Xamarin Evolve 2014

Localization Techniques

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Millions of smartphone users CAN'T READ…

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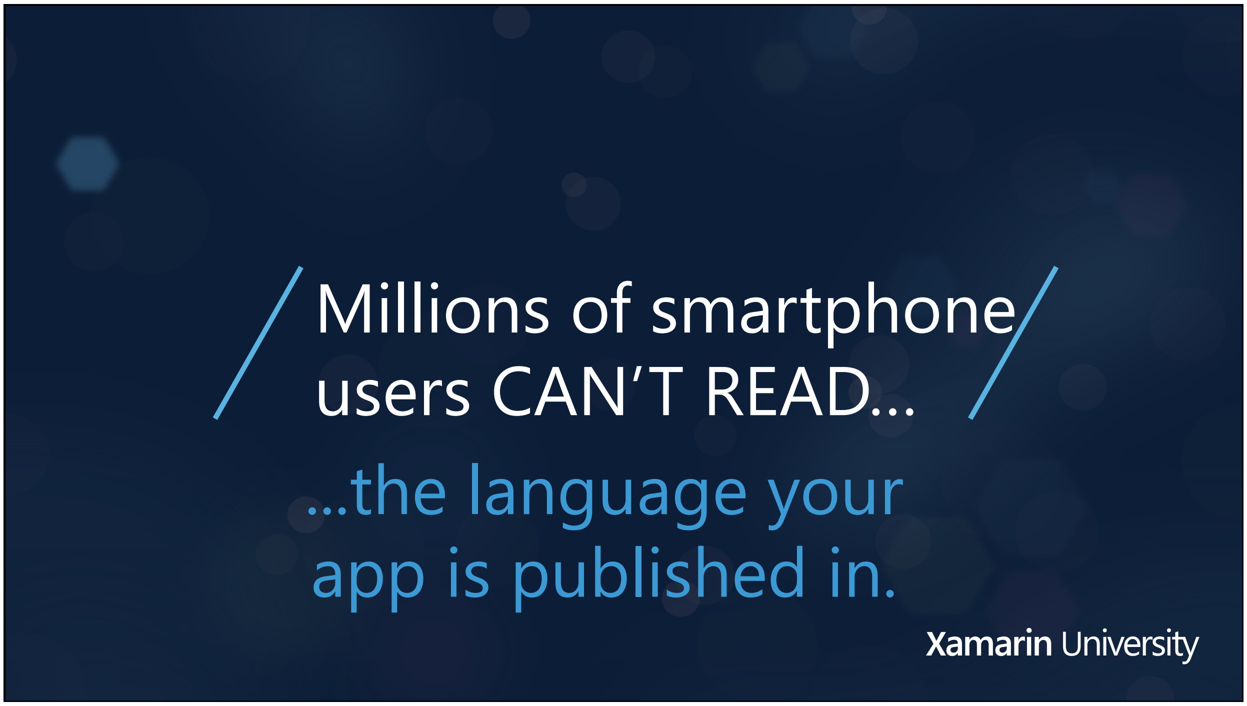

Millions of smartphone users CAN'T READ...

...the language your app is published in.

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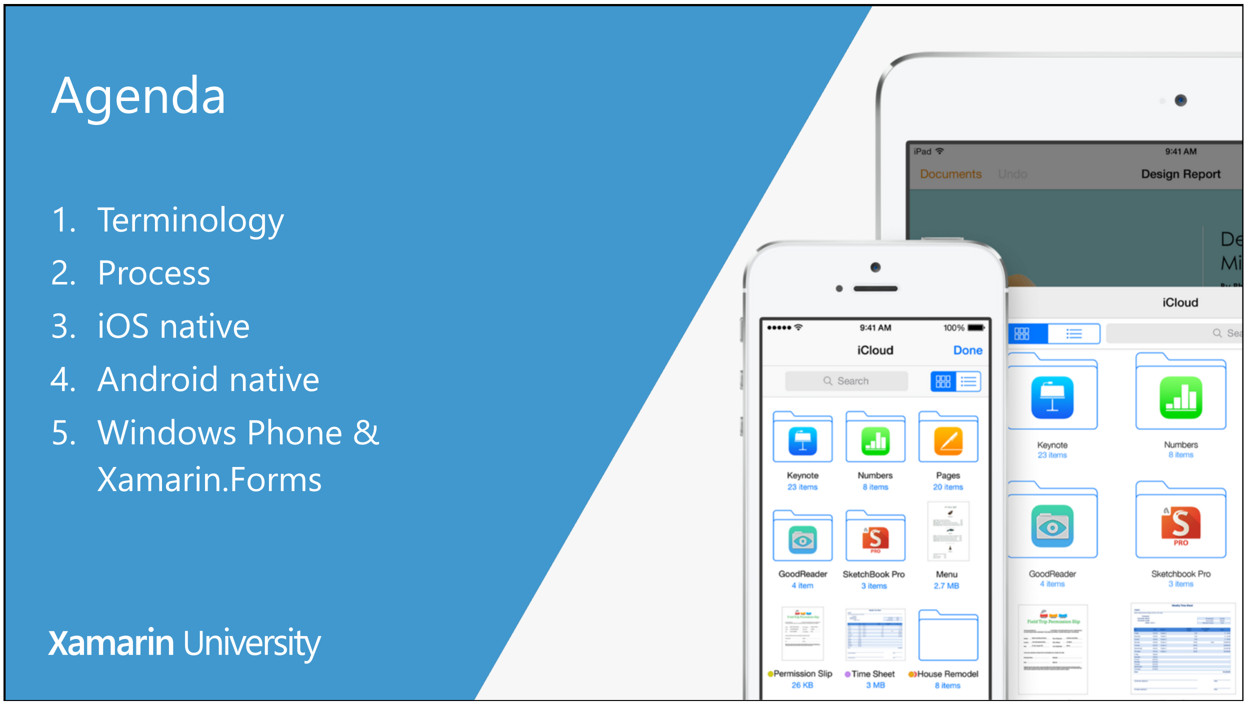

Agenda

1. Terminology
2. Process
3. iOS native
4. Android native
5. Windows Phone & Xamarin.Forms

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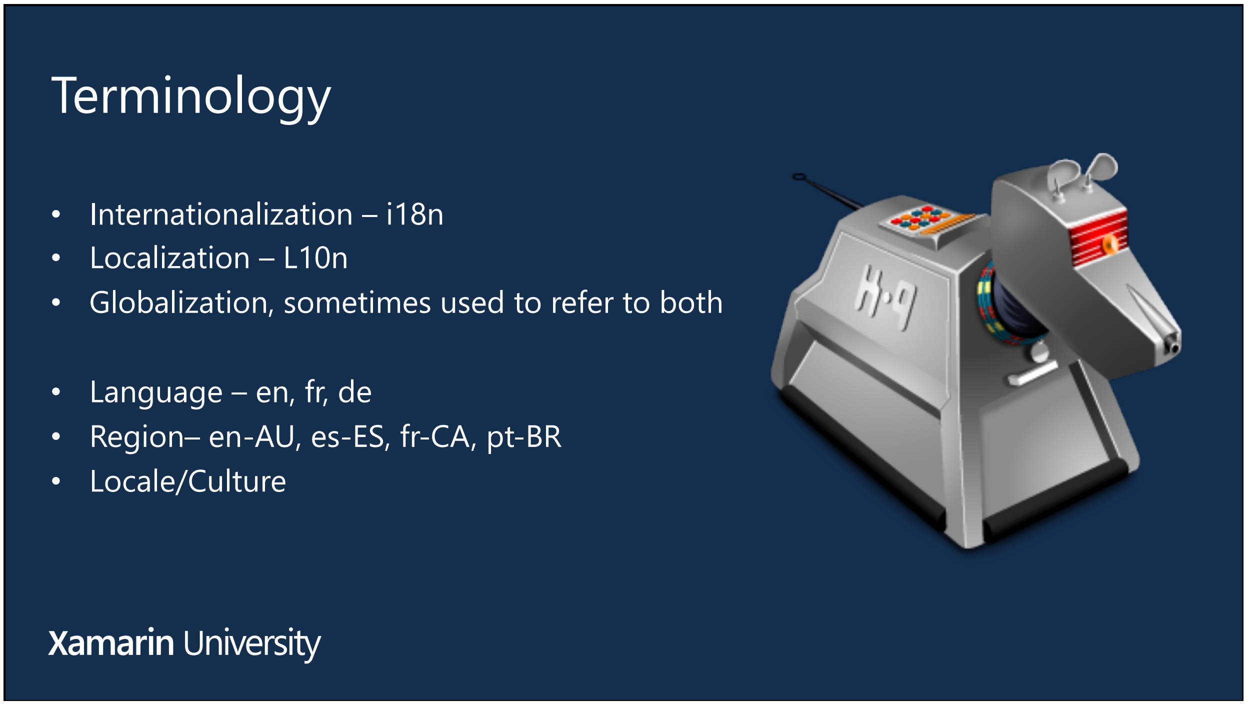
iPad
9:41 AM
Documents
Undo
Design Report
iCloud
9:41 AM
100%
iCloud
Done
Search
Keynote
23 items
Numbers
8 items
Pages
20 items
GoodReader
4 item
SketchBook Pro
3 items
Menu
2.7 MB
Permission Slip
26 KB
Time Sheet
3 MB
House Remodel
8 items
Keynote
23 items
Numbers
8 items
GoodReader
4 items
Sketchbook Pro
3 items

