalization techniques.

■ Duration

The agenda described below is for a two-day session (or 3 days with supervised hands-on exercises).

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop.

■ Agenda

The following items are covered in this course:

1. .NET Internationalization

- Globalization features vs. .NET versions
- Globalization namespaces
 - System.Globalization
 - System.Resources
 - System.Resources.Tools
 - System.Text
 - System.Text.RegularExpressions
 - System.Collections
- Getting Started
- Books

2. Encodings

- .NET Encoding Model
- Source Encodings
- Runtime Encodings
- The Encoding Class
- Normalization

3. Transcoding

- .NET Transcoding Model
- Multilingual Stream I/O
 - File I/O Transcoding
 - Files, Streams, Writers, Readers
- Basic Transcoding
- Incremental Transcoding
- Transcoding Error Handling
- Customizing Fallbacks

4. Locales

- CultureInfo & RegionInfo classes
- The CultureInfo hierarchy: specific, neutral and invariant cultures
- Querying CultureInfo
 - Getting Country/Region Info, getting Script/Encoding Info
 - Enumerating the Locales
- Setting CultureInfo
 - Default cultures and user (control panel) overrides
- CultureInfo & Collation Ids
 - LCID-based alternate sorts
 - BCP 47 collation identifiers
- Locale Serialization
 - Why Serialize Locale Information?
 - LCID serialization
 - BCP 47 Serialization
- Chinese Locales
 - Culture Names have Changed!
 - Chinese Locale Hierarchy - Part 1
 - Chinese Locale Hierarchy - Part 2
 - Chinese Locale Hierarchy - Part 3
- CultureInfo & Threads
 - Old solutions when threads did not inherit calling culture
 - Thread Factory
 - Parameterized Delegate
 - Domain Defaults
 - The Twilight Zone
 - Tasks & Culture
 - Parallel.Invoke changes!

5. Resources

Note: Generic resource topics only; see chapter 9 for WPF/XAML resources.

- Dealing With Resources
- Strongly-typed resources
- The Hidden Resource Designer
- Resource storage
- How .NET Finds The Right Resources

6. Formatting

- Message Formatting
 - Interfaces: IFormatProvider, IFormattable
 - Classes/methods that support Composite Formatting
- Numeric Formatting (numbers, currency, percentages)
 - Format Specifiers & Precision Specifiers
 - Formatting across cultures
- Numeric Parsing
 - Parsing control with the NumberStyles enumeration
 - Parsing limitations and the IsDigit() gotcha
- Date & Time Formatting
 - Format Specifiers & Custom Format Strings
 - Enforcing a 4-digit year
 - Enforcing a non-ambiguous month (i.e. readable month name)
- Date & Time Parsing
 - Strict Parsing
 - Lenient Parsing
- Calendars
 - Calendars & CultureInfo
 - How to change the calendar
 - Why a Gregorian calendar override may be safer

7. Text Processing

- Collation Basics
 - Collation Control
 - CompareOptions Enumeration
 - Choosing Your Comparison Type
- String Class
 - Cultural & Non-Cultural String Methods
 - MS Best Practices for Strings
- CompareInfo Class
 - Search Method Summary
 - Which Compare To Use?
- Searching Text
 - Culture-Specific Comparisons
 - Searching Text with Options
 - Replacing Text
- Sorting Text
 - Basic Sorting
 - Sorting with Sort Keys
 - Sort Performance
 - Useful Collation Options
 - Collation Options Summary
- Hashing Text
 - Hashtable with CurrentCulture
 - Dictionary Sample
 - Best Practices for String Collections
- Persisting Text
 - Persisting Formatted Text
 - Persisting Sorted Text

8. Character Processing

- Character Iteration
 - Text Boundaries
 - Text Iteration
 - Supporting Supplementary Characters
- Character Casing
 - The "Turkish I"
 - A Lowercase Uppercase
- Character Classification
 - Basic Character Classification
 - UnicodeCategory Enumeration
- Regular Expressions
 - Character Classes
 - Regular Expression Options
 - Supplementary Not Supported

9. WPF/XAML Specifics

- Language Selection
- Manual Resource Externalization
 - Creating a Root Resource File
 - Using the resource and setting the locale
- Automated Resource Externalization
- WPF Localization Tools
 - Setting the Base Culture
 - Getting UIDs & Extracting Resources
- Form Layout
 - Automatic Layout Panels: Grid & DockPanel
 - Detailed example with both panels in French, English and Arabic
- Hot Keys

■ Materials

Each attendee will receive, in advance, a Visual Studio solution comprising 150 small projects addressing punctual internationalization issues (used in the workshop slides). This will allow programmers to try things before, during, and after the workshop. This may later be used as reference, to cut-and-paste code, during the internationalization project.

■ Handouts

Each attendee will receive a 500+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

ASP.NET Core Internationalization

■ Overview

The .NET Internationalization workshop provides attendees with a broad understanding of internationalization processes, issues and pitfalls. Numerous practical examples, from real projects, will be presented.

The workshop shows how .NET deals with: character sets and Unicode (including surrogates, UTF encodings, normalization forms, IDNs and transcoding), locales and locale models for client-server applications, resources and resource maintenance, sorting & searching, date & time processing, formatting of numbers and currency, text and character processing functions, etc. The basic classes and interfaces of the six globalization namespaces in .NET are covered.

This is an in-depth review of .NET internationalization features which will help your developers avoid all known pitfalls! They will leave with a clear understanding of how to correctly and efficiently internationalize their .NET-based applications.

■ Target Audience

This course is intended for software developers, software architects, software technical project managers and team leaders. It is highly recommended that attendees have a working knowledge of .NET (and have taken the pre-requisite "All About Internationalization" workshop).

■ Benefits

This workshop provides software professionals with a solid foundation on software internationalization and a practical, extensive coverage of .NET internationalization techniques.

■ Duration

The agenda described below is for a two-day session (or 3 days with supervised hands-on exercises).

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop.

■ Agenda

The following items are covered in this course:

1. .NET Internationalization

- Globalization features vs. .NET versions
- Globalization namespaces
 - System.Globalization
 - System.Resources
 - System.Resources.Tools
 - System.Text
 - System.Text.RegularExpressions
 - System.Collections
- Getting Started
- Books

2. Encodings

- .NET Encoding Model
- Source Encodings
- Runtime Encodings
- The Encoding Class
- Normalization

3. Transcoding

- .NET Transcoding Model
- Multilingual Stream I/O
 - File I/O Transcoding
 - Files, Streams, Writers, Readers
- Basic Transcoding
- Incremental Transcoding
- Transcoding Error Handling
- Customizing Fallbacks

4. Locales

- CultureInfo & RegionInfo classes
- The CultureInfo hierarchy: specific, neutral and invariant cultures
- Querying CultureInfo
 - Getting Country/Region Info, getting Script/Encoding Info
 - Enumerating the Locales
- Setting CultureInfo
 - Default cultures and user (control panel) overrides
- CultureInfo & Collation Ids
 - LCID-based alternate sorts
 - BCP 47 collation identifiers
- Locale Serialization
 - Why Serialize Locale Information?
 - LCID serialization
 - BCP 47 Serialization
- Chinese Locales
 - Culture Names have Changed!
 - Chinese Locale Hierarchy - Part 1
 - Chinese Locale Hierarchy - Part 2
 - Chinese Locale Hierarchy - Part 3
- CultureInfo & Threads
 - Old solutions when threads did not inherit calling culture
 - Thread Factory
 - Parameterized Delegate
 - Domain Defaults
 - The Twilight Zone
 - Tasks & Culture
 - Parallel.Invoke changes!

