Resource Person Mehroze Yaqoob

Semester

Course Title Mobile Enterprise Application

Course Code

Course Type: Applied

Pre-Requisite: Web Programming, OOP

Counseling Hours: Class Days and 24/7 via Email

Program Head: Mr. Imran Saleem

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| --- | --- | --- | --- |
| **Signature** | **Date** | **Name** |  |
|  |  |  | **Prepared By**  (Resource Person) |
|  |  |  | **Checked By**  (Program Head) |
|  |  |  | **Approved By**  (Director SPA) |

**Course Description**

This course is primarily focused on enabling students to make their own mobile applications and games earn money. The course is divided into three phases.

First phase, students will learn basics of mobile development technology, its importance in future, and scope in Pakistan, how they can earn money by making their own android-based applications and games.

Second phase will consist of thorough research and practical development, solving problems and learning the solutions of typical exceptions that will come each time student will code.

Third phase, the most important one, consist of finalizing the project and think about app store optimization (ASO), deployment procedure, configuring revenue model (in-apps & advertisement).

**Course Instructional Objectives**

* Describe the principles of mobile programming.
* Be able to create, debug and run simple JAVA terminology.
* Understand fundamentals of Object Oriented Programming
* Apply standard coding practices
* Apply views according market standards and usability.
* The main instructional goal is to inculcate Mobile Development understanding skills in the students.
* To understand the Mobile Development issues that has to be taken care of.
* This will be achieved through lectures, quizzes, labs and assignments.

**Course Student Objectives**

Upon completion of the course, students will be able to:

* Learn the theoretical and conceptual framework of Mobile Development.
* Develop Mobile Apps, understanding, analysis, designing and implementation capabilities and competencies in them.
* Understand complete development life cycle of Mobile Apps and can develop new systems on their own.

**Course Contents**

Following is the session-wise breakup of the course:

**Session 1: Introduction to Mobile Computing and View Creation**

* One-to-one introduction
* Course Introduction, Teaching & Assessment Methodology
* Distribution of Course Outlines
* Discussion on Course Outline
* Basic configurations
* Brief intro to design pattern that will be used in during whole course
* Creating a simple Hello World Program and displaying output on Simulator

**Learning Objectives**

The main learning objective of the reading is to describe the basic introductory concepts necessary for a good understanding of mobile app models, systems, and languages.

**Activities**

* Create a simple hello world app

**Session 2: Introduction to Widgets**

* ADT Bundle and Android Studio
* What’s new in Latest SDK
* Text Views and Button Handling

**Learning Objectives**

Understanding the concept of view hierarchy in android.

Understanding Layout concepts and communication of xml views with its JAVA file.

**Activities**

* Create and App containing Buttons and Text view and hide Text view on clicking button

**Session 3: Dialogs and List Views, Menus and their Uses**

* Visualization of Dialogs and List view in daily routine usage
* Doing Code to create dialogs of our own
* Using above widgets in our app

**Learning Objectives**

Using these views in app and prompting user according to their scenarios

**Activities**

* On button click show a dialog and create a list view containing 10 countries name

**Session 4: Android Tabs**

* Tab-host
* Tab Layout
* Controlling Tabs Programmatically

**Learning Objectives**

In this session students will be formally introduced to creating tabs and its usage in professional apps. Demonstrating sample app and applying any reference app to create one of their own.

**Activities**

* Create a simple tab-bar in android.

**Session 5: Progress bar and their usage**

* Creating progress bar
* Implementing different scenarios to display
* Practical example from reference app downloaded from play store

**Learning Objectives**

This session describes some of the basic parts of the background activity and loading data while showing progress bar.

**Activities**

* Create an app that downloads data from web and display progress bar on UI

**Session 6: Screen Resolutions and Navigation**

* Handling multiple screen sizes
* Services
* Intents
* Broadcasting

**Learning Objectives**

Coding once and applying it on different resolutions of android devices, navigation from once activity to another, using tab bar with one activity but multiple screens.

**Activities**

* Create hello world program and see output on different resolutions.

**Session 7: Parsing data from server and storing it into Database - 1**

* SQLite
* JSON
* Defining Models

**Learning Objectives**

How to read JSON file format and how it is parsed in JAVA.

**Activities**

* Create a simple JSON and make models accordingly.

**Session 8: Parsing data from server and storing it into Database - 2**

* JSON Object
* JSON Array
* HTTP / HTTPS Calls

**Learning Objectives**

The students will learn how they can parse JSON data in code using models. Model creation and how it is linked to database.

**Activities**

* Parse a sample JSON and storing it values in a temporary location

**Session 9: Parsing data from server and storing it into Database - 3**

* SQLite Handling
* Creating Tables in JAVA
* Storing data in tables

**Learning Objectives**

A complete chained set of lecture explaining how to read JSON file, create appropriate model and tables and storing it in database for offline usage

**Activities**

* Parse a sample JSON and storing it values in a SQLite table

**Session 10: MIDTERM (Coding)**

**Session 11: Using Web Services**

* Content Providers
* Web Service Integration

**Learning Objectives**

Students will learn the basics of parsing data from web and server and populating UI dynamically.

