

- 1. Introduction to Android** **2H**
  - a. What is Android?
  - b. Setting up development environment
  - c. History of Android & .apk file extension
  - d. Architecture of android
  - e. Fundamentals:
    - i. Basic Building blocks - Activities, Services, Broadcast Receivers & Content providers
    - ii. UI Components - Views & notifications
    - iii. Components for communication - Intents & Intent Filters
  - f. Android API levels (versions & version names)
  - g. Lifecycle Methods
- 2. Application Structure (in detail)** **1H**
  - a. AndroidManifest.xml
  - b. uses-permission & uses-sdk
  - c. Resources & R.java
  - d. Assets
  - e. Layouts & Drawable Resources
  - f. Activities and Activity lifecycle
  - g. First sample Application
- 3. Emulator-Android Virtual Device** **1H**
  - a. Launching emulator
  - b. Editing emulator settings
  - c. Logcat usage
  - d. Second App:- (switching between activities)  
-Develop an app for demonstrating the communication between Intents
- 4. Basic UI design** **3H**
  - a. Form widgets
  - b. Text Fields
  - c. Spinner
  - d. Layouts
  - e. [dip, dp, sip, sp] versus px
  - f. Splash Screen
  - g. Examples

<b>5. Preferences</b>	<b>1H</b>
a. SharedPreferences	
b. Preferences from xml	
c. Examples	
<b>6. Menu</b>	<b>2H</b>
a. Option menu	
b. Context menu	
c. Sub menu	
d. PopUpMenu	
e. menu from xml	
f. menu via code	
g. Examples	
<b>7. Intents (in detail)</b>	<b>2H</b>
a. Explicit Intents	
b. Implicit intents	
c. Examples	
<b>8. UI design</b>	<b>4H</b>
a. Time and Date	
b. Images and media	
c. Composite	
d. AlertDialogs & Toast	
e. Floating Action Button & Snackbar	
f. Popup	
g. Examples	
<b>9. Tabs and Tab Activity</b>	<b>2H</b>
a. Fixed Tabs	
b. Scrollable Tabs	
c. Tabs with Icon & Text	
d. Tabs with only Icon	
e. Custom Tab View with Icon & Text	
f. Examples	
<b>10. Styles &amp; Themes</b>	<b>1H</b>
a. styles.xml	
b. drawable resources for shapes, gradients (selectors)	
c. style attribute in layout file	
d. Applying themes via code and manifest file	
e. Examples	

<b>11. Working with WebView – Building a Simple In-App Browser</b>	<b>1H</b>
<b>12. Content Providers</b>	<b>6H</b>
<ul style="list-style-type: none"> <li>a. SQLite Programming</li> <li>b. SQLiteOpenHelper</li> <li>c. SQLiteDatabase</li> <li>d. Cursor</li> <li>e. Room Database</li> <li>f. Crud operations with room</li> <li>g. Example : -Develop an App to demonstrate database usage. CRUD operations must be implemented.</li> </ul>	
<b>13. Adapters and Widgets</b>	<b>5H</b>
<ul style="list-style-type: none"> <li>a. Adapters:- <ul style="list-style-type: none"> <li>i. ArrayAdapter</li> <li>ii. BaseAdapters</li> </ul> </li> <li>b. ListView and ListActivity</li> <li>c. Custom listview</li> <li>d. MultiLevel ListView</li> <li>e. GridView using adapters</li> <li>f. Gallery using adapters</li> <li>g. Expandable ListView</li> <li>h. Horizontal &amp; Vertical ListView</li> <li>i. CardView &amp; RecyclerView</li> <li>j. Adding Search functionality in ListView</li> <li>k. Examples</li> </ul>	
<b>14. Notifications</b>	<b>1H</b>
<ul style="list-style-type: none"> <li>a. Services and Push notifications</li> <li>b. Toast</li> <li>c. Examples</li> </ul>	
<b>15. Android Working with Marshmallow (M) Runtime Permissions</b>	<b>1H</b>
<b>16. Build Intro Slider for your App</b>	<b>2H</b>
<b>17. Create apk/app bundle and upload on play store</b>	<b>2H</b>
<b>18. Projects</b>	<b>8H</b>

## Advanced Android

<b>1. Refreshing Java</b>	<b>2H</b>
<ul style="list-style-type: none"> <li>♣ OOPs Concepts</li> <li>♣ Inheritance in detail</li> <li>♣ Exception handling</li> <li>♣ Packages &amp; interfaces</li> <li>♣ JVM &amp; .jar file extension</li> <li>♣ Multi threading (Thread class &amp; Runnable Interface)</li> <li>♣ Collections – HashTable, Vector, List, ArrayList,HashMap</li> </ul>	
<b>2. Parsing data</b>	<b>2H</b>
<ul style="list-style-type: none"> <li>◆ JSON Parsing</li> <li>◆ Xml Parsing</li> </ul>	
<b>3. Location and Maps</b>	<b>4H</b>
<ul style="list-style-type: none"> <li>❖ Location API</li> <li>❖ Google Map</li> <li>❖ Geo Coding</li> <li>❖ Reverse Geocoding</li> </ul>	
<b>4. Accessing Phone services (Call, SMS, MMS)</b>	<b>1H</b>
<b>5. Creating slideshow</b>	<b>1H</b>
<b>6. Firebase</b>	<b>4h</b>
<ul style="list-style-type: none"> <li>● Firebase Authentication</li> <li>● Realtime Database</li> <li>● Cloud Messaging/Push Notification</li> </ul>	
<b>7. web services Integration</b>	<b>2H</b>
<b>8. Sliding menu using navigation drawer</b>	<b>1H</b>
<b>9. Fingerprint Authentication</b>	<b>2H</b>
<b>10.Play Youtube Video in app</b>	<b>1H</b>

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<b>11. Localization- Creating App for multiple language support</b>	<b>2H</b>
<b>12. Various integration 3H</b>	
<ul style="list-style-type: none"><li>• facebook integration</li><li>• Google integration</li><li>• Twitter integration</li></ul>	
<b>13. App monetization(google Admob)</b>	<b>2H</b>
<ul style="list-style-type: none"><li>• Banner Ads</li><li>• Interstitial Ads</li><li>• Rewards Ads</li></ul>	
<b>14. Payment Gateway for Ecommerce app</b>	<b>3H</b>
<ul style="list-style-type: none"><li>• Paypal integration</li><li>• Razorpay Integration</li></ul>	
<b>15. Android Jetpack</b>	<b>5H</b>
<ul style="list-style-type: none"><li>• Data Binding</li><li>• Life Cycles</li><li>• Live Data</li><li>• Navigations</li></ul>	
<b>16. <u>Project Offered:</u></b>	<b>10h</b>
<ul style="list-style-type: none"><li>• Tour Guide of Bihar</li><li>• Pay For Indian Army</li><li>• Quiz App</li><li>• Image Gallery App</li><li>• Flashlight App</li><li>• Ecommerce App</li></ul>	