

Android Apps Development

Course Contents:

1. Introduction to Android

Overview of Android and Android SDK. History of Android ,features and Development.

2. Android Architecture Overview

Android OS Architecture, Linux Kernel, Libraries, Android Runtime, Application Framework, Setting Up Android Development Environment, Eclipse and SDK installation, AVD creation

3. Android Application Fundamentals

Android Application building blocks, Creating first Android Application, Android Application Structure, Life-Cycle of Application, Manifest File Development tools

4. Resources

Android Resources, String resources, Layout resources, Color resources, Dimension resources, Image Resources, Color Drawable resources, Allocating Id to a Resource, Defining Your Own Resource IDs for Later Use, Resource directory structure, Working with XML and raw Resource files.

5. User Interface Designing

UI Development in Android Layouts,Linear Layout, Relative Layout, List View, Grid View, Button controls. The ImageButton Control, The ToggleButton Control Input controls, The CheckBox Control, The RadioButton Control, Date and Time Controls, The DatePicker and TimePicker Controls, Text Controls, TextView, EditText, AutoCompleteTextView, MultiAutoCompleteTextView

6. Input Events and Adapter

Input Events, Notifying User, Styles and Themes, Using Styles, Using Themes,Understanding Adapters, SimpleCursorAdapter, ArrayAdapter, Using Adapters with AdapterViews, The Spinner Control, The Basic List Control: ListView, The GridView Control, The Gallery Control,Creating Custom Adapters.

7. Intents and Activity Communication

Basics of Android Intents, Available Intents in Android, Intents and Data URIs, Understanding Intent Categories, Rules for Resolving Intents to Their Components, Action, Data, Data Type, Data Scheme, Data Authority, Data Path, Intent Categories,Introducing Pending Intents

8. Working with Menus

Understanding Android Menus, Creating a Menu, Working with Menu Groups, Responding to Menu Items, Responding to Menu Items through onOptionsItemSelected, Responding to Menu Items Through Listeners, Working with Other Menu Types, Expanded Menus, Working with Icon Menus, Working with Submenus, Working with Context Menus, Working with Alternative Menus, Dynamic Menus, Loading Menus Through XML Files, Loading Menus Through XML Files, Structure of an XML Menu Resource File, Introduction to Additional XML Menu Tags, Group

Category Tag, Checkable Behavior Tags, Tags to Simulate a Submenu, Menu Icon Tag, Menu Enabling/Disabling Tag, Menu Item Shortcuts, Menu Visibility

9. Understanding Fragments

Screen Size and Density, What Is a Fragment?, When to Use Fragments, Fragment Structure, Lifecycle of a Fragment, The `onInflate()` Callback, The `onAttach()` Callback, The `onCreate()` Callback, The `onCreateView()` Callback, The `onActivityCreated()` Callback, The `onStart()` Callback, The `onResume()` Callback, The `onPause()` Callback, The `onSaveInstanceState()` Callback, The `onStop()` Callback, The `onDestroyView()` Callback, The `onDestroy()` Callback, The `onDetach()` Callback, Using `setRetainInstance()`, Sample Fragment App Showing the Lifecycle, Fragment Transactions, The `FragmentManager`, Communications with Fragments, Using `startActivity()` and `setTargetFragment()`

10. Working with Dialogs

Using Dialogs in Android, Understanding Dialog Fragments, `DialogFragment` Basics, Constructing a Dialog Fragment, Overriding `onCreateView`, Overriding `onCreateDialog`, Displaying a Dialog Fragment, Dismissing a Dialog Fragment, Working with Toast

11. Exploring ActionBar

Anatomy of an `ActionBar`, Tabbed Navigation Action Bar Activity, Implementing Base Activity Classes, Assigning Uniform Behavior for the Action Bar, Implementing the Tabbed Listener, Implementing the Tabbed Action Bar Activity, Obtaining an Action Bar Instance, Action Bar Navigation Modes. Scrollable Debug Text View Layout, Options menu Vs. Action bar, Action Bar and Menu Interaction, Contextual `ActionBar`, `ActionViews`, Custom `ActionView`

12. Understanding preferences

Exploring the Preferences Framework, Understanding `ListPreference`, Understanding `CheckBoxPreference`, Understanding `EditTextPreference`, Understanding `RingtonePreference` and `MultiSelectListPreference`, Organizing Preferences, Using `PreferenceCategory`, Shared Preferences

13. Data Storage

Storage Options in Android, The Internal Storage, Saving cache files, The External Storage, Accessing the external storage To check the media availability, Hiding your files from the Media Scanner, Saving files that can be shared with other apps, Saving app-private files, Saving cache files, SQLite Databases, Content Providers, Exploring Android's Built-in Providers, Quick SQLite Primer, Architecture of Content Providers, Structure of Android Content URIs, Structure of Android MIME Types, Adding a File to a Content Provider, Updates and Deletes, Implementing Content Providers, Planning a Database, Extending `ContentProvider`, Implementing the methods, Registering the Provider

14. Threads, Handlers and Asynchronous Processing

Android Components and Threading, Activities Run on the Main Thread, Broadcast Receivers Run on the Main Thread, Services Run on the Main Thread, Content Provider Runs on the Main Thread, Thread Utilities, Handlers, Implications of Holding the Main Thread, Using a Handler to Defer Work on the Main Thread, Sample Handler Source Code That Defers Work, Constructing a

Suitable Message Object, Sending Message Objects to the Queue, Responding to the handleMessage Callback, Exploring AsyncTask, Subclassing an Async Task, Implementing Your First Async Task, Calling an Async Task

15. Broadcast Receivers and Notification Manager

Broadcast Receivers, Sending a Broadcast, Coding a Simple Receiver: Sample Code, Registering a Receiver in the Manifest File, Using Notifications from a Receiver, Monitoring Notifications through the Notification Manager, Sending a Notification

16. Working with Media APIs

Using the Media APIs, Using SD Cards, Playing Media, Playing Audio Content, Playing Video Content, Recording Media, Exploring Audio Recording with MediaRecorder, Recording Audio with AudioRecord, Exploring Video Recording

17. Home Screen Widgets

Architecture of Home Screen Widgets, What Are Home Screen Widgets?, User Experience with Home Screen Widgets, Creating a Widget Instance on the Home Screen, Understanding Widget Configurator, Life Cycle of a Widget, Widget Definition Phase, Widget Instance Creation Phase, onUpdate Phase, Widget View Mouse Click Event Callbacks, Deleting a Widget Instance, Uninstalling Widget Packages, Defining the Widget Provider, Defining Widget Size, Widget Preview Tool, Widget Limitations and Extensions

18. Using Telephone APIs

Sending SMS Messages, Monitoring Incoming SMS Messages, Working with SMS Folders, Sending E-mail, Working with the Telephony Manager.

19. Understanding Security and Permissions

Understanding the Android Security Model, Overview of Security Concepts, Signing Applications for Deployment, Declaring and Using Permissions, Understanding and Using Custom Permissions, Understanding and Using URI Permissions, Passing URI Permissions in Intents, Specifying URI Permissions in Content Providers

20. Network Communication and Services

Understanding Mobile Networking Fundamentals, Understanding Strict Mode with Networking, Accessing the Internet (HTTP), Reading Data from the Web Using HttpURLConnection, Parsing XML from the Network, Parsing JSON from the Network, Retrieving Android Network Status

21. Application Deployment

Publishing Options, Preparing AndroidManifest.xml for Uploading, Deploying app on Google Play Store, Becoming a Publisher, Developer Console