5 - Years Integrated M.Sc. (IT)/M.Sc. (IT) (Semester – 6)

Lab Manual

IT5027 – Fundamentals of Mobile Application Development

Programme Outcomes:

PO1: Knowledge: Apply the fundamental knowledge of information technology along with analytical, problem-solving, and designing. Also, to provide communication skill for life-long learning in chosen field.

PO2: Problem Analysis and Solution: Identify, Analyze, and provide the solution for emerging real-world problems with the help of theoretical and practical understanding of tools and technologies.

PO3: Core Competence: To cultivate professionalism, ethics, and aesthetic to become competent leader to serve the community.

PO4: Preparation: To Prepare the student for higher studies, research and development and social upliftment. Also, to provides skills which help students to work and recognized themselves as an individual and as a team player.

Course Objectives:

To build knowledge of mobile technologies and its environment to design, develop and deploy applications for mobile devices using design elements, data management, system services, and media APIs.

Course Outcomes:

CO1: Describe mobile technologies, its versions, mobile application development architecture and environment

CO2: Design the mobile application development life cycle and way of communication between application components.

CO3: Design and develop mobile applications user interface using designing elements.

CO4: Analyze and use appropriate data storage options such as Shared Preferences, Internal, External and database to manage data into mobile applications.

CO5: Creating and implement the background services and user alerts for improving the performance of the mobile application

CO6: Integrate multimedia into mobile applications using media API.

Practical List - Course Outcomes Matrix

P #	Practical Title	CO1	CO2	CO3	CO4	CO5	.
1.	Core components of Android	✓					
2.	Design Elements of Android		✓	✓			
3.	Working with data storage mechanism			✓	✓		

Practical Guidelines for students:

1. Student must prepare workbook based on nature of submission either handwritten or printed pages or softcopy.
2. Each page (handwritten or printed) must contain enrollment number. Must add enrollment number on UI image.
3. Student should obtain signature on workbook during laboratory from the lab teacher.
4. Student should follow coding standard.

Practical Guidelines for teachers:
1.
2.

Tools and Technologies:
1. Android Studio
2. Java Development Kit

Computing Environment:
1. H/w specifications
2. Operating system specifications
3. Software requirements specifications

Resources:
1. Wei-Meng Lee, Beginning Android 4 Application Development, Wiley India Pvt Ltd. [WM]
2. J. F. DiMarzio, Beginning Android Programming with Android Studio, Wrox A Wiley Brand. [JFD]
3. Web Reference: Android Mobile App Developer Tools – Android Developers

Practical No: 1	**Enrollment No:**
Objective(s)	1. To acquaintance with Android programming language construct.
	2. To get familiar with the core components of Android
	3. To understand the Architecture of Android and structure of Android application development
Pre-requisite	None
Duration for completion	8 hours
Practical Problems	1. Create an android application to take name from textbox and on button click event display inputted name into text view.
	2. Write a program in android to find the date of the year based on year and number of days. Number of days must be less than 365.
	i/p: Year = 2010 and days = 100
	o/p: 10 Mar 2010
	3. Write a program in android to convert temperature from F to C and C to F.
	4. Create an android application to take number from textbox and on button click display toast message weather number is palindrome or not.
	5. Create an android application for unit conversion from kilogram to Pounds.
	6. Create an android application to take two textbox and four button namely plush, minus, division, and subtraction and perform appropriate math operation on button click event and display math operation result on label. (Note: validate textbox value should be number.
	7. Create an android application to demonstrate activity life cycle methods.
	8. