

Android Advanced Programming

JJD 301

Introduction

This Android Programming course teaches more advanced programming topics for the Android platform. Students will learn to use database and network in their programs. This Android Programming course is ideal for developers who want to take their Android skills to the next level.

Objectives

WHAT STUDENTS WILL LEARN?

- Advanced GUI topics like ListView, WebView and tabbed layout.
- Working with files and SQL database.
- Content provider
- Network programming.
- Performing tasks in the background.
- Play audio and video.
- Automate Unit test applications.
- Package and sell applications.

Audience Profile

Developers and architects who will be developing applications for Android devices.

Prerequisites

Students must have working knowledge of Android programming. Good knowledge of Java and familiarity with Eclipse is necessary.

Faculty

Our team of highly qualified instructors combine training activities with the development of their profession as experts in the field of IT. Professionals certified by the major manufacturers capable of transferring an enjoyable and easy to understand technical concepts more abstract.



Documentation

Every student receive a copy of netmind's documentation.

Course Outline

CHAPTER 1. SHOWING NOTIFICATION MESSAGES

- Introduction
- 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
- Additional Notes
- Using Dialogs
- AlertDialog
- Handling Button Click Events
- ProgressDialog
- Setting Progress Amount
- Summary

CHAPTER 2. ADVANCED GUI DEVELOPMENT

- Spinner View
- Creating a Spinner
- Handling Item Selection Event
- The ListView
- Creating a ListView
- Handling ListView Events
- The Adapter Model
- Custom Adapter Class
- Example Adapter
- Using an Adapter
- Using a Custom Row Layout
- ViewPager
- Tabbed UI Layout
- Creating Tabbed UI

- Defining the Tabbed Layout
- Creating the Tabs with View Content
- Add a Tab with Activity Content
- WebView
- WebView Methods
- Summary

CHAPTER 3. DATA STORAGE

- Data Storage Options
- Data Privacy
- Shared Preferences
- Modifying Shared Preferences
- Shared Preferences Example
- Default Preferences
- Editing Preferences
- Example: Editing Preferences
- Internal Storage
- Example: Write to Internal Storage
- Example: Read from Internal Storage
- Private Directory
- Cache Directory
- Example: Writing to Cache File
- External Storage
- Checking State of External Storage
- Working with Files in External Storage
- Example: Writing to External Storage
- Shipping Files with the Application
- Working with Raw Resource Files
- Working with Asset Files
- Summary

CHAPTER 4. SQL DATABASE STORAGE

- Introduction
- Opening a Database Connection
- Transaction Management
- A Pattern for Connection and Transaction Handling
- Creating Schema
- Compiled SQL Statement
- Inserting Data
- Updating Data
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- Deleting Data
- Fetching Data
- Example Queries
- Iterating Over a Cursor
- Reading Column Values from Cursor
- A Complete Example
- Cursor Management
- Binding Cursor to ListView
- Custom Data Binding
- Handling Item Click Event
- Refreshing the ListView
- Schema Creation Issues
- Example Helper Class
- Using the Helper Class
- Summary

CHAPTER 5. CONTENT PROVIDER

- Introduction
- Use of URL
- The Structure of Data
- MIME Type
- Creating a Content Provider
- Implement the query() Method
- Example query() Method
- Implement the insert() Method
- Example insert() Method
- The update() and delete() Methods
- Implement getType()
- Registering a Provider
- Writing a Data Consumer
- Performing a Query
- Example Query by a Consumer
- Example: Inserting Record
- Summary

CHAPTER 6. NETWORK PROGRAMMING

- Introduction
- Communication Using HTTP Protocol
- Creating a HttpClient Object
- Making a GET Request
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- Making a POST Request
- Setting Timeout
- Using Basic Authentication
- Using Custom Authentication
- XML Parsing Options
- Setting Up XML Pull Parser
- The Main Loop
- Example XML Document
- Example Parsing Code
- Checking Network Status
- Summary

CHAPTER 7. BACKGROUND TASK PROCESSING AND SERVICE

- Introduction
- 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
- Example Service Class
- Starting and Stopping a Service
- Starting Long Running Work
- Sending Control Messages to a Service
- Usability Guidelines
- Summary

CHAPTER 8. MULTIMEDIA PROGRAMMING

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

CHAPTER 9. BROADCAST RECEIVER

- Introduction
- Developing a Broadcast Receiver Component
- Registering a Receiver
- Broadcasting a Custom Intent
- Summary

CHAPTER 10. LOCATION BASED SERVICES

- Introduction
- Guidelines for Obtaining Current Location
- Obtaining Current Location from an Activity or Service
- Reading Location Data
- Other Considerations
- Proximity Alert
- Geocoding
- Example Geocoding and Reverse Geocoding
- Using MapView
- Setting up the Project
- Showing MapView from an Activity
- Summary

CHAPTER 11. 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
- Summary

CHAPTER 12. TESTING APPLICATIONS

- Introduction
- New Sources of Defects
- Special Testing Considerations
- Android Testing Framework
- The Architecture
- Creating a Test Project
- Test Case Class for an Activity
- Test Case Initialization
- Writing a Test Case Method
- Service Test Case Class
- Running Test Cases
- Useful Methods of an Activity Test Case Class
- Additional Assertion Function
- The TouchUtils Class
- Developing and Testing on a Device
- Stress Test Monkey
- Third Party Testing Tools
- Summary

CHAPTER 13. PACKAGING AND DISTRIBUTING APPLICATIONS

- Introduction
- Pricing Options
- Getting the Application Ready
- About Signing the Application
- Exporting and Signing the Application
- Going to Android Market
- Doing Maintenance
- Summary

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