5. Resources

Note: Generic resource topics only; see chapter 9 for ASP.NET resources.

- Dealing With Resources
- Strongly-typed resources
- The Hidden Resource Designer
- Resource storage
- How .NET Finds The Right Resources

6. Formatting

- Message Formatting
 - Interfaces: IFormatProvider, IFormattable
 - Classes/methods that support Composite Formatting
- Numeric Formatting (numbers, currency, percentages)
 - Format Specifiers & Precision Specifiers
 - Formatting across cultures
- Numeric Parsing
 - Parsing control with the NumberStyles enumeration
 - Parsing limitations and the IsDigit() gotcha
- Date & Time Formatting
 - Format Specifiers & Custom Format Strings
 - Enforcing a 4-digit year
 - Enforcing a non-ambiguous month (i.e. readable month name)
- Date & Time Parsing
 - Strict Parsing
 - Lenient Parsing
- Calendars
 - Calendars & CultureInfo
 - How to change the calendar
 - Why a Gregorian calendar override may be safer

7. Text Processing

- Collation Basics
 - Collation Control
 - CompareOptions Enumeration
 - Choosing Your Comparison Type
- String Class
 - Cultural & Non-Cultural String Methods
 - MS Best Practices for Strings
- CompareInfo Class
 - Search Method Summary
 - Which Compare To Use?
- Searching Text
 - Culture-Specific Comparisons
 - Searching Text with Options
 - Replacing Text
- Sorting Text
 - Basic Sorting
 - Sorting with Sort Keys
 - Sort Performance
 - Useful Collation Options
 - Collation Options Summary
- Hashing Text
 - Hashtable with CurrentCulture
 - Dictionary Sample
 - Best Practices for String Collections
- Persisting Text
 - Persisting Formatted Text
 - Persisting Sorted Text

8. Character Processing

- Character Iteration
 - Text Boundaries
 - Text Iteration
 - Supporting Supplementary Characters
- Character Casing
 - The "Turkish I"
 - A Lowercase Uppercase
- Character Classification
 - Basic Character Classification
 - UnicodeCategory Enumeration
- Regular Expressions
 - Character Classes
 - Regular Expression Options
 - Supplementary Not Supported

9. ASP.NET Specifics

Under development

■ Materials

Each attendee will receive, in advance, a Visual Studio solution comprising 150 small projects addressing punctual internationalization issues (used in the slides). This will allow programmers to try things before, during, and after the workshop. This may later be used as reference, to cut-and-paste code, during the internationalization project.

■ Handouts

Each attendee will receive a 500+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

.NET Internationalization for WinForm Applications

■ Overview

The .NET Internationalization workshop provides attendees with a broad understanding of internationalization processes, issues and pitfalls. Numerous practical examples, from real projects, will be presented.

The workshop shows how .NET deals with: character sets and Unicode (including surrogates, UTF encodings, normalization forms, IDNs and transcoding), locales and locale models for client-server applications, resources and resource maintenance, sorting & searching, date & time processing, formatting of numbers and currency, text and character processing functions, etc. The basic classes and interfaces of the six globalization namespaces in .NET are covered.

This is an in-depth review of .NET internationalization features which will help your developers avoid all known pitfalls! They will leave with a clear understanding of how to correctly and efficiently internationalize their .NET-based applications.

■ Target Audience

This course is intended for software developers, software architects, software technical project managers and team leaders. It is highly recommended that attendees have a working knowledge of .NET (and have taken the pre-requisite "All About Internationalization" workshop).

■ Benefits

This workshop provides software professionals with a solid foundation on software internationalization and a practical, extensive coverage of .NET internationalization techniques.

■ Duration

The agenda described below is for a two-day session (or 3 days with supervised hands-on exercises).

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop.

■ Agenda

The following items are covered in this course:

1. .NET Internationalization

- Globalization features vs. .NET versions
- Globalization namespaces
 - System.Globalization
 - System.Resources
 - System.Resources.Tools
 - System.Text
 - System.Text.RegularExpressions
 - System.Collections
- Getting Started
- Books

2. Encodings

- .NET Encoding Model
- Source Encodings
- Runtime Encodings
- The Encoding Class
- Normalization

3. Transcoding

- .NET Transcoding Model
- Multilingual Stream I/O
 - File I/O Transcoding
 - Files, Streams, Writers, Readers
- Basic Transcoding
- Incremental Transcoding
- Transcoding Error Handling
- Customizing Fallbacks

4. Locales

- CultureInfo & RegionInfo classes
- The CultureInfo hierarchy: specific, neutral and invariant cultures
- Querying CultureInfo
 - Getting Country/Region Info, getting Script/Encoding Info
 - Enumerating the Locales
- Setting CultureInfo
 - Default cultures and user (control panel) overrides
- CultureInfo & Collation Ids
 - LCID-based alternate sorts
 - BCP 47 collation identifiers
- Locale Serialization
 - Why Serialize Locale Information?
 - LCID serialization
 - BCP 47 Serialization
- Chinese Locales
 - Culture Names have Changed!
 - Chinese Locale Hierarchy - Part 1
 - Chinese Locale Hierarchy - Part 2
 - Chinese Locale Hierarchy - Part 3
- CultureInfo & Threads
 - Old solutions when threads did not inherit calling culture
 - Thread Factory
 - Parameterized Delegate
 - Domain Defaults
 - The Twilight Zone
 - Tasks & Culture
 - Parallel.Invoke changes!

5. Resources

Note: Generic resource topics only; see chapter 9 for WinForm resources.

