

Android

Duration - 2 Months



✧ Introduction to Android

- What is Android?
- Android Stack Architecture
- Dalvik Virtual Machine
- Android API levels (versions)
- Setting up development environment
- First Sample Application
- Running your application
- Launching Emulator

✧ Android Studio

✧ Introductions to Application

Components

- Activities
- Services
- Broadcast receivers
- Content providers
- Intents
- AndroidManifest.xml
- Resource & R.java
- Activity life cycle
- Layouts & Drawable Resource
- Linear vs. Relative vs. Frame vs. Absolute Layout
- Second Application: Demonstrate communication b/w Intents

✧ Style and themes

- style.xml
- drawable resource for shapes, gradients
- style attribute in layout
- applying themes using code and manifest file

✧ Menu

- Option Menu in detail with example
- Context Menu in detail with example
- Sub Menu in detail with example

✧ Android Views

- Grid View In detail With Example
- Map View In detail with Example
- Cont. Sub Topical Views
- Web View In detail with Example
- Spinner In detail with Example
- Gallery In detail with Example
- Google Map View In detail with Example
- Introduction to creating activity user with views
- Different ways of creating views Using xml

1) Basic UI Design

- Form widgets
- Text Fields
- Toast
- AlertDialogs
- Popup
- Images and media
- Time and Date

2) Android Layouts

- What are views, Layouts and there classification?
- How Android Draws views and Layout?

- Classification
- Table Layout In detail with Example
- Tab Layout In detail with Example
- Frame Layout In detail with Example
- Absolute Layout In detail with Example
- Linear Layout in detail with Example
- 3) Handling User Interaction Events**
 - Handling user events
 - Different types of event listener
 - OnClickO
 - OnLongClickO
 - OnFocusChangeO
 - OnKeyO
 - OnTouchO
 - OnCreateContextMenuO
 - Different types of event handler
 - OnKeyDown (int, KeyEvent)
 - OnKeyUp (int, KeyEvent)
 - OnTrackballEvent (MotionEvent)
 - OnTouchEvent (MotionEvent)
 - OnFocusChanged (boolean,int,Rect)
- 4) Creating Dialogs**
 - Introduction to dialogs
 - Showing and dismissing of dialog boxes
 - Alert dialog In detail with example
 - Progress dialog In detail with example
 - Threading and handler
 - Creating running applications–Events
 - Creating running applications–Dialogs
- 5) Notifications**
 - Notifying Users
 - Status bar Notification
 - Toast Notification
 - Dialog Notification
- ✧ **Adapters and Views**
 - Array Adapters
 - Base Adapters
 - ListView and ListActivity
 - Custom ListView
 - GridView using adapters
 - Gallery In detail with Example
- ✧ **Fragments**
 - Designing fragments
 - Fragments lifecycle
 - Fragment management and integration
- ✧ **Intents**
 - Working with Intents
 - Explicit intents
 - Implicit intents
- ✧ **Introduction to Drawers**
 - Navigation Drawer
 - Simple Side Drawer
 - Tab Drawer
 - Extra Drawer

Android Advanced

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✧ Working in Background

- Introducing services
- Creating and controlling services
- Registering a service in the manifest
- Starting, controlling, and interacting with a service

✧ Using the Camera, Taking Pictures and the Media API

- Controlling the camera and taking pictures
- Playing audio and video
- Introducing the media player
- Preparing audio for playback
- Packaging audio as an application resource
- Initializing audio content for playback
- Preparing for video playback
- Playing video using the video view
- Setting up a surface for video playback
- Initializing video content for playback
- Supported video formats
- Controlling playback
- Managing media playback output
- Multimedia supported audio formats
- Recording audio and video
- Using Intents to Record Video
- Configuring and Controlling Video
- Recording
- Previewing Video Recording
- Reading and Writing JPEG EXIF Image
- Details