Terminology



Terminology

- Internationalization – i18n
- Localization – L10n
- Globalization, sometimes used to refer to both

- Language – en, fr, de
- Region– en-AU, es-ES, fr-CA, pt-BR
- Locale/Culture

Process

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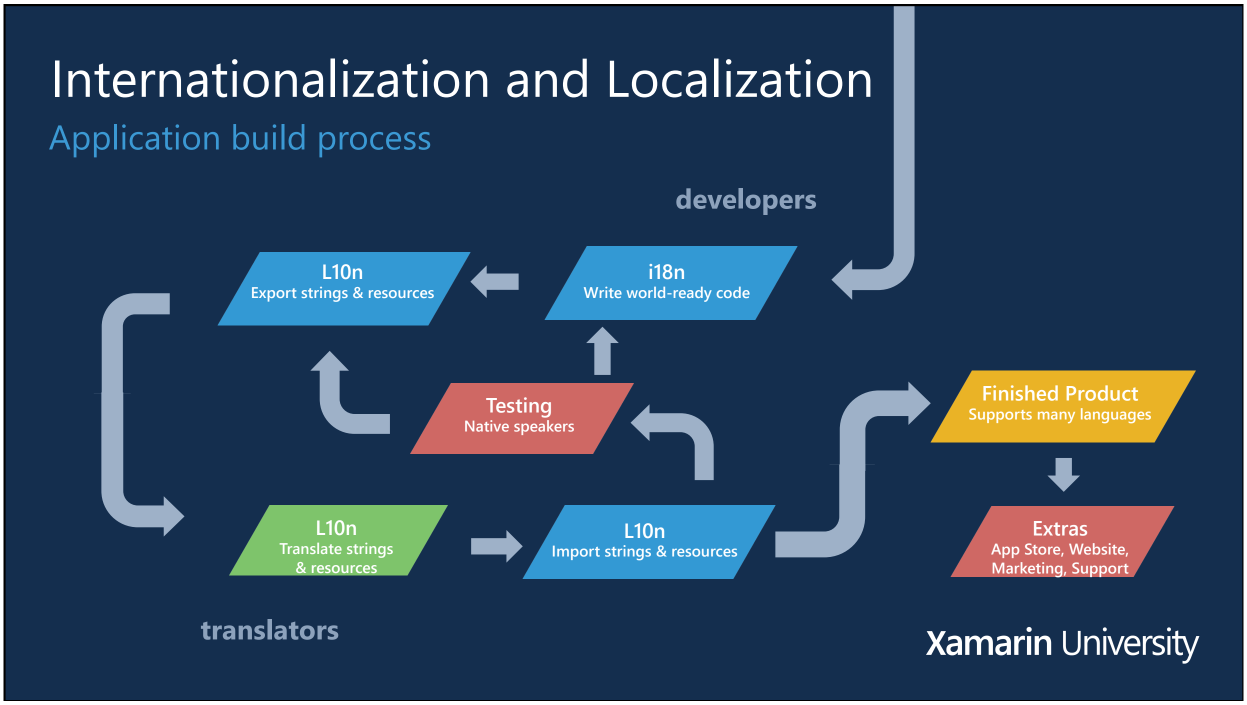

Internationalization and Localization

Application build process

developers

i18n
Write world-ready code

L10n
Export strings & resources

L10n
Translate strings & resources

L10n
Import strings & resources

Testing
Native speakers

Finished Product
Supports many languages

Extras
App Store, Website, Marketing, Support

translators

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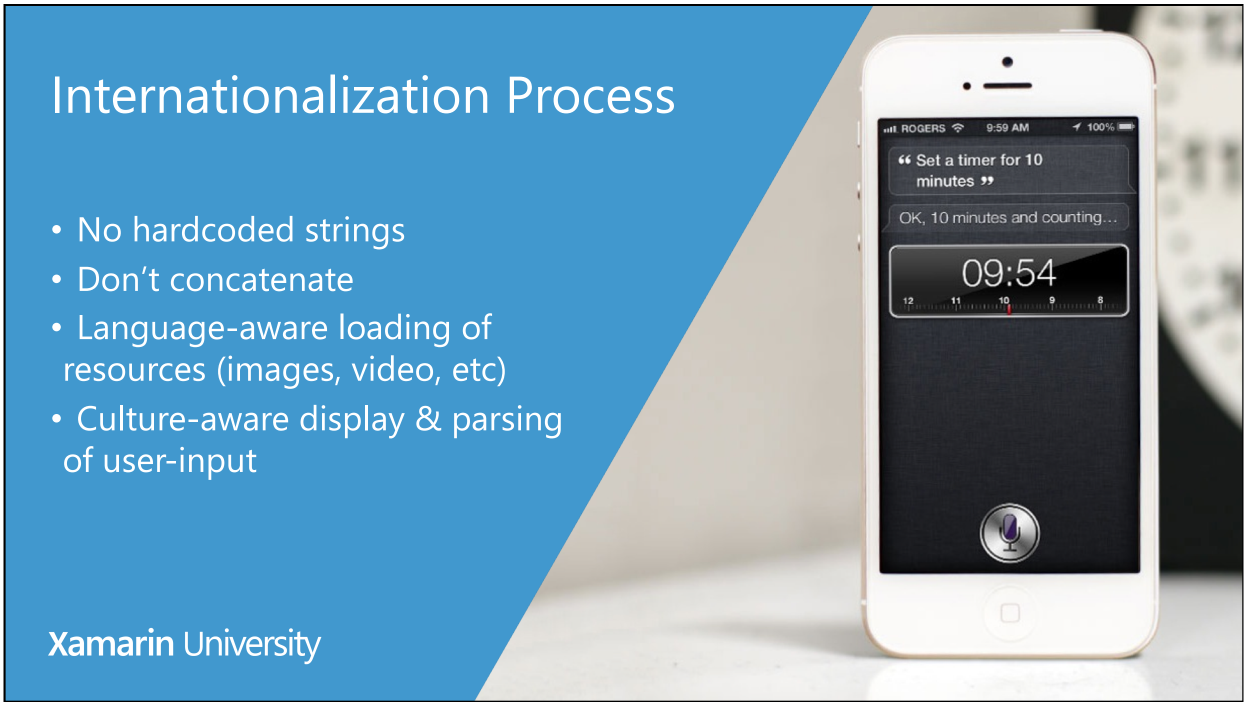

Internationalization Process

- No hardcoded strings
- Don’t concatenate
- Language-aware loading of resources (images, video, etc)
- Culture-aware display & parsing of user-input

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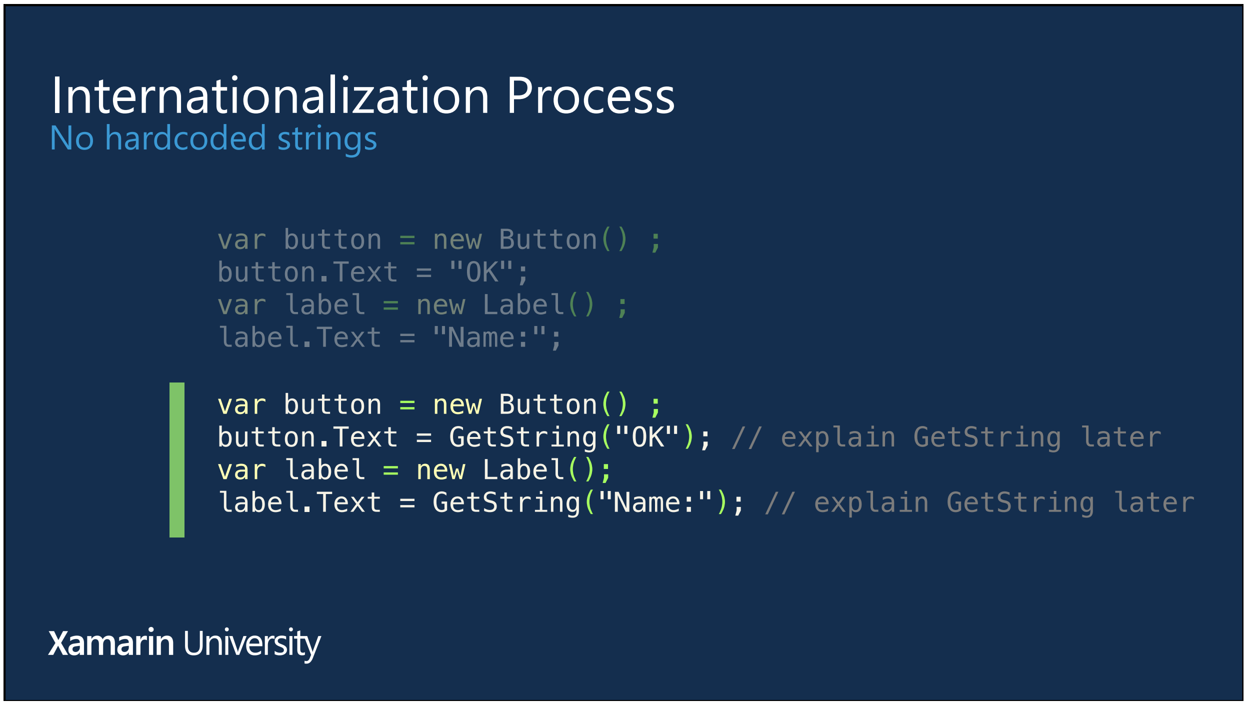

