66673 Apps Development Project T P C

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AIMS

After completion of the course students will be able to acquire knowledge, skill, attitude in the area of Apps Development emphasizes on:

- Skills to design and build an Android application from scratch.
- Thorough understanding of main components of an Android application and its entire life cycle.
- Ability to use tools to debug and maintain your Android applications.
- Using external resources, manifesting adapters and file intents.
- Understand storage tools and techniques: files, preferences, databases, and content providers.
- Using background processing techniques available in Android.

SHORT DESCRIPTION

Introduction to Android Programming, Fundamentals, Classes, Layout, Exception Handling, Android Components, Content providers, Messaging, Connectivity, Location services, Build and App Publish.

DETAIL DESCRITION

1. **Create Android Environment for App Development.**
   - 1.1 Install the latest Android Studio.
   - 1.2 Install Android SDK.
   - 1.3 Configure the IDE.
   - 1.4 Find your configuration files.
   - 1.5 Explore the IDE.
   - 1.6 Define Android Scope.
   - 1.7 Features of Android.
   - 1.8 Understand SDK, AVD and Emulator.

2. **Create an Application and understand the Anatomy.**
   - 2.1 Explore Application Framework.
   - 2.2 Explore Application Component.
   - 2.3 Create a Hello World Program.
   - 2.4 Explore Anatomy of Application – Folder, File & Description.
   - 2.5 Describe Main Activity File, Manifest File, Strings File, Layout File.
   - 2.6 Debug and Exception handle procedure.

3. **Work with Activities.**
   - 3.1 Define Android Activity and Understand Activity life cycle.
   - 3.2 Handle Activity State Changes.
   - 3.3 Create an Android application and test your app's activities.
   - 3.4 Create an activity.
   - 3.5 Drive the activity to a new state.
   - 3.6 Recreate the activity.
   - 3.7 Trigger actions in the activity.

4. **Work with Fragment.**
   - 4.1 Explore fragmentlife cycle, use and types of fragments.
   - 4.2 Create a Fragment Class.
   - 4.3 Build a flexible UI.
   - 4.4 Add a Fragment to an Activity at Runtime.

4.5 Replace One Fragment with Another.
4.6 Communicate with other fragments.
4.7 Deliver a Message to a Fragment.

5. Work with Android Intents and Filters.
5.1 Understand the intent object and fundamental use cases.
5.2 Explore Intent types.
5.3 Data transfer between activities.
5.4 Register an Activity for the Intent which is triggered when someone wants to open a webpage.
5.5 Build a service in your app to download a file from the web.

6. Create Android User Interface.
6.1 Understand the basic building block for user interface.
6.2 Explore the Frame layout, Linear layout, Table layout, Relative layout, Frame layout, List View, Grid View
6.3 Adapt layout attributes.
6.4 Build Layouts with an Adapter.
6.5 Improve layout performance.

7. Design user Interface with views.
7.1 Add Text, Buttons, checkboxes, radio buttons, toggle buttons, spinners, pickers, tooltips to the layout files.
7.2 Create and manage notifications and channels, modify notification badges.
7.3 Create an activity from a notification.
7.4 Add app bar.
7.5 Dim system bars, Hide status bar and navigation bar.

8. Work with Navigation.
8.1 Design effective navigation.
8.2 Create swipe view with tabs.
8.3 Create a navigation drawer.
8.4 Implement proper Back navigation.

9. Display Pictures and Menus with Views.
9.1 UseImageView, ImageSwitcher to Display Pictures.
9.2 Use GridView to Display Pictures.
9.3 ExploreMenus with Views.

10. Work with App data & files.
10.1 Save files on device storage - Internal Storage, External Storage (SD Card).
10.2 Save data in a local database.
10.3 Send data to other apps.
10.4 Share files.
10.5 Retrieve file information.

11. Use Content Providers.
11.1 Understand content providers and advantages.
11.2 Accessing and retrieving data from a provider.
11.3 Creating Own Content Providers.
11.4 Create an address book using the Content Provider.

12. Work with Messaging.

12.1 Understand Sms Manager API.
12.2 Analyze Method & Description.
12.3 Send an SMS to the given mobile number.
12.4 Analyze Email Messaging.
12.5 Analyze Extra Data &Description.
12.6 Send an Email to the given recipients.

13. Illustrate Location Based Services.

13.1 Display Maps.
13.2 Get the current location.
13.3 Get the Updated Location.
13.4 Displaying a Location Address.
13.5 Project – Build a Location Tracker.

14. Establish Connectivity.

14.1 Learn how to connect to the network, choose an HTTP client, and perform network operations outside of the UI thread.
14.2 Learn how to check a device's network connection, create a preferences UI for controlling network usage, and respond to connection changes.
14.3 Optimize network data usage.
14.4 Parse XML data.
14.5 Reduce network battery drain.

15. Develop Android Services.

15.1 Creating Own Services - Long Running Task and Services, Repeated Task in a Service, Execute a synchronous Task on separate.
15.2 Establishing Communication Between a Service and Activity.
15.3 Bind activities to services.
15.4 Understand Threading.

16. Configure your build

16.1 The build process.
16.2 Custom build configurations.
16.3 Build configuration files.
16.4 Set the application ID.
16.5 Add build dependencies, Dependency types, configurations.
16.6 Optimize your build speed.
16.7 Configure build variants.

17. Publish your App

17.1 Prepare for release, Gather materials and resources.
17.2 Set application version information.
17.3 Create Certificates and key stores, Manage keys.
17.4 Upload your app bundle.
17.5 Update your App.

18. Create a Contact Book.

18.1 Understand the project scope and requirement analysis.
18.2 Create a Form that will take username, gender, email, phone number.
18.3 Upload user image.
18.4 Store data to database.
18.5 Update and Delete a contact.

18.6 Display user information in List View.
18.7 Test your App with UI-Testing and with testing tools.

19. Create a BMI Tracker.

19.1 Understand the project scope and requirement analysis.
19.2 Create a calculator that will take user height, weight and age.
19.3 Create BMI Standard to compare.
19.4 Show user BMI and give status.
19.5 Store BMI result.
19.6 Display monthly BMI.
19.7 Test your App with UI-Testing and with testing tools.

20. Create a Location based App.

20.1 Understand the project scope and requirement analysis
20.2 Create a form that will take name of type like Hospital, Institute, Fire station.
20.3 Create a form that will take information about Address, contact number, latitude, longitude of the address, basic service related information.
20.4 Create a signup form for user and store.
20.5 Filter nearby locations stored in database.
20.6 Test your App with UI-Testing and with testing tools.

Reference Books

1. Beginning Android programming with Android Studio By - J F DIMarjio

2. Hello Android Introducing Google's Mobile Development Platform By - ED Burnette

Essential Links

1. developer.android.com
2. www.tutorialspoint.com/android