- Adding new media to media storage
- Using the Media Scanner
- Inserting Media into the Media Store
- Raw video manipulation
- Recording Sound with Audio Record
- Playing Sound with Audio Track
- Speech recognition
- Creating and Running and Testing

✧ P2P Communication

- Introduction Android Instant Messaging
- Using the GTalk Service
- Binding the the GTalk Service
- Making a GTalk Connection and Starting an
- IM Session
- Handling Subscription Rausts
- Removing and Blocking Contacts
- Managing the User's Presence
- Managing Chat Session
- Sending Instant Text Messages
- Receiving Instant Text Messages
- Chat Rooms and Group Chats
- Managing Group Chat Sessions
- Sending an receiving Data Messages
- Transmitting Data Messages
- Receiving Data Messages

✧ Content Providers

- What is content provider
- How to access build in Content provider
- Retrieving build - in Content provider data

❖ **Android Telephony**

- Lanching the Dialer to Initiate Phone
- Calls Replacing the Native Dialer
- Accessing phone and Network Properties &Status
- Reading Phone Device Details
- Reading Data Connection and Transfer State
- Reading Network Details

❖ **Sensor Device**

- Using sensors and the sensor manager
- Introducing Sensors
- Supported Android Sensors
- Finding Sensors
- Using Sensors
- Interpreting the sensor values
- Using the compass , accelerometer and orientation sensors
- Introducing Accelerometers
- Detecting Acceleration Changes
- Creating a G-Forceometer

❖ **Maps, GEO coding and Location Based**

- Services
- Using Location Based Services
- Working with the location manager
- Configuring the Emulator to Test Location
- Based Services

❖ **About ADB (Android Debug Bridge)**

- DDMS: Dalvik debug monitor Service
- Trace View

❖ **Data Security and Permission**

- Security Architecture
- User Ids and File Access
- Using Permissions
- Declaring and Enforcing Permissions

❖ **Drawing 2D and 3D Graphics**

- Rolling your own Widgets
- Drawables
- Bitmaps
- Paint

❖ **Using Bluetooth and Managing and Monitoring Wi-Fi**

- Accessing the Local Bluetooth Device
- Adapter
- Managing Bluetooth Properties and State
- Managing Device Discoverability
- Discovering Remote Devices
- Monitoring Active Connection Details
- Scanning for Hotspots
- Managing Wi-Fi Configurations
- Creating Wi-Fi Network Configurations
- Device Vibration
- Controlling device vibration

❖ **Introduction SMS and MMS**

- Using SMS and MMS in Your Application
- Sending SMS and MMS from your Application
- Using Intents and the Native Client
- Sending SMS Messages Manually
- Tracking and Conforming SMS Message
- Delivery
- Conforming to the Maximum SMS
- Message Size Sending DAT Messages

❖ **Further Advanced Topics**

- Binding Activities to services
- Prioritizing Background services
- Binding data with service

✧ **Web Services with Architecture**

- What are webservices
- Web service Architecture
- Asyn Task
- REST & SOAP
- Parsing Techniques JSON, XML
- Consuming WebServices
- CRUD Operations over Server

✧ **Google Cloud Messaging**

- What is GCM ?
- GCM Architecture
- GCM Services
- Instant Messaging
- TTL (Time to Live)
- Group Messaging
- Server Communication

✧ **Introduction to NDK**

- What is NDK
- Need of NDK
- Memory Management
- Machine Architecture

✧ **Introduction to Gaming**

- Sensors with Canvas & Bitmap
- Introduction to Open GLes
- Making figures
- Provide figure Transformation

✧ **Integration**

- Facebook Integration
- Twitter Integration
- Google/Gmail Integration

✧ **Material Design**

- List and Card
- View Shadows/ Custom Shadows
- App Bar /Action Bar
- Matterial Theme
- Adapter view and Recycler View

✧ **Animation**

- Clockwise
- Zoom
- Fade
- Blink
- Move
- Slide

✧ **Debugging and testing Android Apps**

- 20g Cat
- Debugger
- Trace View
- Monkey Runner
- UI Automator