- Dealing With Resources
- Strongly-typed resources
- The Hidden Resource Designer
- Resource storage
- How .NET Finds The Right Resources

6. Formatting

- Message Formatting
 - Interfaces: IFormatProvider, IFormattable
 - Classes/methods that support Composite Formatting
- Numeric Formatting (numbers, currency, percentages)
 - Format Specifiers & Precision Specifiers
 - Formatting across cultures
- Numeric Parsing
 - Parsing control with the NumberStyles enumeration
 - Parsing limitations and the IsDigit() gotcha
- Date & Time Formatting
 - Format Specifiers & Custom Format Strings
 - Enforcing a 4-digit year
 - Enforcing a non-ambiguous month (i.e. readable month name)
- Date & Time Parsing
 - Strict Parsing
 - Lenient Parsing
- Calendars
 - Calendars & CultureInfo
 - How to change the calendar
 - Why a Gregorian calendar override may be safer

7. Text Processing

- Collation Basics
 - Collation Control
 - CompareOptions Enumeration
 - Choosing Your Comparison Type
- String Class
 - Cultural & Non-Cultural String Methods
 - MS Best Practices for Strings
- CompareInfo Class
 - Search Method Summary
 - Which Compare To Use?
- Searching Text
 - Culture-Specific Comparisons
 - Searching Text with Options
 - Replacing Text
- Sorting Text
 - Basic Sorting
 - Sorting with Sort Keys
 - Sort Performance
 - Useful Collation Options
 - Collation Options Summary
- Hashing Text
 - Hashtable with CurrentCulture
 - Dictionary Sample
 - Best Practices for String Collections
- Persisting Text
 - Persisting Formatted Text
 - Persisting Sorted Text

8. Character Processing

- Character Iteration
 - Text Boundaries
 - Text Iteration
 - Supporting Supplementary Characters
- Character Casing
 - The "Turkish I"
 - A Lowercase Uppercase
- Character Classification
 - Basic Character Classification
 - UnicodeCategory Enumeration
- Regular Expressions
 - Character Classes
 - Regular Expression Options
 - Supplementary Not Supported

9. Windows Forms Specifics

- Language selection
 - Multilingual vs. single-language binaries
- Resource externalization
 - XLAT: a gettext-like approach for resource externalization
- Form layout
 - Old approach
 - TableLayoutPanel
 - FlowLayoutPanel
 - An example with both panels

■ Materials

Each attendee will receive, in advance, a Visual Studio solution comprising 150 small projects addressing punctual internationalization issues (used in the workshop slides). This will allow programmers to try things before, during, and after the workshop. This may later be used as reference, to cut-and-paste code, during the internationalization project.

■ Handouts

Each attendee will receive a 500+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

.NET Core Internationalization

■ Overview

The .NET Internationalization workshop provides attendees with a broad understanding of internationalization processes, issues and pitfalls. Numerous practical examples, from real projects, will be presented.

The workshop shows how .NET deals with: character sets and Unicode (including surrogates, UTF encodings, normalization forms, IDNs and transcoding), locales and locale models for client-server applications, resources and resource maintenance, sorting & searching, date & time processing, formatting of numbers and currency, text and character processing functions, etc. The basic classes and interfaces of the six globalization namespaces in .NET are covered.

This is an in-depth review of .NET internationalization features which will help your developers avoid all known pitfalls! They will leave with a clear understanding of how to correctly and efficiently internationalize their .NET-based applications.

It is now also available in a self-paced eLearning format, allowing organizations to train all new and old staff at any time, at any place, at any pace.

■ Target Audience

This course is intended for software developers, software architects, software technical project managers and team leaders. It is highly recommended that attendees have a working knowledge of .NET (and have taken the pre-requisite "All About Internationalization" workshop).

■ Benefits

This workshop provides software professionals with a solid foundation on software internationalization and a practical, extensive coverage of .NET internationalization techniques.

■ Duration

The agenda described below is for a two-day session (or 3 days with supervised hands-on exercises).

In its eLearning format, the course lasts roughly 12 hours; it can comfortably be taken in 10 sessions of 60-90 minutes each. We recommend giving developers 3 weeks total to take it (with a final one-week extension if needed)

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop.

■ Agenda

The following items are covered in this course:

1. .NET Internationalization

- Globalization features vs. .NET versions
- Globalization namespaces
 - System.Globalization
 - System.Resources
 - System.Text
- Getting Started
- Books

2. Encodings

- .NET Encoding Model
- Source Encodings
- Runtime Encodings
- The Encoding Class
- Normalization

3. Transcoding

- .NET Transcoding Model
- Multilingual Stream I/O
 - File I/O Transcoding
 - Files, Streams, Writers, Readers
- Basic Transcoding
- Incremental Transcoding
- Transcoding Error Handling
- Customizing Fallbacks

4. Locales

- CultureInfo & RegionInfo classes
- The CultureInfo hierarchy: specific, neutral and invariant cultures
- Querying CultureInfo
 - Getting Country/Region Info, getting Script/Encoding Info
 - Enumerating the Locales
- Setting CultureInfo
 - Default cultures and user (control panel) overrides
- CultureInfo & Collation Ids
 - LCID-based alternate sorts
 - BCP 47 collation identifiers
- Locale Serialization
 - Why Serialize Locale Information?
 - LCID serialization
 - BCP 47 Serialization
- Chinese Locales
 - Culture Names have Changed!
 - Chinese Locale Hierarchy - Part 1
 - Chinese Locale Hierarchy - Part 2
 - Chinese Locale Hierarchy - Part 3
- CultureInfo & Threads
 - Old solutions when threads did not inherit calling culture
 - Thread Factory
 - Parameterized Delegate
 - Domain Defaults
 - The Twilight Zone
 - Tasks & Culture
 - Parallel.Invoke changes!

5. Resources

- Resource Strategy
 - Gettext vs named identifiers
 - Single vs many containers
- Working with Resources in .NET and Visual Studio
 - Adding Resources to Your Project
 - Resource hierarchies, assemblies (main & satellite)
 - ResourceManager
- Resource Fallbacks
 - Neutral Resources Language Attribute
 - Downside of Standard Fallbacks
- String Literal Types
 - Quoted, verbatim, raw literals
 - Interpolated, UTF-8 literals
- Search & Classification
 - Internationalization Status
 - Internationalization tags (ZCHAR)
- Deconcatenation
 - Multiline Concatenations
 - Deconcatenating Grammar Logic
 - Handling Plurals and Gender
- Externalization
 - Unescaping
 - Externalizing Interpolated Strings
- Handling Links
 - The hreflang tags
 - What About \t, \n?
 - Handling Links - Full Demo

6. Formatting

- Basics
 - IFormatProvider
 - Composite Formatting
 - Classes/methods that support Composite Formatting
- Numeric Formatting (numbers, currency, percentages)
 - Format Specifiers & Precision Specifiers
 - Localized Custom Specifiers
 - NumberFormatInfo Formatting Properties
- Numeric Parsing
 - NumberFormatInfo Parse Properties
 - Parsing control with the NumberStyles enumeration
 - Parsing limitations and the IsDigit() gotcha
- Date & Time Formatting
 - Format Specifiers & Custom Format Strings
 - DateTimeFormatInfo Properties
 - The longest date
 - Enforcing a 4-digit year
- Date & Time Parsing
 - Strict Parsing
 - Lenient Parsing
 - Parsing local vs universal time
- Calendars
 - Calendars & CultureInfo
 - How to change the calendar
 - Why a Gregorian calendar override may be safer
 - Calendar computations

7. Text Processing

- Collation Basics
 - Collation Control
 - CompareOptions Enumeration
 - Choosing Your Comparison Type
- String Class
 - Cultural & Non-Cultural String Methods
 - MS Best Practices for Strings
- CompareInfo Class
 - Search Method Summary
 - Which Compare To Use?
- Searching Text
 - Culture-Specific Comparisons
 - Searching Text with Options
 - Replacing Text
- Sorting Text
 - Basic Sorting
 - Sorting with Sort Keys
 - Sort Performance
 - Useful Collation Options
 - Collation Options Summary
- Hashing Text
 - Hashtable with CurrentCulture
 - Dictionary Sample
 - Best Practices for String Collections
- Persisting Text
 - Persisting Formatted Text
 - Persisting Sorted Text

8. Character Processing

- Character Iteration
 - Text Boundaries
 - Text Iteration
 - Supporting Supplementary Characters
- Character Casing
 - The "Turkish I"
 - A Lowercase Uppercase
- Character Classification
 - Basic Character Classification
 - UnicodeCategory Enumeration
- Regular Expressions
 - Character Classes
 - Regular Expression Options
 - Supplementary Not Supported

■ Materials

Each attendee will receive, in advance, a Visual Studio solution comprising 200+ small projects addressing punctual internationalization issues (used in the slides). This will allow programmers to try things before, during, and after the workshop. This may later be used as reference, to cut-and-paste code, during the internationalization project.