**Activities**

* Integrate a sample web service in your app.

**Session 12: Adding graphics to UI**

* Apply difference graphics on UI widget and make it more professional.
* Images can be downloaded from web.

**Learning Objectives**

Presenting a more usable and easy to eye application to gain more professional sense.

**Activities**

* Final Project
* Whats-app UI and Backend (minimal) functionalities

**Session 13: Push Notifications**

* Local Notification
* Server Notification
* Their need

**Learning Objectives**

Understanding why there is a need to send notification and how they can be useful in-terms of revenue

**Activities**

* Project follow-up
* Integrate notification in your project

**Session 14: Shared Preferences and Google API**

* Storing data in temp location
* Map Services
* Location Based Services

**Learning Objectives**

Multimedia and telephony API, Location and Mapping, Location Based Services, How students can save data in the fastest way that is Shared User Preference and retrieve data from is Shared Preference

**Activities**

* Project follow-up
* Integrate shared preference in your project

**Session 15: Fling and Multi-touches / Revision**

* Pagination
* Flinging
* Touch Delegates
* Revision

**Learning Objectives**

Touch Screens, Multi-touch, Gestures, Custom Gestures, Processes and Threads in Android

**Activities**

* Project finalization
* Brief Presentation

**Session 16: FINALTERM**

**Recommended Book (s) & Text:**

# Mark L. Murphy “Beginning Android 2”, Apress, ISBN 978-1-4302-2629-1

# ZigurdMednieks, Laird Dornin, G. Blake Meike, and Masumi Nakamura “Programming Android”, 2nd Edition, O Reilly Press, ISBN: 978-1-449-31664-8

# Syed Hashmi, SatyaKomatineni, Dave Maclean “Pro Android 2”, Apress, ISBN 978-1-4302-2659-8

**Web Resources:**

* R1.<http://developer.android.com/develop/index.htm>
* R2.<http://developer.android.com/guide/components/services.html>
* R3.<http://developer.android.com/guide/components/intents-filters.html>
* R4.<http://developer.android.com/guide/topics/data/data-storage.html>
* R5. <http://developer.android.com/guide/topics/graphics/index.html>

**ASSESSMENT METHODOLOGY**

|  |  |
| --- | --- |
| 20% | Daily Tasks (Assignment + Quiz) |
| 5% | Class Participation |
| 15% + 5% | Project + Presentation |
| 5% | Attendance |
| 15% | Mid Term |
| 35% | Final Term Exam |
| 100% | Total |

**CALENDAR OF ACTIVITIES**

|  |  |  |  |
| --- | --- | --- | --- |
| **Activities** | **Readings** | **Topics** | **Session** |
| Code Practice | Chapter 1 | **Introduction to Mobile Computing and View Creation**   * One-to-one introduction * Course Introduction, Teaching & Assessment Methodology * Distribution of Course Outlines * Discussion on Course Outline * Basic configurations * Brief intro to design pattern that will be used in during whole course * Creating a simple Hello World Program and displaying output on Simulator | 1 |
| Code Practice | Chapter 1,2 | **Introduction to Widgets**   * ADT Bundle and Android Studio * What’s new in Latest SDK * Text Views and Button Handling | 2 |
| Code Practice | Chapter 3,5 | **Dialogs and List Views, Menus and their Uses**   * Visualization of Dialogs and List view in daily routine usage * Doing Code to create dialogs of our own * Using above widgets in our app | 3 |
| Code Practice | Online Tutorials | **Android Tabs**   * Tab-host * Tab Layout * Controlling Tabs Programmatically | 4 |
| Code Practice | Online Tutorials | **Progress bar and their usage**   * Creating progress bar * Implementing different scenarios to display * Practical example from reference app downloaded from play store | 5 |
| Discussion | Online Tutorials | **Screen Resolutions and Navigation**   * Handling multiple screen sizes * Services * Intents * Broadcasting | 6 |
| Code Practice | Online Tutorials | **Parsing data from server and storing it into Database - 1**   * SQLite * JSON * Defining Models | 7 |
| Code Practice | Online Tutorials | **Parsing data from server and storing it into Database - 2**   * JSON Object * JSON Array * HTTP / HTTPS Calls | 8 |
| Code Practice | Online Tutorials | **Parsing data from server and storing it into Database - 3**   * SQLite Handling * Creating Tables in JAVA * Storing data in tables | 9 |
| **MIDTERM** | | | 10 |
| Code Practice | Online Tutorials | **Using Web Services**   * Content Providers * Web Service Integration | 11 |
| Code Practice | Online Tutorials | **Adding graphics to UI**   * Apply difference graphics on UI widget and make it more professional. * Images can be downloaded from web. | 12 |
| Code Practice | Online Tutorials | **Push Notifications**   * Local Notification * Server Notification * Their need | 13 |
| Discussion | Online Tutorials | **Shared Preferences and Google API**   * Storing data in temp location * Map Services * Location Based Services | 14 |
| Discussion | Online Tutorials | **Fling and Multi-touches / Revision**   * Pagination * Flinging * Touch Delegates * Revision | 15 |
| **FINALTERM** | | | 16 |