

MOBILEPLATFORM COURSE SYLLABUS

ANDROID Syllabus

Introduction to Android

- Overview of Android
- Java Editions and comparison with Android
- Android Apps – Design, Vendor, Behavioral Classification

Android Architecture Overview

- Android Architecture
- Application Frameworks
- Android Libraries, Run time, Dalvik Virtual Machine

Setup of Android Development Environment

- System Requirements
- Java, Eclipse and Android SDK Installation
- Android SDK and Tools
- Android Virtual Devices & Device Definitions

Your Android Application

- Android Application Design
- Using PhotoShop for Graphic Designing
- Android Application Wireframes (screens)

Your First Android Application

- Creating Android Application
- Creating Configurations
- Testing the app: AVD, Active Device
- Android Project Structure and Manifest file

Publishing to the Play Store

- Release process and Release build of Android Application
- Signing the .apk file
- Preparing the Store Listing page
- Content Rating
- Distributing the Application
- Merchant Registration for Paid Applications

Activities

- About XML – approach to design layouts
- Views and Layouts
- View properties
- Linear Layout vs. Relative Layout vs. Frame Layout vs. Absolute Layout
- Localization of UI
- Best practices for targeting various form factors: phone, tablet, TV
- Best practices when working designing Android UI

Android Testing

- Creating a Test Project for Android project
- Working with Test Packages
- Writing test cases

Fragments

- Designing fragments
- Fragments life cycle
- Fragment management and integration

User Interfaces

- Creating the Activity
- XML versus Java UI
- Selection Widgets, Using fonts
- Common UI components

- Handling UI events: a bit about listeners

Advanced UI

- Adapters
- Complex UI components
- Menus and Dialogs
- Tabbed Activities
- Navigation Drawer
- Animations
- Create activity layouts programmatically
- Testing and optimizing UI

Android Material Design

- What is material ?
- Material properties and Styling / Animations
- Material Patterns

Resources

- Overview of Android Resources
- Creating Resources
- Using Resources
- Drawable Resources
- Animation Resources

Broadcast Receivers

- Broadcast receiver usage patterns: when and why to use them
- Implementing a broadcast receiver
- Registering a broadcast receiver via the manifest file and Programmatically

Background Services

- Overview of Android services
- Service lifecycle
- Declaring a service

- Registering a service
- Starting and stopping a service
- Threads and other concurrency considerations with services
- Bound versus unbound services
- Remote versus local services

Intents

- Working with Intents
- Explicit and implicit intents
- Using Intents as messaging objects
- Intents to start components expecting results

Storing and Retrieving Data

- Storage Model selection criteria
- Shared preferences
- Internal Storage – Files
- External Storage – SD Card
- Testing the created files, tools

SQLite Database

- Introducing SQLite
- SQLiteOpenHelper and creating a database
- Opening and closing a database
- Working with cursors
- Inserts, updates, and deletes

Native Content Providers

- Content provider types
- Searching for content
- Adding, changing, and removing content
- Native Android Content Providers
- Accessing Contact Book, Calendar

Custom Content Providers

- Custom Content Provider classes
- Publishing content providers

Web Services

- Understanding Web Services
- Web Services Architecture
- Building Server side components
- Publishing web services
- REST based web services
- Accessing Web Services
- Integrating Web Services with mobile client
- Overview of networking
- Checking the network status and web service status
- Working with HTTP to access the web services

Parsing, Parsers

- Document Object Model (DOM)
- Simple API for XML (SAX)
- JavaScript Object Notation (JSON)
- Parsing XML and JSON

Location Based Services

- Using Location Manager, Location Provider
- GPS and Network based tracking
- Testing the application using KML files
- Simulation of the locations on the active device
- Location Listeners and Proximity Alerts

Integrating Google Maps

- API Version 2 of Google Maps
- User Interface – MapFragments
- API key generation
- Registrations in the manifest file

- Google Map, Camera Positions
- Adding Markers, Circles, Polylines
- Google Maps Directions API

Telephony

- Telephony background
- Accessing telephony information
- Monitoring data activity and connectivity
- Working with messaging SMS

Multimedia in Android

- Playing Audio & Video
- Recording Audio & Video
- Customizing Camera & Capturing Photos
- Voice Recognition
- Text To Speech

Bluetooth

- Controlling local Bluetooth device
- Discovering and bonding with Bluetooth devices
- Managing Bluetooth connections
- Communicating with Bluetooth

Social Networking Integrations

- Facebook Integration

Debugging and Testing Android Apps

- Logcat
- Debugger
- Traceview
- HierarchyViewer
- Monkey Runner
- UIAutomator

IPHONE Syllabus

Intro to Objective-C

- Objective-C and Smalltalk
- Objective-C, C, C++ and Mac OS X
- Objective-C and iPhone/iPad/iOS