Internationalization Process

No hardcoded strings

```
var button = new Button() ;
button.Text = "OK";
var label = new Label() ;
label.Text = "Name:";

var button = new Button() ;
button.Text = GetString("OK"); // explain GetString later
var label = new Label();
label.Text = GetString("Name:"); // explain GetString later
```

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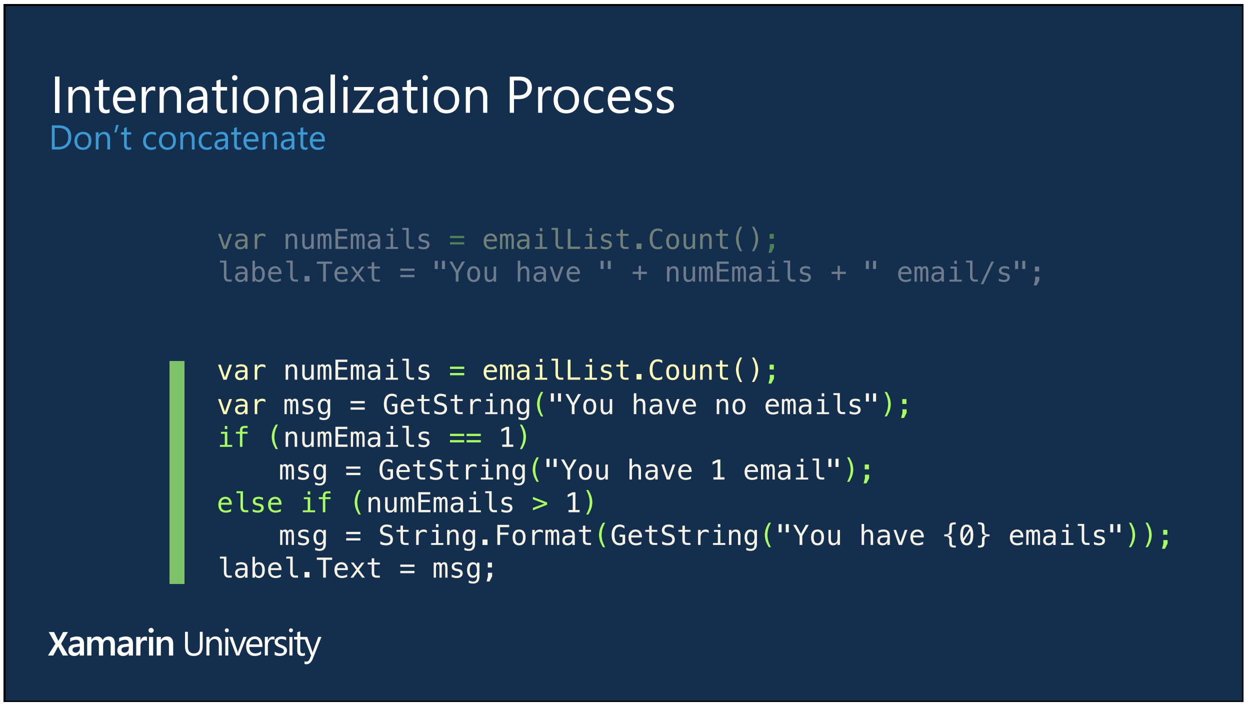

Internationalization Process

Don’t concatenate

```
var numEmails = emailList.Count();
label.Text = "You have " + numEmails + " email/s";
```

```
var numEmails = emailList.Count();
var msg = GetString("You have no emails");
if (numEmails == 1)
    msg = GetString("You have 1 email");
else if (numEmails > 1)
    msg = String.Format(GetString("You have {0} emails"));
label.Text = msg;
```

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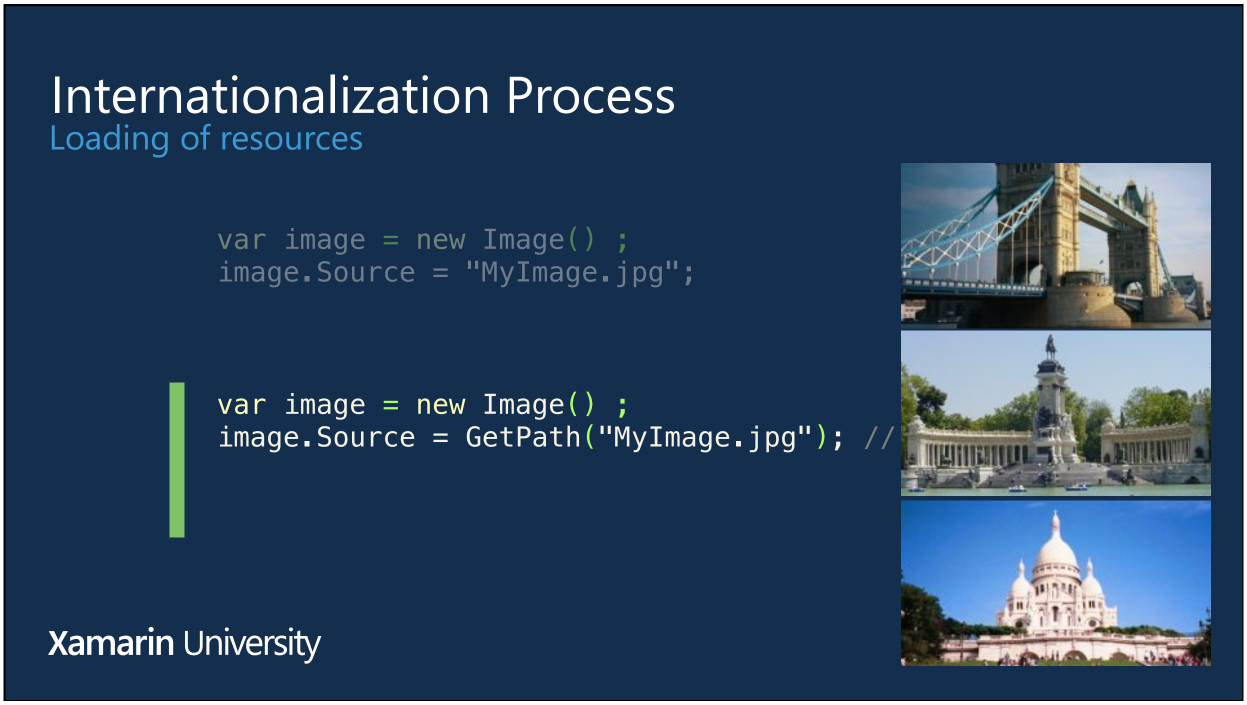

Internationalization Process

Loading of resources

```
var image = new Image() ;
image.Source = "MyImage.jpg";
```

```
var image = new Image() ;
image.Source = GetPath("MyImage.jpg"); //
```

