Cross Platform Mobile Application Development with Xamarin

**Duration:**
10 Days

**What is the course about?**
Learn to build native Cross Platform Mobile Apps for Android, iOS and Windows with C# and the .NET platform using Visual Studio and Xamarin Platform on Windows and Mac OS.

This course is developed for seasoned C# developers who would like to develop mobile apps for the Android, iOS and Windows platform using C# and the .NET platform. By the end of the course, you'll have the skills to tackle small to intermediate cross platform mobile app development projects.

**Duration**
The course is full time 10 days. The course is run over a period of 2 weeks, with week 1 covering Android, Week 2 covering iOS and Xamarin Forms.

**Programming Experience**
Strong programming experience in .NET is a requirement in order to succeed in this course. A minimum of 2 years working experience is recommended or a strong background in computer science.

**Technical Skill**
You will need to be proficient in working in Visual Studio. A Windows or a Mac environment is used. On a Mac we will use bootcamp if you prefer to use the Visual Studio IDE otherwise we will primarily use Xamarin Studio.

**Private Training**
The course is primarily offered privately to a group, team or company. The training will be run on your premises or you can come to us. We have offices in Johannesburg and Cape Town and can also conduct the training in Durban at Regus Business Centre. We can train anywhere in South Africa and the rest of the African continent if we are coming to you. Private training is R17 500 per delegate if training is conducted on your premises and we require a minimum of 4 delegates to schedule the course. The same training is R22 500 when coming to us and a minimum of 4 delegates is required to schedule the course. The course can be scheduled at a time that best suits your team.

**Public Training**
We also conduct the training publicly. This is suitable for individuals or delegates that cannot book the private training. The class will be comprised of delegates and individuals from different companies. The training content and duration is the same and training will run at our premises in Johannesburg or Cape Town, South Africa. The course price is R22 500 per delegate. A minimum of 4 delegates is required to run the course. A preliminary date is scheduled and will be confirmed once we have 4 delegates to run the course.

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What you will learn
Learn to build native Cross Platform Mobile Apps for Android, iOS and Windows with C# and the .NET platform using Visual Studio and Xamarin Platform on Windows and Mac OS.

This course is developed for seasoned C# developers who would like to develop mobile apps for the Android, iOS and Windows platform using C# and the .NET platform. By the end of the course, you'll have the skills to tackle small to intermediate cross platform mobile app development projects.

Understand Cross Platform Mobile App Development
Overview of Xamarin Offering
Xamarin Android Overview
Xamarin iOS Overview
Xamarin Forms Overview
Create Windows, Android, and iOS Mobile Apps
Accessing Contacts, Camera, GPS and Photos
Handling Events
Publishing to Google Playstore, Windows Store and Apple App Store

Course Topics

Xamarin Android

Introduction to Xamarin Android
Introduction to Xamarin.Android
An overview of the Xamarin Android Platform
Native Libraries
Android Runtime
Application Framework
Android Version

Android Applications
Understanding Activities
An Overview Android Service
What are Content Providers?
An Overview of Broadcast Receivers

Android Activities
Lifecycle of Activities
Android Events
Intents and Message Passing
Working with Multiple Activities
Android Fragments and LifeCycle

XML Layouts
Elements and attribute names
Using the ID attribute
Accessing XML Views from code
Understanding how XML Layouts tie to code

Android Resources
Using Drawable Resources
Creating Layout Resources
Creating and Using Menu Resources
Using String Resources
Understanding the generated R.java file

Working with Android Views
Using Button View
Using EditText
Using a Spinner
Using DatePicker
Using TimePickers
Using SeekBar
Using Checkbox
Using a Switch
Using RadioButton and RadioGroup

Accessing Camera and Photos
Approaches to adding a camera integration
Camera permissions
Capturing and displaying a photo
Accessing Photos from Gallery
Accessing Remote Photos
Using Third-Party Libraries to Download Photos

Understanding Android Layouts
Laying out with LinearLayout
Using a RelativeLayout for Complex Layouts
Capturing and displaying a photo
Grid Layout with a GridLayout
Understanding FrameLayout

List Views and Adaptors in Android
Using a ListView
Using a ListActivity
ListView ViewHolder Pattern
Better ListViews with RecyclerView
Working with Custom List

Android Services
Using and Accessing System Services
Permissions for Accessing System Services
Backgrounding with Android Service
Using IntentService

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Using the Location Services
Using the Vibrator Service
Using Notification Service

Google Maps
Understanding Maps and Google Play Services
Getting Your Current Location
Subscribing to Location Updates
Displaying Current Location on a Map
Adding Pins to Map
Custom Map Renders

Android Support Library
Supporting Older Devices using Support Library
Adding Support Library
Android Support v4 Library
Android Support v7 Library

Material Design and App Theming
OverView of Material Design.
Creating List and Cards with RecyclerView and CardView.
Using Theme.AppCompat Styles.
Animations.
Customizing views with Drawables.