Introduction iOS and SDK

- iOS SDK: iPhone, iPod Touch
- Xcode
- Interface Builder
- iPhone Simulator
- Debugger

Xcode

- Xcode IDE
- Editing
- Building
- Running
- Console

Objective-C 2.0

- Programming in Objective-C
- The Preprocessor

Classes, Objects, Methods and Properties

- id
- null
- @interface
- @end
- @implementation
- Archiving
- @property

- @synthesize
- @dynamic
- Data Types
- control flow statement
- More about Classes
- More about Variables and Data Types
- Inheritance
- Polymorphism, Dynamic Typing, and Dynamic Binding

Categories and Protocols

- About Categories
- @category
- About Protocols
- @protocol

Foundation Framework

- Introduction to the Foundation Framework

Collections

- NSArray
- Enumeration
- NSMutableArray
- NSDictionary
- NSMutableDictionary
- Scalar Data Types
- NSObject and NSString
- NSData and NSDate

Files

- NSFileManager
- NSFileHandle
- NSUserDefaults
- NSHomeDirectory(), etc.
- Resource Files
- Read/Write Text Files

- Copying Objects
- Archiving

Memory Management

- Allocate
- Release
- Auto Releasing
- Reference Counting
- Static Analyzer
- Garbage Collection

Cocoa and Touch

- What is Cocoa?
- Cocoa Framework and Cocoa Classes
- Subclassing
- Xcode
- Simulator
- Interface Builder
- Nib files
- File's Owner
- Outlet Connections
- Action Connections
- Inspector

Controls Part-1

- Controls
- Labels
- IBOutlet
- Buttons
- IBAction
- Event Handling
- UIEvent
- Toolbars
- Toolbar items
- Status bar
- Navigation bar and items

Controls Part-2

- Activity Indicator
- Network Activity Indicator
- Page Indicator
- Progress View
- Refresh Control
- Scope Bar
- Search Bar
- Segmented Control
- Slider
- Stepper
- Switch
- Detail Disclosure Button
- Info Button

Text Controls

- Text Field and Delegate
- Text View and Delegate

View

- What is View?
- UIViews and UIViewController
- UIView Class
- UIView Subclasses
- Types of Views
- UIApplication

Window Based Application

- Application
- Application Delegate
- View Controller
- Window & Views
- Device Info
- Screen
- CGRect, CGPoint, CGSize

- CGRectMake(), CGRectZero
- Static Device Info
- Dynamic Device Info
- Orientation Info
- The iPhone Accelerometer
- Detecting shakes
- Determining orientation
- Responding to the accelerometer

Tab Bar Application

- Tab Bar Controllers
- Tab Bars
- First View Controller
- Second View Controller
- Third View Controller
- Creating New Classes
- Classes and Interface Builder

Navigation Based Application

- Root View Controller
- Navigation Controller, Bars and Items
- Button Bar Items
- Push/Pop Views

Picker View

- UIPickerView
- UIPickerViewDelegate
- UIPickerViewDataSource
- Date and Time Picker
- UIDatePicker
- NSTimer

Table View

- Table View and Controller
- Table View Cells

- Data Source
- Table View Delegate

Popover (iPad Only)

Split View (iPad Only)

Browser View

Alerting Users

- Alert View
- Alert View Delegate
- Action Sheet
- Action Sheet Delegate

Media and Images

- UIImageView
- UI image
- animationImages
- Highlighted Animation Images
- UITouch
- UIGestureRecognizer
- UIPinchGestureRecognizer
- Panning
- Zooming
- Rotating Image
- Playing Audio
- Responding to audio events.
- Playing audio in background
- Recording Audio
- Playing Video
- Photo Library
- UIImagePickerController
- Taking Pictures And Movies

Processes and Threads

- NSProcessInfo
- NSThread

- PerformInBackground
- GCD (Grand Central Dispatch)
- Synchronization

Networking

- NSURL
- NSURLRequest
- NSURLConnection
- XMLParser
- SCNetwork
- CFHTTP
- CFFTP
- CFSocket
- Web Server

Working with SQLite

- What Is SQLite?
- The SQLite Library
- Building a Simple Database
- Designing the Database
- Creating the Database
- Populating the Database
- Creating Records with the INSERT Command

Working with Core Data

- Introducing Core Data
- SQLite and Core Data
- Modeling Data in Xcode
- Building a Core Data Application
- Core Data-Related Cocoa Features
- Core Data Migration and Performance
- Application Integration using Web Services

Location and Mapping

- About Core Location

- Handling location updates
- About Map Kit
- Map Overlays
- Adding annotations

Social Networks Integration

- Flickr integration
- Twitter integration
- Facebook integration
- Youtube integration

Real-Time Working Scenario

- What is mercurial and repository?
- What is IPA file?
- How to make an ipa file, upload a build to TestFlight? and upload app to app store?