■ Handouts

Each attendee will receive a 600+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

eLearning attendees will receive a PDF certification document if they pass the quizzes. The glossary mentioned above is available in HTML format on the eLearning site while the booklets can be purchased separately.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

Creating Multilingual Web Sites

■ Overview

Do you want to reach more people and generate more orders with a multilingual Web site? Do you want to set up your multilingual Web site in a manner that will make localization easier?

This workshop first discusses why businesses should globalize their Web sites and why both customers and vendors will often encounter surprising complexities in the process. In particular, the seemingly simple issue of handing off the Web site content is shown to be quite complex and full of pitfalls.

The language support features of the fundamental Web technologies (HTML, CSS, XML, XSL) are then presented. You will learn how to apply these features to the design of both static ("brochureware") and transactional Web sites.

Are you sure your investment in translating Web pages has not been wasted? Learn how to ensure Web users find the pages available in their language. Learn also how to produce multilingual forms and how to retrieve multilingual data from them.

The workshop wraps up by showing how to design and build a multilingual Web site and with a brief overview of Globalization Management Systems: systems designed to automate Web localization workflow.

■ Target Audience

This course is intended for web masters, web developers, web designers, web product managers, web testers, basically all stakeholders of your web application.

■ Benefits

This workshop provides attendees with detailed knowledge of the internationalization features of HTML and related technologies, as well as recommended best practices on how to combine them into a usable and maintainable multilingual Web site.

■ Duration

The agenda described below is for a one-day session.

■ Pre-requisites

There are no pre-requisites for this workshop, but prior attendance to the "All About Internationalization" workshop will provide a deeper understanding.

■ Agenda

1. Business And Philosophy

- Why do we do develop multilingual Web sites?
- What is the ROI?
- Why is it difficult?
- The fall of English; the complexity of code
- Ignorance & Underestimation

2. The Web Building Blocks

A quick review of the basic web technologies to bring everyone to the same level.

- Global Interoperability
- Where are the Web standards?
- HTML & CSS
- HTTP & URL
- Client-Side & Server-side scripting

3. Connecting Customer & Vendor

- "Just Make it International"
- "Just Grab It"
- The Customer-built Translation Tool
- The content life cycle vs. translation
- Establishing a sustainable localization process

4. Character Sets and HTML

- Brief review of character sets and Unicode
- Character Set Identification
- Character Set Selection
- What can go wrong?
- IANA 'CharSet' Registry
- Browser Priorities For CharSet
- Foreign "Language" Text Entry: HTML escaping mechanisms
- Transcoding & the Reference Internationalization Model
- Early Uniform Normalization

5. Language Identification, Negotiation & Navigation

Getting the user to the right page!

- Why language information?
- Language Tags in HTML (and XML)
- Language Selection
- Simple Language Selection
- Automated Language Selection
- Designing language selection controls

6. Multilingual Forms, Links, and Style Sheets

- Forms and Query Parts
- Multilingual Form Example
- CSS Font Specification
- is Harmful
- Ruby
- Style Sheets & Character Sets
- Style Sheet Authoring

7. Designing the Multilingual Site

- IDN: International Domain Name
- IRI/IRL: Multilingual URI/URL
- Organizing Multilingual Files & Directories
- Language tags vs. language directories
- Managing Localizables
- Localizables: Identification & Externalization
- Localizables: Baking vs. Frying Content
- Managing risk vs. single executable

8. Web Localization Workflow

The steps of web localization and how they can be automated by Globalization Management Systems.

- Content Interface
- Workflow Interface
- Change Detection

- Job Creation
- Extraction
- Segmentation & Leveraging
- Costing & Approval
- Work Distribution
- Translation
- Review
- Functional Testing
- Work Completion
- Delivery & Notification
- Billing & Collecting
- Job Archival

■ Handouts

Each attendee will receive a 200+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

Oracle Internationalization

■ Overview

The Oracle Internationalization workshop provides attendees with a broad understanding of internationalization processes, issues and pitfalls as well as the specific features and methods required to internationalize an Oracle database.

The workshop shows how Oracle deals with: character sets and Unicode (including surrogates, UTF encodings, normalization forms and transcoding), locales and locale models for client-server applications, resources and resource maintenance, sorting & searching, date & time processing, formatting of numbers and currency, text processing functions, etc. Schema internationalization (tables, indexes) is discussed along with its performance and scalability implications. SQL and PL/SQL code internationalization is discussed for stored procedures, views, CHECK constraints, triggers and client-side SQL.

Attendees will leave with a clear understanding of how to correctly and efficiently internationalize their database schema and stored procedures.

■ Target Audience

This course is intended for DBA, DB developers, software developers, software architects, software technical project managers and team leaders. It is highly recommended that attendees have a working knowledge of databases, SQL. Knowledge of PL/SQL is also useful (mostly for chapter 6).

■ Benefits

This workshop provides DBA and DB developers with a solid practical foundation on Oracle database internationalization. Attendees will save literally months of confusion with the Oracle Globalization Guide.

■ Duration

The agenda described below is for a one-day session (or 1.5 days with supervised hands-on exercises).

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop.

■ Agenda

1. Oracle Internationalization

- Oracle application development
- Globalization features of Oracle versions

2. Oracle and Locales

- Oracle locale types: client, server, database, session
- Locales and views, triggers and constraints
- The Oracle hierarchy of NLS parameters
- Setting and retrieving NLS parameters in SQL and PL/SQL

3. Oracle and Character Sets

- Character set architecture and requirements
- The database & client character sets
- Character set identification and enumeration
- Character set conversion for SQL statements and SQL data
- Length semantics
- Choosing character sets and a Unicode strategy

4. Oracle Collation: Linguistic Sorting

- Generic collation
- Oracle binary sorts, monolingual sorts, multilingual sorts
- How to sort with NLS_COMP & NLSSORT
- Case insensitive and accent insensitive sorts
- Reduced strength collation
- Linguistic indexes

5. Internationalizing the Schema

- The cultural dimensions & field cultural categories
- Field expansion, splitting, merging
- Cultural "multiplication"
- Normalization vs. culture
- Schema modifications for translation maintenance

6. Internationalizing the SQL Code

- Unicode data types and type conversions
- Unicode file I/O
- Text processing functions
- Number and currency formatting
- Date & time formatting

7. Character set migration

- Migration costs and high-level tasks
- CSSCAN: the database character set scanner
- CHAR-based and NCHAR-based migration strategies
- From import/export to zero-downtime on-the-fly!

