

## Introduction to Android

- What is Android?
- A Short History
- Advantages of Android
- Disadvantages of Android

## The Architecture of Android

- Key Components Stack
- The Kernel
- Libraries
- The Dalvik JVM
- Application Framework
- Applications

## Project Structure

- Root Contents
- Project Files
- The Manifest
- Writing your first Android application
- The Activity
- Part of activity
- Building, Running and debugging your Application
- Working with Android Simulator
- Test your application on device
- Using XML – based Layout
- What is an XML –Based Layout?
- Why use an XML – Based Layout?
- How does it work?
- Building custom view and layout

## The Development Environment

- What do We Need?
- Setting Up the SDK
- Install Eclipse Plug-in
- Create a Virtual Device
- Creating a Project
- Running Your Application
- Android Hardware Buttons

- Run Configuration
- Debugging an Application
- Using Third Party JAR
- Creating Reusable Library
- Dalvik Debug Monitor Server (DDMS)
- DDMS Tools in Eclipse
- The Console Views
- Developing for Multiple Android Versions

### Application Fundamentals

- Recapping the Basics
- Packaging an Application
- Application Reusability Architecture
- The Manifest File
- Activity
- Creating an Activity Class
- Activity Lifecycle
- Launching an Activity
- Pausing and Stopping an Activity
- Destroying an Activity
- Saving State
- Creating Views
- Registering an Activity
- The Default Activity
- Process Lifecycle
- The Application Class
- The Application Context

### Basic GUI Programming

- The Fundamentals
- View Hierarchy
- Creating Views Programmatically
- Creating View in XML Layout
- More on XML Layout
- Common Programming Tasks with Views
- Text View and Edit Text
- Button
- Checkbox
- Radio Button and Radio Group

- Toggle Button
- Image View
- Rating Bar

## Layout Management

- Background
- Linear Layout
- Linear Layout Orientation
- match parent (fill\_parent) Example
- Layout Gravity
- Weight
- Table Layout
- Managing the Width
- Relative Layout
- Scroll View
- Horizontal Scroll View

## Resource Management and Localization

- Main Types of Resources
- Defining Value Resources
- Defining String Arrays
- Creating Image Resource
- Alternate Resource Folders
- Alternate Folder Name Rules
- How Android Finds Resources
- Dealing with Screen Orientation
- Orientation Change and Activity Lifecycle
- Developing for Tablets
- Basics of Localization
- Testing for Localization
- Loading Localized String from Code

## Intents and Intent Filters

- What is Intent?
- The android.content.Intent Class
- Explicitly Specifying Component's Class
- Implicit Target Component Specification
- Intent Filters
- Data Type Filter

- Action Name
- Category Name
- Hint Matching Logic
- Default component of an Application
- Starting an Activity
- Getting Output from Activity
- Pending Intent

### Application Menu

- Defining Menu Items
- Menu XML File
- Option Menu
- Populating Menu Items from Resource
- Manipulating Menu Items
- Handling Menu Item Click Event
- Context Menu
- Showing a Context Menu
- Handling a Context Menu Item Click

### Showing Notification Messages

- Toast
- Popping a Toast
- Advanced Toast
- Status Bar Notification
- Advantages of Status Bar Notification
- Steps to Create a Status Bar Notification
- Posting the Notification
- Using a Utility Method
- Using Dialogs
- Alert Dialogs
- Handling Button Click Events
- Progress Dialog
- Setting Progress Amount

### Advanced GUI Development

- Spinner View
- Creating a Spinner
- Handling Item Selection Event
- The List View
- Creating a List view

- Handling List View Events
- The Adapter Model
- Custom Adapter Class
- Using an Adapter
- Using a Custom Row Layout
- View Flipper
- Tabbed UI Layout
- Creating Tabbed UI
- Defining the Tabbed Layout
- Creating the Tabs with View Content
- Add a Tab with Activity Content
- Web View
- Web View Methods

## Data Storage

- Data Storage Options
- Data Privacy
- Shared Preferences
- Modifying Shared Preferences
- Default Preferences
- Editing Preferences
- Internal Storage
- Private Directory
- Cache Directory
- External Storage
- Checking State of External Storage
- Working with Files in External Storage
- Shipping Files with the Application
- Working with Raw Resource Files
- Working with Asset Files

## Network Programming

- Communication Using HTTP Protocol
- Creating a Http Client Object
- Making a GET Request
- Making a POST Request
- Setting Timeout
- Using Basic Authentication
- Using Custom Authentication
- XML Parsing Options
- Setting up XML Pull Parser

- The Main Loop
- Checking Network Status

#### Background Task Processing and Service

- The Handler Framework
- The Basic Approach
- Creating a Handler
- Posting a Message
- Doing Background Work
- AsyncTask
- Callback Methods of AsyncTask
- Doing the Work
- Starting Work
- Getting Result from the Task
- Updating GUI from the Task
- Ending the Task
- What is a Service?
- Creating a Service
- Starting and Stopping a Service
- Starting Long Running Work
- Sending Control Messages to a Service
- Usability Guidelines

#### Multimedia Programming

- Recording Audio
- Start Recording Audio
- Stop Recording
- Playing Audio
- Playing from Raw Resource
- Playing from a File or Network Stream
- Stopping and Cleanup
- Video Playback
- Playing Video

#### Location Based Services

- Guidelines for Obtaining Current Location
- Obtaining Current Location from an Activity or Service
- Reading Location Data
- Other Considerations
- Proximity Alert
- Geocoding

- Using Map View
- Setting up the Project
- Showing Map View from an Activity

#### Android Telephony API

- Common Uses of Telephony API
- Making a Phone Call
- Sending SMS Message
- Call and Service State
- Monitoring Call and Service State
- Register the Listener
- Getting Detail Phone Information

#### Camera Application

- Request Camera Permission
- Take a Photo with Camera APP
- View Photo
- Save Photo in SDCARD
- Recording Videos APP
- View the video
- Call and Service State
- Monitoring Call and Service State
- Register the Listener
- Getting Detail Phone Information