Xamarin iOS

Xamarin for iOS
Introduction to Xamarin.iOS
Working with the Storyboard
Understanding MVC

Introduction to Auto Layout
Introducing Auto Layout
Auto Layout Concepts
Working with Constraints in Interface Builder
Resolving Auto Layout Issues
Supporting Multiple Devices
Previewing the App on Multiple Devices

Using iOS Views
Text Entry with UITextField
Displaying Text with UILabel
Using UIButton
Using Datepicker
Using UIStepper
Using UISlider
Introducing UITableView

Using Table Views
Introduction to table views
Creating a basic table view and a data source
Loading a property list into a table view
Reusing table view cells
Customizing table views
Customizing table view cells

iOS Navigation Patterns
Hierarchical navigation using UINavigationController
Using Segues for Navigation
Using PushViewController
Modal Segues with PresentationViewController and UIAlertViewController
Drill-down using UINavigationController
Navigation drawer using components
Tabs using UITabBarController

Maps and Location
Getting the User’s Location
Region Monitoring and iBeacon
Geocoding Location Data
Displaying Maps
Annotating Maps
Plotting Directions
MapKit Overview
Enabling MapKit
Using CoreLocation
Getting the Current Location and Location Updates
Customizing Maps

Photos and Contacts
Using the Camera
Accessing Photos in the Gallery
Accessing Contacts
Adding and Editing Contacts

iOS Networking
Accessing a REST API
iOS App Transport Security
Parsing JSON with Newtonsoft JSON.Net Library
Using the HttpClient

Multiple-View Application
Introduction to multiple-view applications
Using Segues
Passing Data between Screens
Using navigation controllers
Deconstructing a master/detail app

Basic Animation and Visual Effects
Basic Animations Using UIView
Transform Animations
Xamarin Forms

Xamarin Forms For Cross Platform Development
Understanding Xamarin.Forms
What is Xamarin.Forms Suited For?
Introduction to Xamarin.Forms
Hello Xamarin.Forms
Xamarin.Forms MultiScreen
Exploring Xamarin Forms Project

Xamarin.Forms Pages
Adding Page navigation
Creating a Master-detail relationship
Adding data binding to Master-detail
Displaying Tabbed screens
Adding a Swipe navigation with a Carousel

Navigation Patterns
Hierarchical navigation using Toolbar or ActionBar
Modal using DialogFragment, AlertDialog, and PopupMenu
Drill-down using ListView
Navigation drawer using DrawerLayout
Tabs using ActionBar

Xamarin.Forms Layout
Introduction to layouts
Kinds and purposes of layouts
Creating a StackLayout
Using a ScrollView
RelativeLayout using Parent
AbsoluteLayout Proportional Sizing
AbsoluteLayout Proportional Positioning

Xamarin.Forms Navigation
Hierarchical Navigation with NavigationPage
Modal Navigation with NavigationPage, alerts, ActionSheets
Drill-down lists using NavigationPage, ListView and TableView
Navigation drawer using MasterDetailPage
Tabs using TabbedPage
Springboard using images with gesture recognizers
Carousel using CarouselPage

Data Binding
Binding basics
Code and XAML
Source and BindingContext
Binding value converters
Binding to a Data Model
Binding and custom views
Understanding ViewModels and MVVM
Binding to a ListView

Storing Data with SQLite and ADO.Net
What is SQLite?
What is SQLite.NET
Installing SQLite on Windows Phone
Creating a Database
Creating a Table
Executing SQL Statements

Azure Mobile Services
Setting up your Azure Account
Exploring Azure Mobile Services
Adding Azure Mobile Services Xamarin Component
Consuming an Azure Mobile Service Instance
Querying Data
Authentication
Using the Push Notification service
Offline data sync

XAML in Xamarin, Forms
Introduction to XAML
Events and handlers
Data binding
XAML styles
Platform specificity in XAML file
The x:Name attribute
Tap gestures
Resource dictionaries
XAML markup extensions

Third Party Libraries
The Xamarin Component Store
Common components
Porting existing C# libraries
Objective-C bindings
Java bindings

Using List View in Xamarin, Forms
Creating a simple ListView
Custom Class in ListView
Data binding with a ListView
Customizing a ListView appearance

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Resources and Styles in Xamarin.Forms
Basic style
Style in code
Style inheritance
Dynamic styles
Device styles

Handling Platforms Specific Requirements
The role of the Device class
Using the DependencyService
Modeling platform specific implementation as an Interface
Implementing photo capture on iOS
Exposing and accessing platform specific implementations
Loosely coupled behavior with MessagingCenter
Sending a notification
Subscribing to a notification