■ Handouts

Each attendee will receive:

- A 220+ page booklet, one slide per page, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.
- A color-coded hierarchical “quick reference” to all Oracle NLS parameters.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

SQL Server Internationalization

■ Overview

The SQL Server Internationalization workshop provides attendees with a broad understanding of internationalization processes, issues and pitfalls as well as the specific features and methods required to internationalize an SQL Server database. In particular, the issues related to full-text search on international data are presented.

The workshop shows how SQL Server deals with: character sets and Unicode (including surrogates, UTF encodings, normalization forms and transcoding), locales and locale models for client-server applications, resources and resource maintenance, sorting & searching, date & time processing, formatting of numbers and currency, text processing functions, etc. Schema internationalization (tables, indexes) is discussed along with its performance and scalability implications. SQL and Transact-SQL code internationalization is discussed for stored procedures, views, CHECK constraints, triggers and client-side SQL.

Attendees will leave with a clear understanding of how to correctly and efficiently internationalize their database schema and stored procedures.

■ Target Audience

This course is intended for DBAs, DB developers, software developers, software architects, software technical project managers and team leaders. It is highly recommended that attendees have a working knowledge of databases and SQL (and have taken the pre-requisite "All About Internationalization" workshop).

■ Benefits

This workshop provides DBAs and DB developers with a solid practical foundation on SQL Server internationalization. Time will be saved as this workshop presents a cohesive overview from many reliable sources along with tested, working examples.

■ Duration

The agenda described below is for a one-day session (or 1.5 days with supervised hands-on exercises).

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop.

■ Agenda

1. SQL Server Internationalization

- SQL Server application development
- Globalization features of SQL Server versions
- Useful books and articles

2. SQL Server and Locales

- Collations: the SQL Server locales
- Languages, character sets and collations
- Server, login and session languages: what they affect

3. SQL Server and Character Sets

- Character set architecture
 - N types are Unicode, "non N-types" are code pages
 - System values are "Unicode"
 - UCS-2 vs. UTF-16 (vs. GB18030)
- Communications: ADO, OLE DB, DB-Library, transcoding
- Character set identification and enumeration
- Choosing character sets and a Unicode strategy
- Character set migration

4. Collations in SQL Server

- Collations: what they are and what they do
 - Sorting
 - Matching
 - CharSet for non-Unicode columns
- Case insensitive, accent insensitive, kana-insensitive and width-insensitive collations
- Windows collations and SQL collations
- Collations at the server, database, column and expression levels
- Collation Precedence Rules
- Indexes and multiple language indexes for a single column

5. Internationalizing the Schema

- The cultural dimensions & field cultural categories
- Field expansion, splitting, merging
- Normalization vs. culture
- Schema modifications for translation maintenance

6. Internationalizing the SQL Code

- Unicode data types and type conversions
- Text processing functions, stored procedures
- Date & time formatting
- Number and currency formatting

7. Full-text Search vs. Multilingual Data

- Languages and indexing
- Languages and querying
- Word breakers and performance

■ Handouts

Each attendee will receive a 250+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

Internationalization & Localization Testing

■ Overview

Do you want to create a multilingual testing capacity in your organization? Do you want to offer multilingual testing services to your customers? Do you want to globalize your existing monolingual test organization? Do you want to outsource language testing and get the most out of it?

This workshop teaches the fundamentals of internationalization and localization testing. Both management and technical aspects are covered in a practical, pragmatic manner. Numerous examples and actual sample test strategies, test plans, and test cases are provided.

This workshop will show you how to set up a global testing organization along with associated workflow, planning and management structures. You will learn how to leverage industry best practices, methods, tools and techniques.

Build a global testing effort on top of your existing test procedures, test documents and test data. You will learn how to decide what to test and what not to test. This knowledge will be ready-to-use the very next day!

■ Target Audience

This course is intended for testers, test leads, test managers, as well as developers, product managers, project managers and team leaders.

■ Benefits

This workshop provides quality assurance and other software professionals with a complete picture of internationalization and localization testing. The course describes how to move from a monolingual testing organization towards a fully functional global testing organization.

■ Duration

The agenda described below is for a two-day session.

■ Attendee Required Materials

For best teaching flexibility, it is recommended that attendees bring portable computers (one computer for each two attendees is sufficient). Nevertheless, this workshop does not require attendees to bring portable computers. If there are not enough computers, a different set of exercises will be used.

■ Pre-requisites

Prior attendance to the "All About Internationalization" workshop is recommended, either the onsite or the self-paced eLearning version.

■ Agenda

1. Concepts: Testing and Globalization

- Testing principles, types, phases, deliverables, roles, standards
- Testing vs. the generic internationalization model

2. Character Sets and Unicode (from a testing point of view)

- A brief history of character sets: ASCII, Shift-JIS, GBK, and Unicode
- Pros and cons of the basic Unicode encodings: UTF-8, UTF-16, UTF-32
- Unicode equivalent sequences and the need for normalization
- Databases: multilingual schema design and migration to Unicode

3. Testing Economics

- Budgeting and staffing for the multilingual test organization
- Estimating testing efforts
- Configuration and change management for multilingual software

4. Testing Workflow

- Requirements management for global software
- Configuration management for global software
- Test suite management for global software

5. Test Lab and Platform Coverage

- Setting up a multilingual test lab
- Testing tools
- Scheduling in the multilingual test lab
- Pattern Approach and All Pairs Approach
- Resource allocation to maximize test coverage with minimal time

6. Globalization Test Strategy

- Building a globalization test strategy
- Requirements analysis, Quality factors, Technical risks and Failure modes
- What not to test

7. Test Plans and Test Cases

- Building a globalization test plan
- Test plan guidelines
- Functional testing and linguistic validation
- Multilingual GUI testing
- Cultural concerns
- Install/uninstall on multilingual platforms
- Test case design
- Equivalence classes
- Classifying test cases

8. Bug Triage

- Bug definition and bug isolation
- Decision making in a global organization
- Multilingual bug workflow and state diagrams
- Process improvement

9. Testing Steps and Wrap-up

- Documentation validation
- Pseudo translation
- Source code reviews
- Localization testing steps
- Multilingual text and numeric data
- Establish testing goals
- Define a team model
- Organize workflow
- Staff the team
- Setup a testing lab

■ Handouts

Each attendee will receive:

- A 300+ page booklet with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.
- Samples: internationalization test plan, test case form, test strategy and status report (included in the booklet).

About our Instructor – Matta Saikali

Matta has more than 25 years' experience in internationalization and localization testing. His testing experience covers more than 30 languages including European, Asian, Arabic, Hindi, etc.