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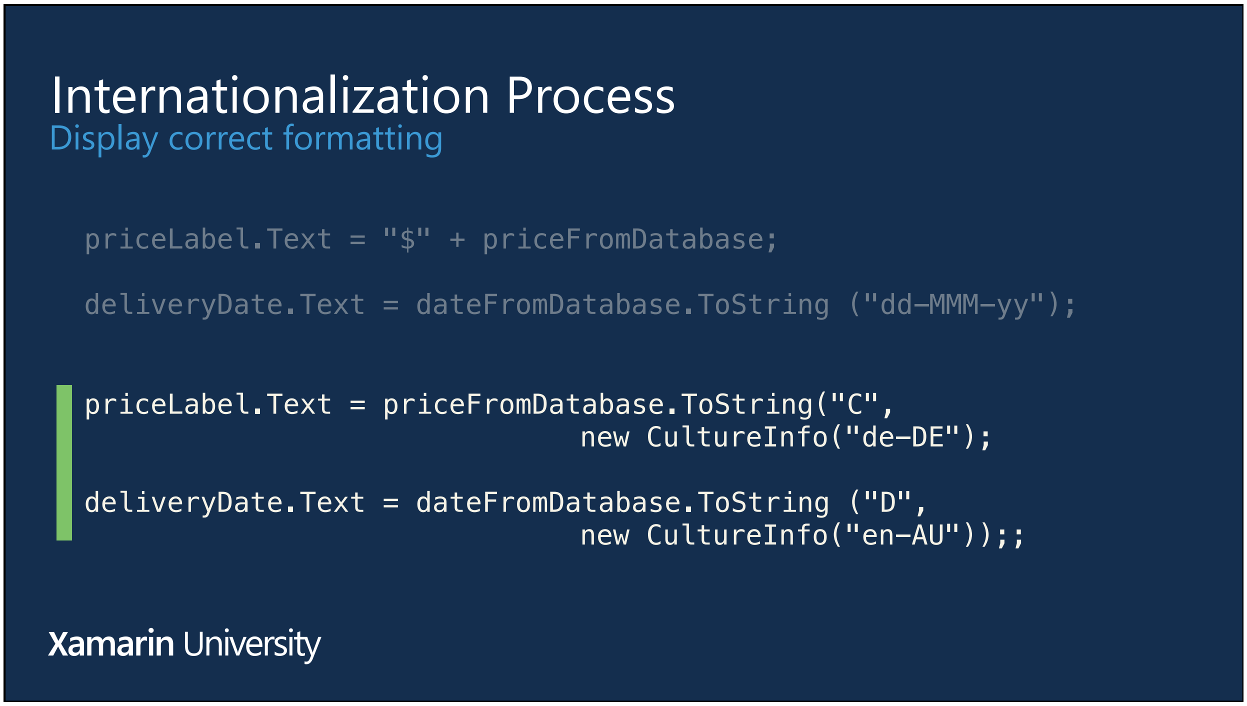

Internationalization Process

Display correct formatting

```
priceLabel.Text = "$" + priceFromDatabase;

deliveryDate.Text = dateFromDatabase.ToString ("dd-MMM-yy");
```

```
priceLabel.Text = priceFromDatabase.ToString("C",
                              new CultureInfo("de-DE");

deliveryDate.Text = dateFromDatabase.ToString ("D",
                              new CultureInfo("en-AU"));;
```

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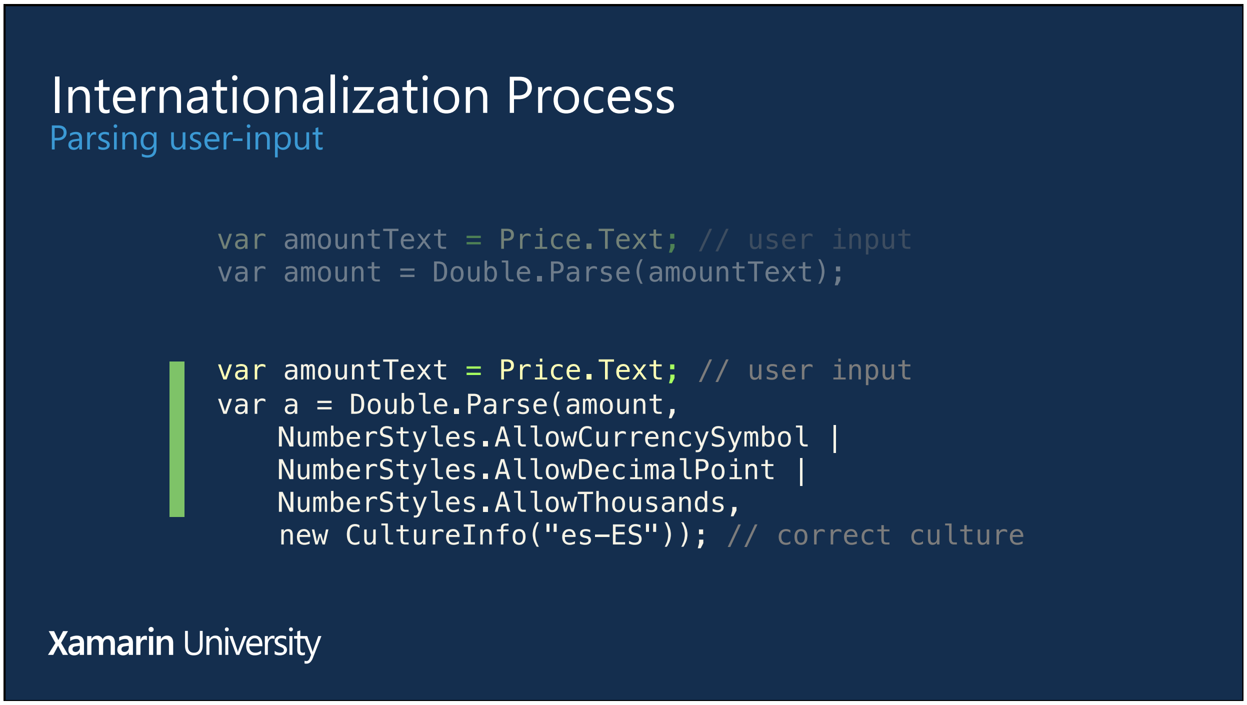

Internationalization Process

Parsing user-input

```
var amountText = Price.Text; // user input
var amount = Double.Parse(amountText);
```

```
var amountText = Price.Text; // user input
var a = Double.Parse(amount,
    NumberStyles.AllowCurrencySymbol |
    NumberStyles.AllowDecimalPoint |
    NumberStyles.AllowThousands,
    new CultureInfo("es-ES")); // correct culture
```

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ROGERS
9:59 AM
100%
“ Set a timer for 10 minutes ”
OK, 10 minutes and counting...
09:54
12
11
10
9
8

Localization Process

- Export strings
- Export resources (images, videos, etc)
- Engage translators/designers

- Add translated strings and resources to the project

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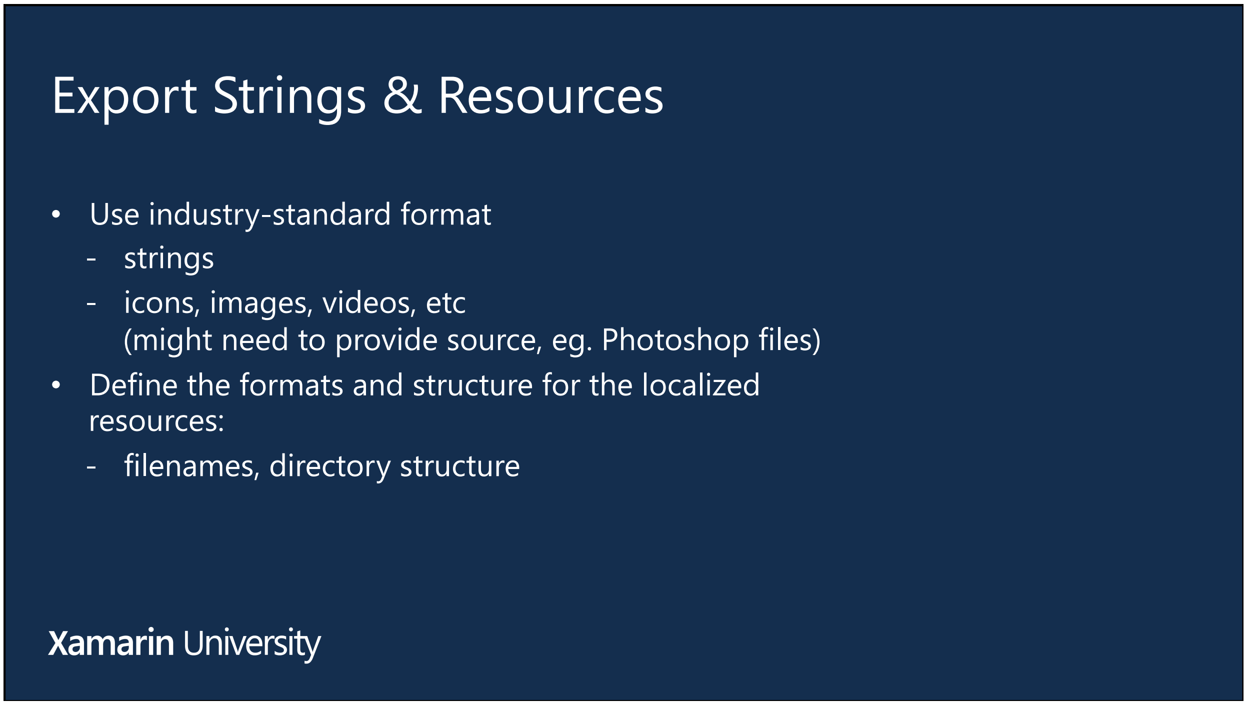

Export Strings & Resources

- Use industry-standard format
  - strings
  - icons, images, videos, etc
    (might need to provide source, eg. Photoshop files)
- Define the formats and structure for the localized resources:
  - filenames, directory structure

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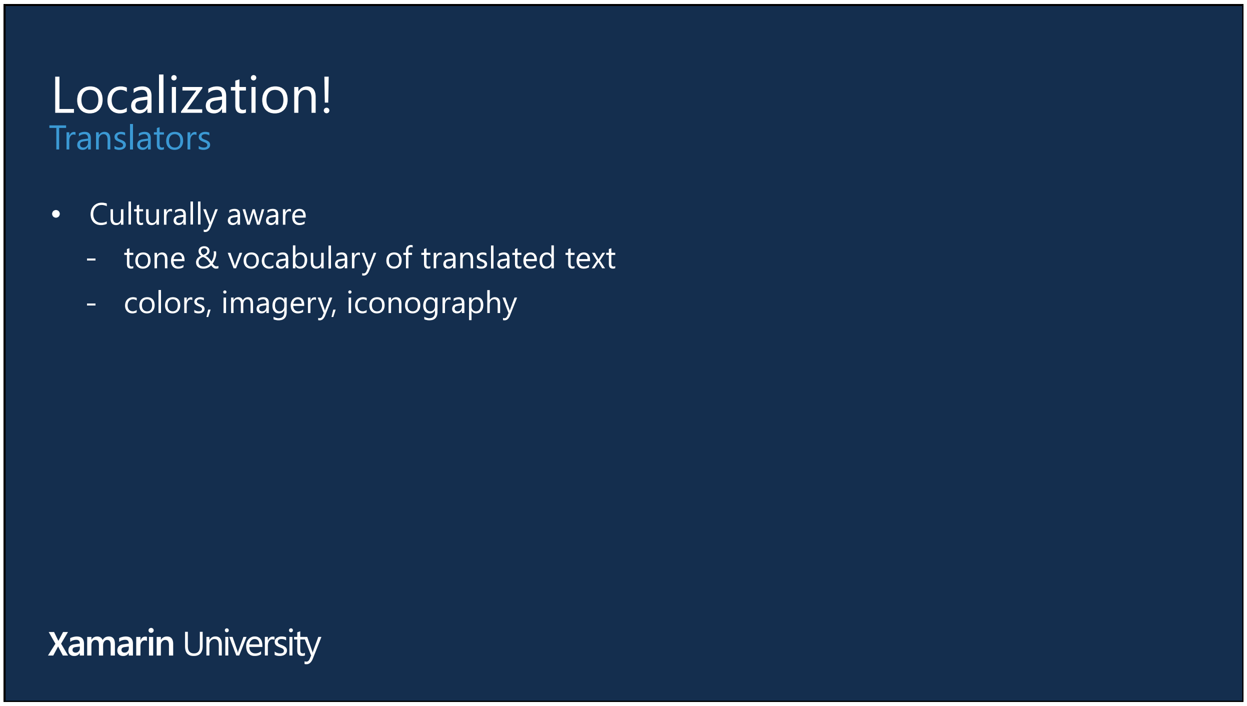

Localization!

Translators

- Culturally aware
  - tone & vocabulary of translated text
  - colors, imagery, iconography

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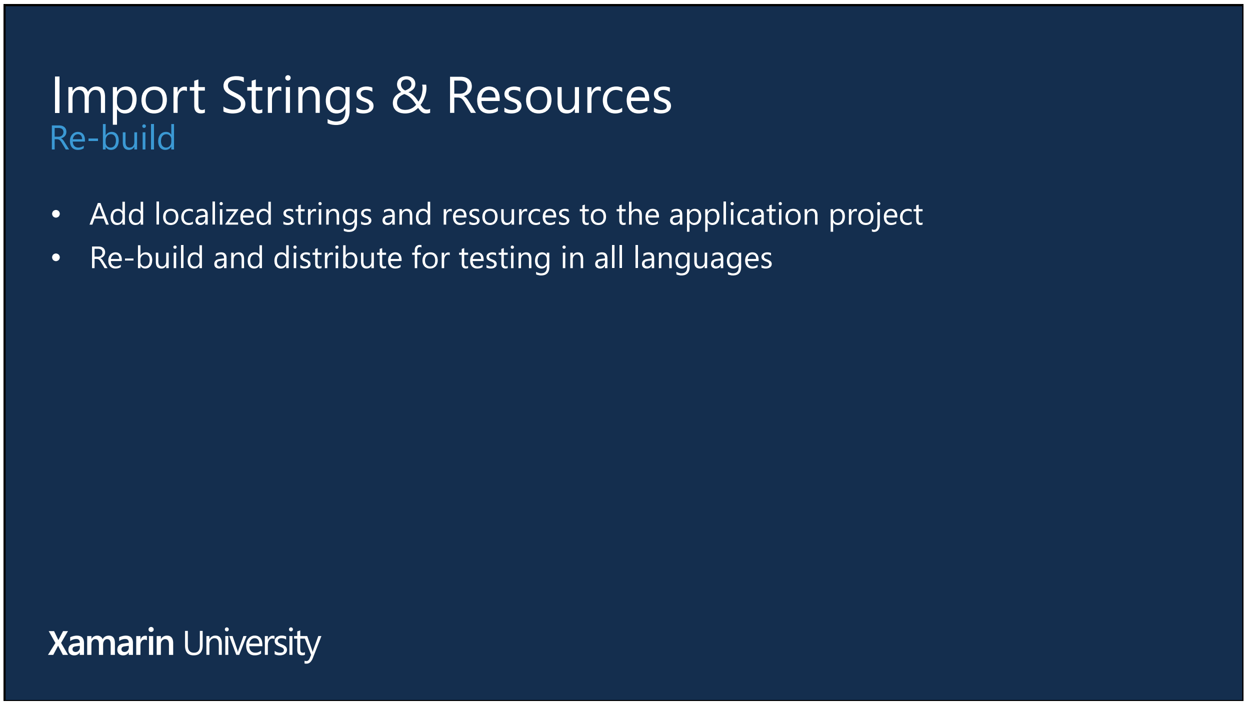

Import Strings & Resources

Re-build

- Add localized strings and resources to the application project
- Re-build and distribute for testing in all languages

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iOS Native

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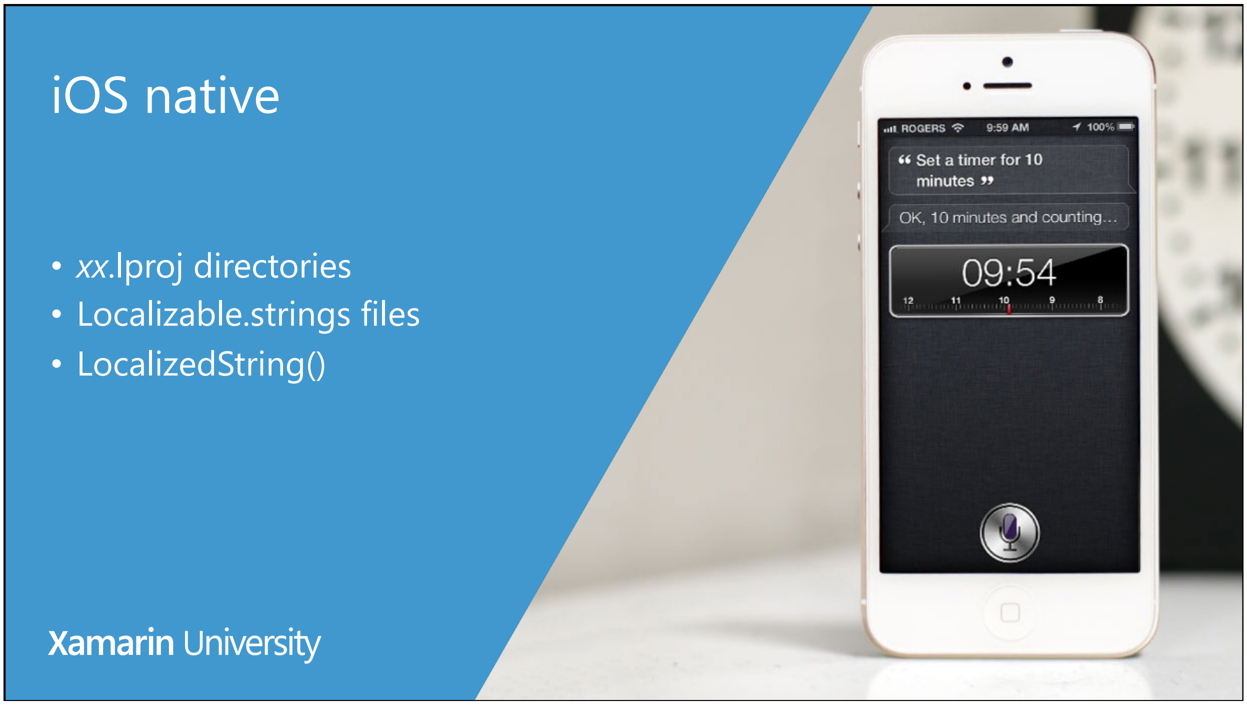

iOS native

- *xx*.lproj directories
- Localizable.strings files
- LocalizedString()