Formerly Director of Software Quality Assurance at Gemplus, Matta built up and managed a team of 50+ SQA professionals responsible for testing globalized Windows applications and mobile devices in European and Asian languages.

As Director of SQA at Purkinje, Matta managed the testing team for a multilingual multi-user client-server application for clinical data entry.

Matta was also SQA team leader at ALIS where he was involved in testing all ALIS products, notably their Arabic/Farsi product line.

Additionally, Matta holds a B. Sc. and M. Sc. in Electrical Engineering.

Globalization Project Management

■ Overview

Your company just decided to market worldwide a product you are currently managing. What do you do? What are the challenges? How do you prepare for success? What are the numerous pitfalls to avoid?

This workshop teaches the fundamentals of managing a software project which will be deployed worldwide. The problems and challenges facing managers are explained in detail along with recommended solutions and industry best practices. Numerous examples and exercises are provided. This workshop will show you how to build globalization expertise, how to work with global requirements, how to work with the development, testing, documentation, services and other teams, how to build estimates, how to track tasks, how to manage outsourced resources, and much more.

You will learn how to adapt your current methods and work practices for managing the deployment of a global product.

■ Target Audience

This course is intended for project managers, product managers, team leads, documentation managers, development managers, customer support managers, professional services managers and test managers.

■ Benefits

This workshop provides software managers with an insight to the challenges facing them in their task to manage a project being built for the global market. The workshop describes how to successfully prepare and run a globalization project task.

This workshop will prepare you for all aspects of managing a globalization project. You will know the issues, you will know the pitfalls and you will know the solutions. The workshop will provide you with a clear understanding of industry best practices, how to apply them and what their benefits are. You will learn how to clearly and efficiently communicate globalization concepts and issues.

■ Duration

The agenda described below is for a one-day session.

■ Pre-requisites

None.

■ Agenda

1. Why globalize?

- What is the driving force?
- Market growth or potential loss of market share?
- Who are the stakeholders?

2. Build i18n expertise

- Character sets and encodings
- Fonts & glyphs
- Cultural data: date, time, images, sounds, ...
- Text processing: searching, sorting, grammatical issues, etc.
- Input/output problems: import/export, upload/download, cut & paste
- User interface and pseudo translation
- Building a network of experts

3. Globalization Requirements

- Multiple languages vs. multiple countries vs. multiple locales
- locale tiers and locale/market deployment plans
- Elaborating the Unicode requirement: encodings, forms, etc.
- Manage and prioritize requirements
- Developers don't always understand foreign users
- Globalization usage scenarios

4. Working with the other teams

- Development
- Configuration management
- Testing
- Documentation
- Customer support
- Professional services
- Outsourced resources

5. Process and tracking

- Development lifecycle
- Process evolution
- Risk management
- Realistic estimation
- Sample estimate component
- Roles and Responsibilities

■ Handouts

Each attendee will receive a 200+ page booklet, one slide per page, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Matta Saikali

Matta has more than 25 years' experience in internationalization and localization testing. His testing experience covers more than 30 languages including European, Asian, Arabic, Hindi, etc.

Formerly Director of Software Quality Assurance at Gemplus, Matta built up and managed a team of 50+ SQA professionals responsible for testing globalized Windows applications and mobile devices in European and Asian languages.

As Director of SQA at Purkinje, Matta managed the testing team for a multilingual multi-user client-server application for clinical data entry.

Matta was also SQA team leader at ALIS where he was involved in testing all ALIS products, notably their Arabic/Farsi product line.

Additionally, Matta holds a B. Sc. and M. Sc. in Electrical Engineering.

All About Globalization Requirements

■ Overview

Have you ever had to take a product and adapt it to the world market? Have you ever had to gather multilingual software requirements? How can you describe requirements which vary for different locales? Have you ever had a tight budget forcing you to choose which features to implement and which features to defer? Did you face this problem on a global scale?

Requirements are a critical part of any software project and become extremely complex when simultaneously facing the needs of different locales. This workshop shows you how to systematically approach requirement management for software projects independent of your development process.

The workshop walks you through all phases of a requirement life cycle including elicitation, elaboration, workflow, prioritization, development, testing, deployment and support. Several real life examples from successful globalization projects are covered. You will take home tools, templates and techniques that you can use right away!

■ Target Audience

This course is intended for executives, testing and development managers, internationalization directors, localization managers, program and project managers, marketing product and requirement managers, and translation agencies and translators.

■ Benefits

This workshop will help you understand how locale specific requirements are implemented, add globalization requirement management to established workflows, gain insight into organizational impact of software globalization, describe, prioritize, manage, deploy and support globalization requirements in each locale.

■ Duration

The agenda described below is for a one-day session.

■ Pre-requisites

None.

■ Agenda

1. An Introduction to Global Requirements

- Why are requirements so important?
- Requirement economics: the cost of bad requirements
- A generic model of internationalization

2. Globalization Requirements Basics

- Requirements concepts
- Product Development Processes: waterfall, spiral, agile
- Localization, simship and agile development
- The globalization dimensions: locale, language, country
- Requirements lifecycle
- Standards & Tools

3. Requirements Prioritization and Classification

- Roles and responsibilities, country managers vs. central managers
- Requirements scope: global vs. regional vs. local
- Tips how to prioritize global requirements

4. Requirements Elicitation

- Techniques to elicit global requirements: Interviewing, questionnaires, observation, document study, and prototyping
- Finding locale-specific requirements
- Finding missing requirements

5. Requirements Elaboration

- Use cases
- Scenarios
- Databases and spreadsheets
- Global requirements meta-spec

6. Defining Globalization Requirements

- Writing for Translation: colors, attributes, indexes, synonyms, ...
- Unicode and encodings
- Languages, locales, locale negotiation, locale tiers
- Messaging: concatenation, text expansion, context, audience

- Formatting: numbers, currency, date, time, calendars,...
- Text processing: sorting, searching, wrapping,
- UI design: alignment, layout, fonts, colors, images, address forms
- Measurement systems, page sizes
- Language-specific issues: reading fields, dual sorts, bidi issues, ...
- Local laws: privacy, banking, taxes; USA law on encryption key size, ...

7. Getting Started

- Basic steps
- Resources: tools, books, links

■ Handouts

Each attendee will receive:

- A 200+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.
- A 10-page globalization requirements checklist, to serve as starting point for defining globalization requirements.

About our Instructor – Matta Saikali

Matta has more than 25 years' experience in internationalization and localization testing. His testing experience covers more than 30 languages including European, Asian, Arabic, Hindi, etc.

Formerly Director of Software Quality Assurance at Gemplus, Matta built up and managed a team of 50+ SQA professionals responsible for testing globalized Windows applications and mobile devices in European and Asian languages.

As Director of SQA at Purkinje, Matta managed the testing team for a multilingual multi-user client-server application for clinical data entry.

Matta was also SQA team leader at ALIS where he was involved in testing all ALIS products, notably their Arabic/Farsi product line.

Additionally, Matta holds a B. Sc. and M. Sc. in Electrical Engineering.

All About Arabic

■ Overview

Arabic is one of the, if not the, most difficult languages to deal with in software.