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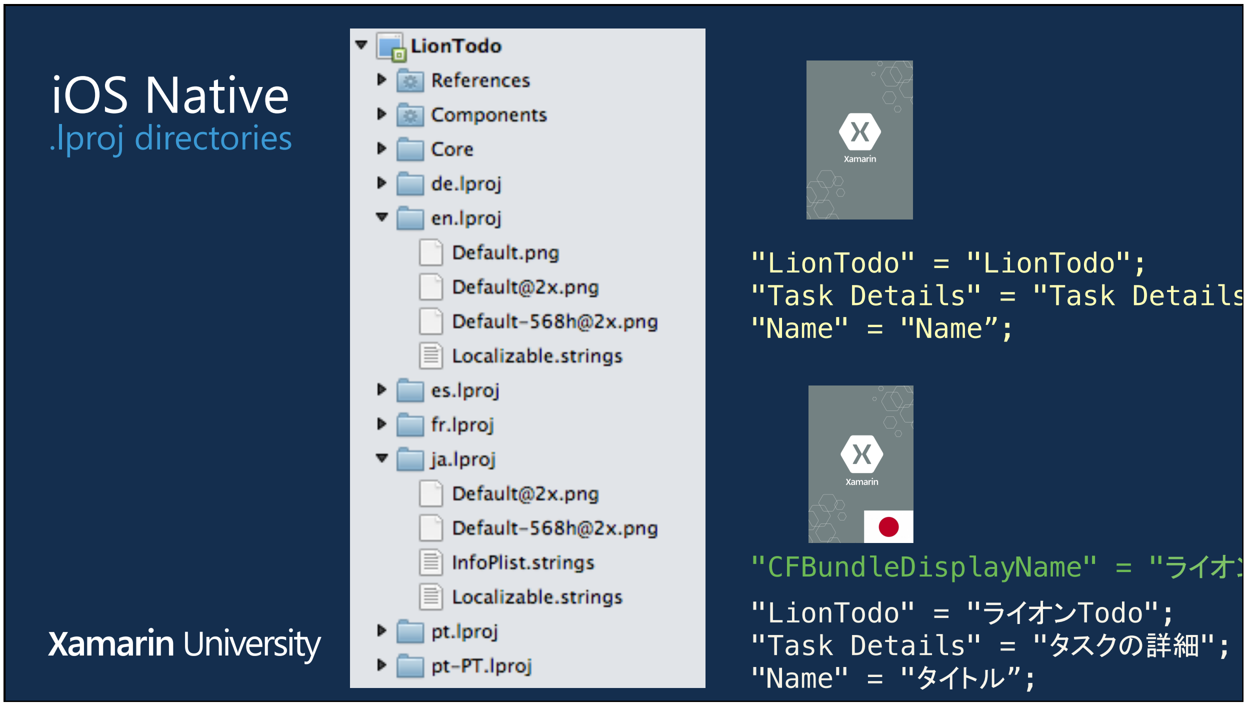
ROGERS 9:59 AM 100%
“ Set a timer for 10 minutes ”
OK, 10 minutes and counting…
09:54
12 11 10 9 8



iOS Native
.lproj directories

```
▼ LionTodo
  ▶ References
  ▶ Components
  ▶ Core
  ▶ de.lproj
  ▼ en.lproj
      Default.png
      Default@2x.png
      Default-568h@2x.png
      Localizable.strings
  ▶ es.lproj
  ▶ fr.lproj
  ▼ ja.lproj
      Default@2x.png
      Default-568h@2x.png
      InfoPlist.strings
      Localizable.strings
  ▶ pt.lproj
  ▶ pt-PT.lproj
```

```
"LionTodo" = "LionTodo";
"Task Details" = "Task Details
"Name" = "Name”;
```

```
"CFBundleDisplayName" = "ライオ
"LionTodo" = "ライオンTodo";
"Task Details" = "タスクの詳細";
"Name" = "タイトル”;
```

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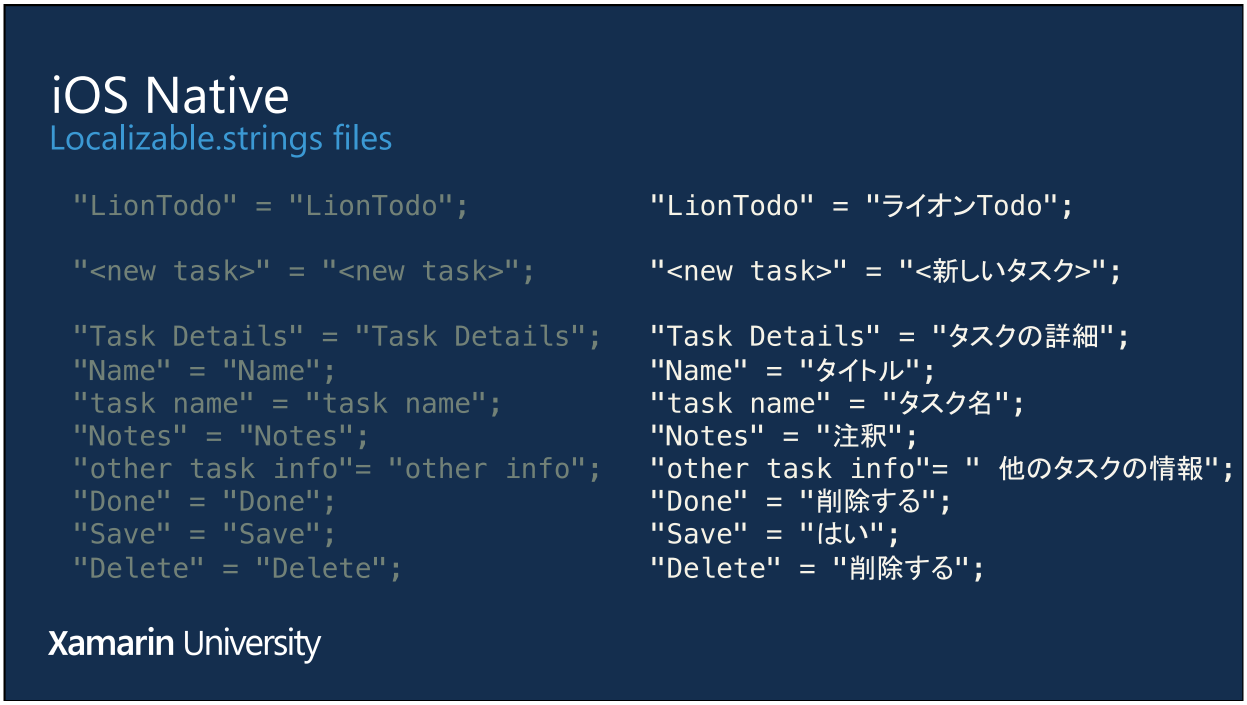

iOS Native
Localizable.strings files

```
"LionTodo" = "LionTodo";                    "LionTodo" = "ライオンTodo";

"<new task>" = "<new task>";                "<new task>" = "<新しいタスク>";

"Task Details" = "Task Details";            "Task Details" = "タスクの詳細";
"Name" = "Name";                            "Name" = "タイトル";
"task name" = "task name";                  "task name" = "タスク名";
"Notes" = "Notes";                          "Notes" = "注釈";
"other task info"= "other info";            "other task info"= " 他のタスクの情報";
"Done" = "Done";                            "Done" = "削除する";
"Save" = "Save";                            "Save" = "はい";
"Delete" = "Delete";                        "Delete" = "削除する";
```

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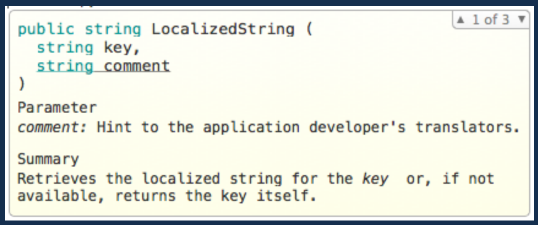
iOS Native

LocalizedString()



```
public string LocalizedString (
  string key,
  string comment
)
Parameter
comment: Hint to the application developer's translators.

Summary
Retrieves the localized string for the key  or, if not
available, returns the key itself.
```

```
var bundle = NSBundle.MainBundle;
// labels
nameLabel.Text  = bundle.LocalizedString("Name", "Title of a todo task");
notesLabel.Text = bundle.LocalizedString("Notes", "Extra info about task'
// button
saveButton.SetTitle(bundle.LocalizedString("Save", "Save task info"),
                    UIControlState.Normal);
```

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Android Native

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Android native

- values-*xx* directories
- Strings.xml files

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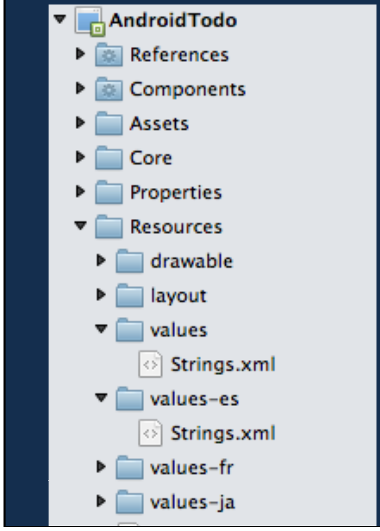
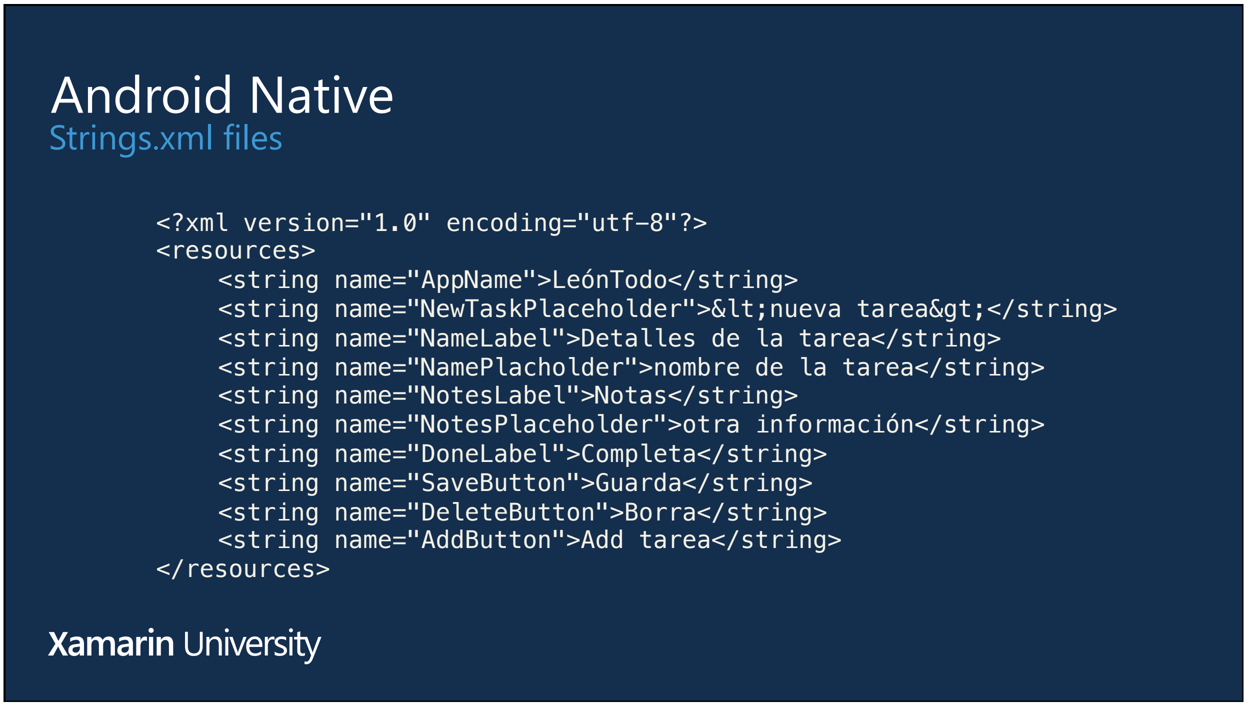
Android Native

values- directories



```
<string name="AppName">LionTodo</string>
<string name="NameLabel">Name</string>
<string name="NamePlacholder">task name</string>

<string name="AppName">LeónTodo</string>
<string name="NameLabel">Detalles de la tarea</st
<string name="NamePlacholder">nombre de la tarea<
```



Android Native

Strings.xml files

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <string name="AppName">LeónTodo</string>
    <string name="NewTaskPlaceholder">&lt;nueva tarea&gt;</string>
    <string name="NameLabel">Detalles de la tarea</string>
    <string name="NamePlacholder">nombre de la tarea</string>
    <string name="NotesLabel">Notas</string>
    <string name="NotesPlaceholder">otra información</string>
    <string name="DoneLabel">Completa</string>
    <string name="SaveButton">Guarda</string>
    <string name="DeleteButton">Borra</string>
    <string name="AddButton">Add tarea</string>
</resources>
```

Android Native

Code

```
d
```

Windows Phone & Xamarin.Forms

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Windows Phone & Xamarin.Forms

- RESX
- Strings.xml files

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ROGERS
9:59 AM
100%
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OK, 10 minutes and counting…
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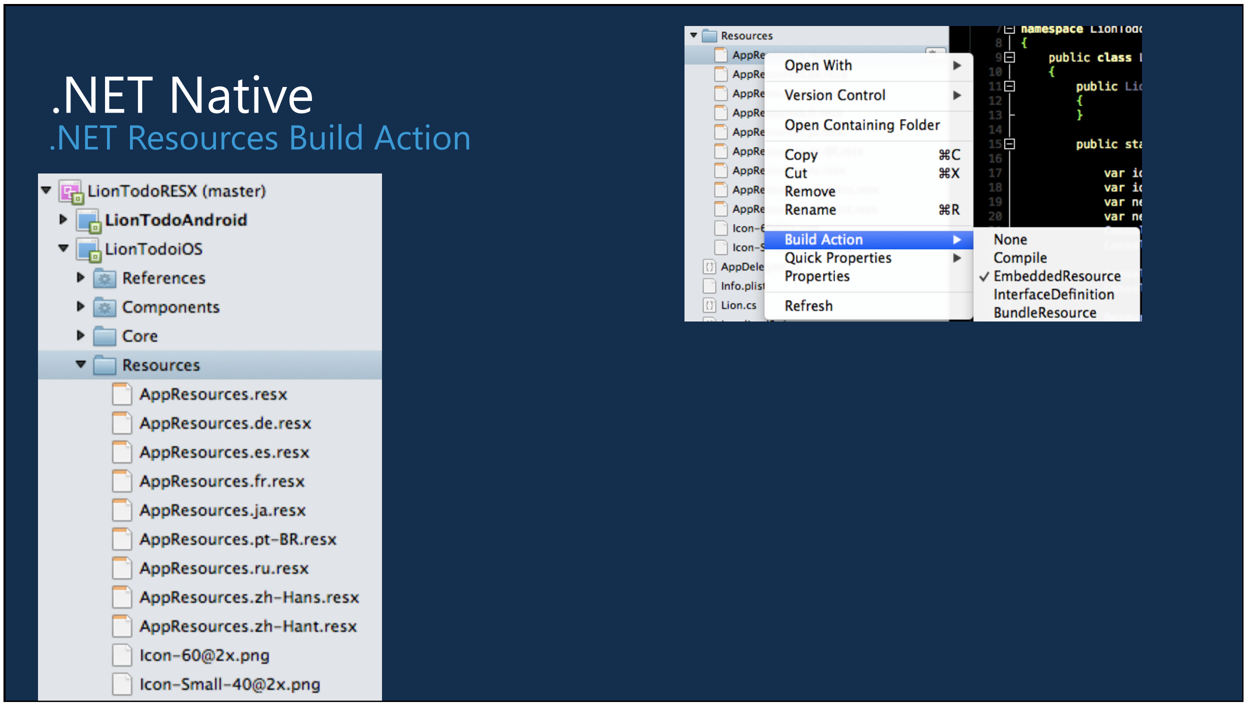
12
11
10
9
8

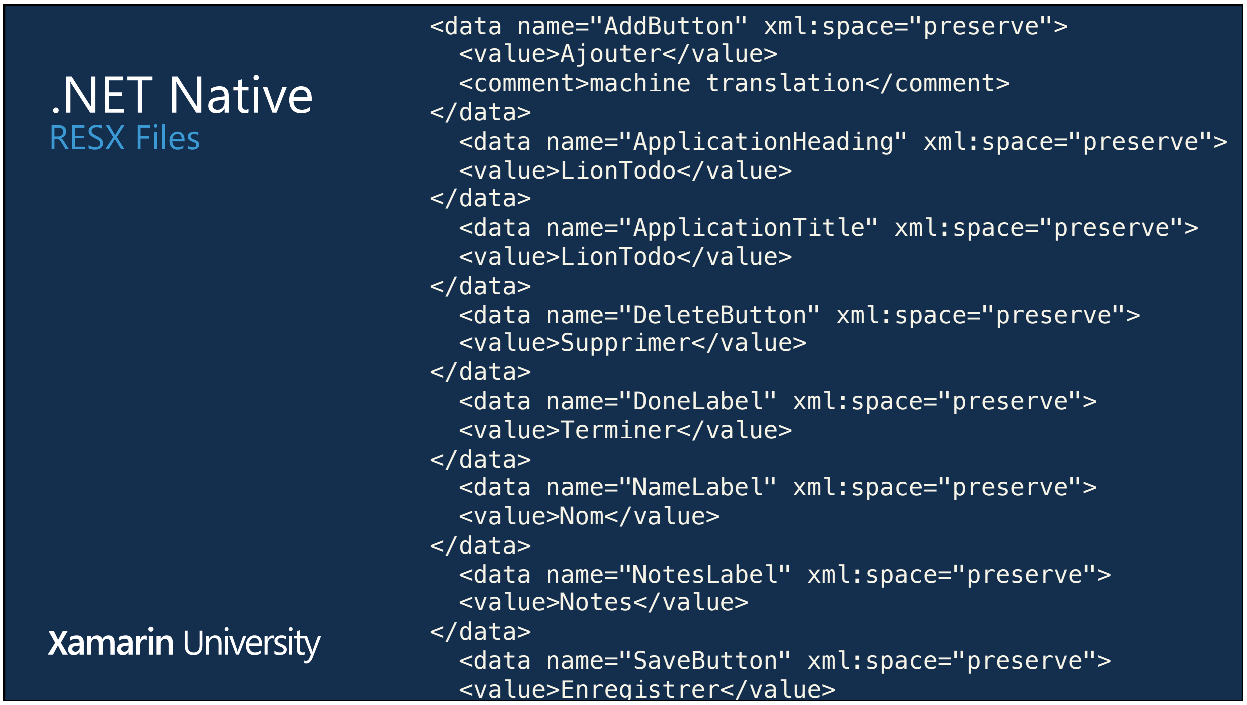


.NET Native

.NET Resources Build Action

- LionTodoRESX (master)
  - LionTodoAndroid
  - LionTodoiOS
    - References
    - Components
    - Core
    - Resources
      - AppResources.resx
      - AppResources.de.resx
      - AppResources.es.resx
      - AppResources.fr.resx
      - AppResources.ja.resx
      - AppResources.pt-BR.resx
      - AppResources.ru.resx
      - AppResources.zh-Hans.resx
      - AppResources.zh-Hant.resx
      - Icon-60@2x.png
      - Icon-Small-40@2x.png

Resources
Open With
Version Control
Open Containing Folder
Copy ⌘C
Cut ⌘X
Remove
Rename ⌘R
Build Action
Quick Properties
Properties
Refresh
None
Compile
✓ EmbeddedResource
InterfaceDefinition
BundleResource
Info.plist
Lion.cs
namespace LionTodo
public class
public sta



.NET Native

RESX Files