This workshop teaches the key aspects of Arabic Language Information Processing. It covers the Arabic language and culture and the special relationship between them. The Arabic writing system, with its contextual rules and complex ligatures, is presented. We will look at Arabic characters, how they are entered, stored and displayed. All important Arabic coding systems will be covered. The features of bi-directional writing will be explained: directional characters, neutral characters, mirror characters etc. The Unicode algorithm will be discussed, and simple rules to follow in Word and HTML will be presented.

The workshop then covers the various tools available today to help process Arabic data and concludes by presenting insights and experience on doing business in the Arabic world (partnerships, sponsorships, transactions, etc.)

■ Target Audience

This course is intended for software developers, web developers, testers and team leaders, as well as for executives and product managers (who need to understand why they must plan more time for Arabic support than for Chinese, for example).

Localization engineers and translators that deal with the Arabic language will also benefit from this workshop.

■ Benefits

After taking this workshop you will be ready to target the Arabic market with your product: you will know how to do business, what requirements to consider, what changes your software or Web site or embedded system requires, and how to implement those changes.

■ Duration

The agenda described below is for a one-day session.

■ Pre-requisites

None.

■ Agenda

1. Arabic Culture

This module will explore the religious importance of writing in the Islamic world. We will review the history of Arabic and the current demographics of the Arabic language and where it is used in the world.

2. Arabic Writing System

This module covers Arabic writing including the alphabet, context analysis, sliding, diacritics and ligatures. We will review different Arabic scripts.

3. Arabic Data Representation

This module describes how Arabic data is represented on computer systems. We will look at logical versus visual order of Arabic text. The coding and rendering of Arabic data is discussed. A review of Arabic fonts and basic Arabic data entry, storage and display with examples from MS-Word, HTML and Oracle.

4. Arabic Language Processing

Of paramount importance to security applications is the ability to scan, search and identify Arabic text. This module reviews searching approaches, scanning tools, OCR technology. We will also discuss advances in Speech recognition technology and Arabic Machine Translation.

5. Arabic Information Systems

This module explores how Arabic text is used in many information systems. How is Arabic included in e-mail, HTML web pages, PDF files or in text? We will look at how Arabic data is represented on the web including image (gif) and text methods. A live demonstration of Arabic data entry and display is included.

6. Doing Business in the Arabic World

This module provides some insights into how to do business in the Arabic world. Several aspects of partnering and example business transactions are included. Insights and real business experiences are provided.

7. Tools and Technologies

This module will look into capabilities of tools and technologies available to support Arabic Language handling, display and processing. Companies in the Arabization business will be discussed and different Arabization and localization solutions will be presented.

■ Handouts

Each attendee will receive a 200+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Matta Saikali

Matta has more than 25 years' experience in internationalization and localization testing. His testing experience covers more than 30 languages including European, Asian, Arabic, Hindi, etc.

Formerly Director of Software Quality Assurance at Gemplus, Matta built up and managed a team of 50+ SQA professionals responsible for testing globalized Windows applications and mobile devices in European and Asian languages.

As Director of SQA at Purkinje, Matta managed the testing team for a multilingual multi-user client-server application for clinical data entry.

Matta was also SQA team leader at ALIS where he was involved in testing all ALIS products, notably their Arabic/Farsi product line.

Additionally, Matta holds a B. Sc. and M. Sc. in Electrical Engineering.

All About Arabic for Programmers

■ Overview

The Arabic script is **the** most difficult to deal with in software.

This workshop teaches the key aspects of Arabization i.e. the process of adding Arabic support to software systems. It starts with a brief overview of the Arabic culture and follows with the Arabic writing system and its contextual rules, complex ligatures, harakat (vowels), numbers and bi-directional display, etc.

The workshop then covers Arabic data representation in depth: characters sets, encodings, contextual forms, Unicode Arabic blocks and the specific encoding issues for all character classes: letters, digits, neutrals, mirrors, lam-alef, harakat, etc.

With this foundation in place, it moves on to the Unicode Bidirectional Algorithm (UBA) describing basic concepts, rules, character classes, testing tools, development issues, etc. A chapter of common UBA problems and fixes is also presented.

Two more chapters focus on Input and Output. Input concerns the complexities of Arabic data entry and editing, including strange UBA side-effects and how to mitigate them. Output is about modern UI design issues including common controls, font selection, justification, etc.

The remaining chapters review Arabic/bidi support on major platforms: one chapter each for the Web, Android and IOS.

■ Target Audience

This course is intended for software/app developers, web developers, testers and team leaders, or anyone involved in Arabic support that has some technical background.

■ Benefits

After taking this workshop you will be ready to start arabizing your product. You will know the main issues and common pitfalls and you will know the solutions. You will know what requirements to consider, what changes your software or Web site or app requires, and how to implement those changes.

■ Duration

The agenda described below is for a 2-day session.

■ Pre-requisites

This workshop presumes that attendees have already taken the "All About Internationalization" workshop, either onsite or in the self-paced eLearning format.

■ Agenda

1. Arabic Culture

A brief overview of the Arabic culture including the various bilingual Arabic markets.

- History of the Arabic script, calligraphy, religion
- Arabic in today's world

2. Arabic Writing System

Presentation of the Arabic writing system: letters and numbers.

- Basic Arabic alphabet (abjad), Persian vs. Arabic, Romanization
- Contextual shapes, kashida (tatweel), harakat, lam-alef and other ligatures
- Numeric display, digit shapes, decimal and thousands separators, mathematics

3. Arabic Data Representation

An in-depth look at Arabic data representation in shape encodings, legacy encodings and Unicode.

- Logical vs. visual order, contextual forms vs. characters
- Legacy encodings (ASMO, ISO, Windows) & the Unicode Arabic blocks
- Representation and transcoding for: letters, harakat, numbers, neutrals, mirrors...

4. The Unicode Bidirectional Algorithm (UBA)

An in-depth presentation of the Unicode Bidirectional Algorithm including all Unicode bidirectional character classes and bidirectional controls.

- Basic concepts: Base direction, language insertions, directional runs
- Neutral character rules and mirror characters
- Numeric classes, rules, examples
- Bidi controls: RLM, LRM, RLE, LRE, RLO, LRO, PDF.
- New Unicode 6.3 directional isolates: LRI, RLI, FSI, PDI.

5. Common UBA Problems & Solutions

A taxonomy of UBA problems that highlights all the common ones.

- Problems with language insertions: hanging neutrals, insertion reversal...
- A real problem with parentheses
- Problems with numeric insertions, phone numbers, MAC addresses
- A real problem with Google Maps
- Bidi problem & solution patterns.

6. Arabic Data Entry & Editing

The numerous quirks of bidi editing.

- Arabic keyboard layouts and usage
- Language and keyboard control under Windows
- Base Direction
- Bidi text entry and editing
- Bidi cursor and selection
- Bidi surprises in copy & paste!

7. Arabic Data Display

Practical tips on designing an Arabic User Interface.

- Arabic fonts: harakat support, ligatures, font pairing, font attributes
- Images: translatable, directional and cultural
- Mirroring of UI widgets: navigation, undo/redo, progress bars, sliders...
- Mirroring of UI layouts: web pages, graphs, bidi forms...
- Line wrapping and justification

8. Arabic on the Web

Theory and practice of Arabic handling on the Web.

- Core concept: encoding, language, direction
- Arabic HTML
- Arabic CSS
- A practical case: Bidi-ing the Test Bench
- Common Web Problems and Solutions

9. Arabic on Android

Theory and practice of Arabic handling on Android.

- Getting Started
- Locales & Pseudolocales
- Bidi UI specifics
- Arabic & RTL Resources
- UBA Support
- Fixing Bidi Problems

10. Arabic on iOS

Theory and practice of Arabic handling on iOS.

- Getting Started
- Locales & Pseudolocales
- Bidi UI specifics
- Arabic & RTL Resources
- UBA Support
- Fixing Bidi Problems

■ Handouts

Each attendee will receive a 600+ page booklet, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Pierre Cadieux

Pierre Cadieux is a veteran with over 40 years' experience in internationalization of software, Web sites and mobile devices. He has taught internationalization at the Université de Montréal. Pierre has been technology editor for the LISA newsletter, VP Technology at ALIS and director of technology at Bowne Global Solutions.

At ALIS, Pierre pioneered the transparent handling of Arabic and Hebrew languages and created the core bi-directional technology licensed by Microsoft.

As Director of Localization Technology at Bowne Global Solutions, he carried out research and analysis on multilingual Web sites and published the first generic model of Globalization Management Systems.

Additionally, Pierre holds a B. Sc. and M. Sc. in Computer Science.

Managing Multilingual XML Content

■ Overview

The Multilingual XML Content workshop will provide attendees with a broad understanding of XML globalization processes, issues and pitfalls. Numerous practical examples, from real projects, will be presented.

The workshop covers how to create and manage multilingual XML content: how to internationalize schemas to make them both world-ready and localizable, how to author effectively, how to code XML/XSL applications with globalization in mind and how to deal with localization.

Attendees will leave with a clear understanding of how to correctly and efficiently internationalize their XML-based content and applications.

■ Target Audience

This course is intended for content producers and editors, project managers and team leaders, XML and XSL developers, document architects, etc. It is recommended that attendees have a basic knowledge of XML and XSL (and have taken the "All About Internationalization" workshop).

■ Benefits

This workshop provides content and software professionals with a solid foundation on document internationalization and a practical, extensive coverage of XML internationalization techniques.

■ Duration

The agenda described below is for a one-day session.

■ Pre-requisites

There are no pre-requisites for this workshop, but prior attendance to the "All About Internationalization" workshop will provide a deeper understanding.

■ Agenda

1. Internationalization features of XML

- Character encodings
- Language tagging
- Normalization
- Human Readable & Internationalized Resource Identifiers

2. International-enabled schemas

- Script support: bidi, ruby
- Language declarations
- Presentation markup

3. Mixing XML and Unicode

- Unicode Technical Report #20
- Markup or character?
- Unadvisable characters

4. The Localization Process

- Content management
- Workflow
- Automated Localization Cycle
- A practical localization scenario
- How to deliver content to translation

5. Localization-ready schemas

- Localization data categories: translatability, translation notes, etc.
- Span element
- Unique IDs

6. The Internationalization Tag Set (ITS)

- Overview, scope
- Local and global selection
- ITS rules

7. Authoring guidelines

- Character set selection
- Text entry and escaping
- Language tagging
- Multilingual documents

8. Coding internationally

- Language equivalence, default language
- Internationalizing style sheets
- Carrying language information

■ Handouts

Each attendee will receive a 150+ page booklet, one slide per page, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – François Yergeau

François Yergeau is a consultant with over 15 years' experience in XML and almost 25 years in internationalization and Web technologies. He has been active in standardization (ISO, IETF, Unicode, W3C), especially internationalization of the Web, as co-editor of the XML specification and as editor or author of five Internet RFCs.

François has been chair of the World Wide Web Consortium (W3C) Working Group on Internationalization Architecture and has been a member of the Conference Board of the Internationalization and Unicode Conference series.

He has also been a member of the Advisory Committee at the W3C as has sat on the XML Core Working Group.

In the last decade his main activities have centered around applying XML and Web technologies in the field of legislation. He holds B.Sc. and Ph.D. degrees.

Documentation: Reducing the Cost of Translation

■ Overview

This workshop begins with a brief description of enterprise-level globalization, a context that has engendered the development of two important processes: internationalization and localization. The workshop then pulls focus to concentrate on the complexity of internationalizing documentation for global markets. While print document is our primary concern, many of the concepts presented also apply to electronic communications.

Document internationalization renders communications as language-independent as possible in order to facilitate localization and meet the needs of different languages and diverse cultures. Using tool-specific, real-life examples, the workshop will demonstrate that internationalization reduces the costs of globalization while increasing overall quality of critical communications.

Attendees will leave with a better understanding of the potential pitfalls of document design and how to avoid them in order to develop communications that will withstand the rigors of eventual localization.

■ Target Audience

This course is intended for document authoring and design professionals.

■ Benefits

This workshop provides document authoring and design professionals with a solid, practical foundation in document internationalization that will ensure an efficient and cost-effective localization process that preserves the graphic signature of source communications.

■ Duration

The agenda described below is for a one-day session.

■ Pre-requisites

None.

■ Agenda

1. The Problem Domain

- Context: enterprise-level globalization
- Overview: terminology and processes

2. Nuts and Bolts

- Design fundamentals and process-specific terminology
- Communication challenges
- Key concepts: expansion and leveraging
- Authoring tools

3. Text Elements and Organization

- Font support and attributes
- Text organization
- Page organization and flows
- Organization utilities

4. Do It with Style

- Overview of style utilities
- A word about Word
- Keeping it together

5. Illustrating the Point

- Container
- Placement and integration
- Portability vs. editability
- Color
- Symbols and Icons

6. Invisibles

- Metadata
- Tables of contents, indexes and lists
- Hidden and conditional text
- Cross-references and Variables

7. Gearing up for Localization

- DTP-specific components
- Localization-specific specifics
- Globalization: an exercise in rethinking communications

8. Q&A

■ Handouts

Each attendee will receive a 250+ page booklet, one slide per page, with ample room for notes, complete with table of contents and glossary. The booklet is designed to serve as a practical easy-to-use reference “book” for regular use during an internationalization project.

About our Instructor – Nancy A. Locke

Nancy A. Locke is an industry veteran with over 14 years' experience as a desktop publishing professional. Nancy is also a freelance writer, public speaker and educator specializing in language matters, and a translator (French > English).

Formerly director of the Localization Certificate program, from 2003 to 2010 she taught courses on the subject of language and globalization, and translation as a profession at the Université de Montréal. She was on the editorial board of Multilingual Computing & Technology, contributing regularly to its pages as well as other print and on-line industry publications. She has worked both freelance and in-house as a desktop publishing professional and translator, and has extensive international work experience.