```
<data name="AddButton" xml:space="preserve">
  <value>Ajouter</value>
  <comment>machine translation</comment>
</data>
  <data name="ApplicationHeading" xml:space="preserve">
  <value>LionTodo</value>
</data>
  <data name="ApplicationTitle" xml:space="preserve">
  <value>LionTodo</value>
</data>
  <data name="DeleteButton" xml:space="preserve">
  <value>Supprimer</value>
</data>
  <data name="DoneLabel" xml:space="preserve">
  <value>Terminer</value>
</data>
  <data name="NameLabel" xml:space="preserve">
  <value>Nom</value>
</data>
  <data name="NotesLabel" xml:space="preserve">
  <value>Notes</value>
</data>
  <data name="SaveButton" xml:space="preserve">
  <value>Enregistrer</value>
```

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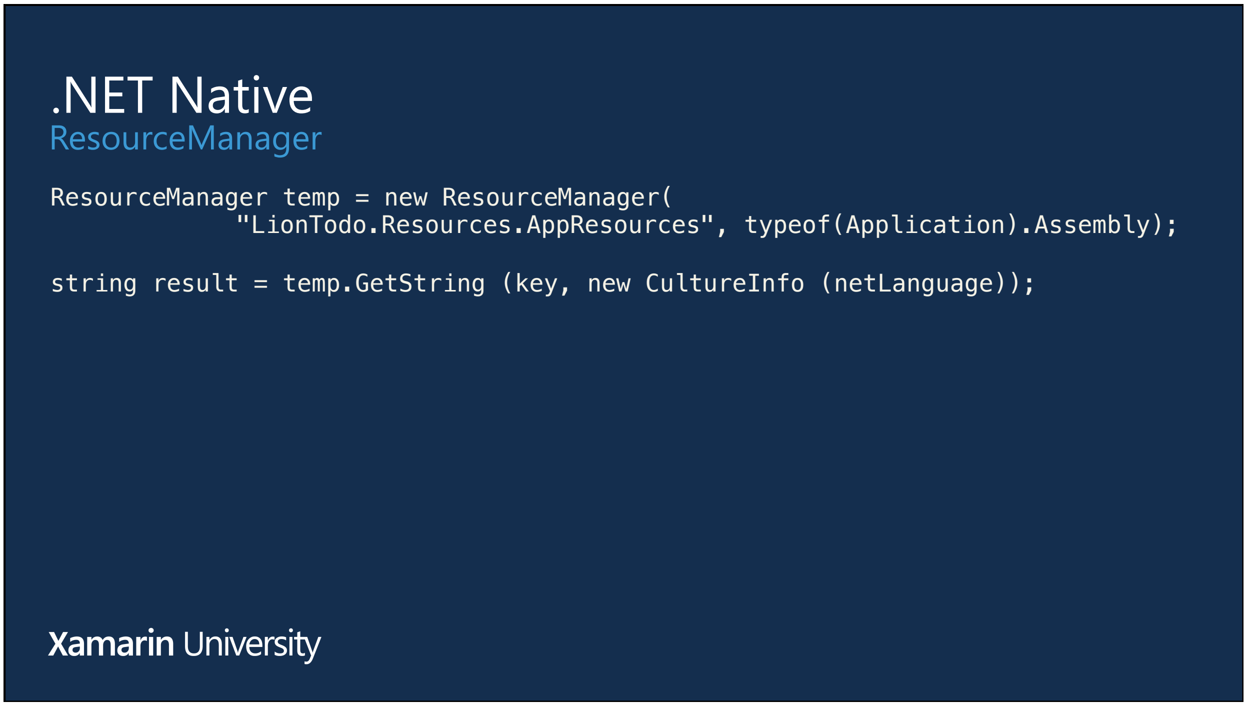

.NET Native

ResourceManager

```
ResourceManager temp = new ResourceManager(
             "LionTodo.Resources.AppResources", typeof(Application).Assembly);

string result = temp.GetString (key, new CultureInfo (netLanguage));
```

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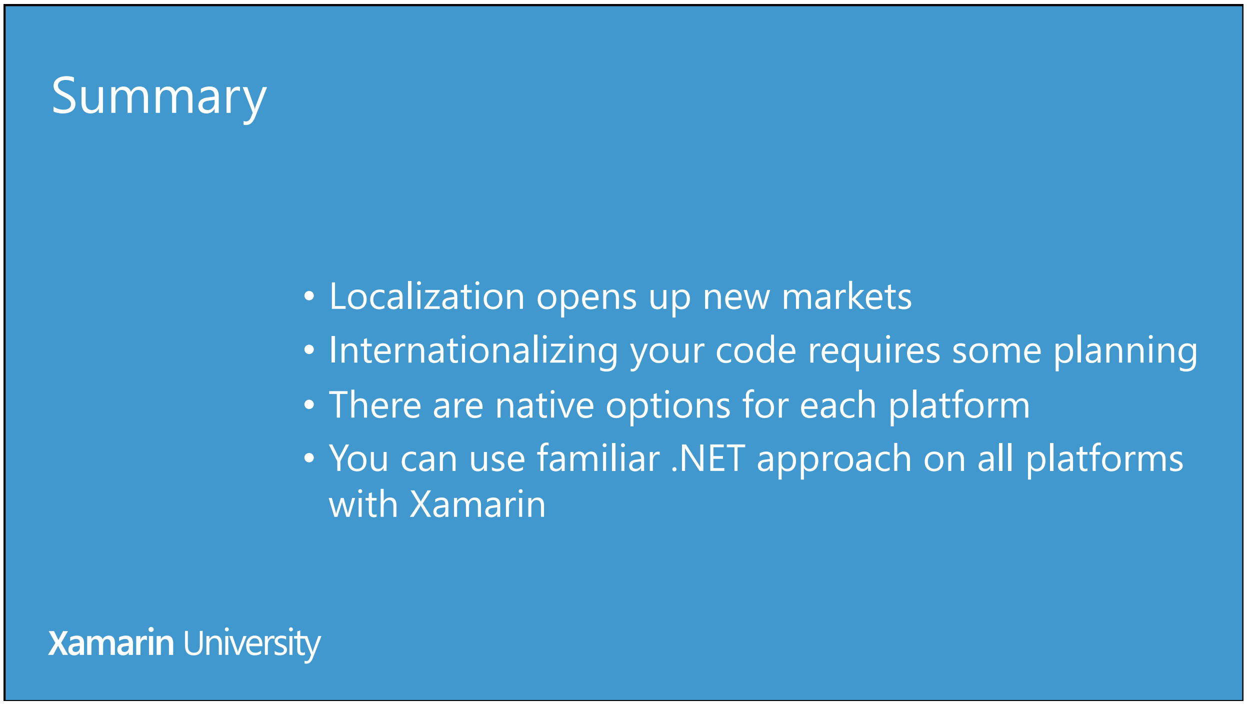

Summary

- Localization opens up new markets
- Internationalizing your code requires some planning
- There are native options for each platform
- You can use familiar .NET approach on all platforms with Xamarin

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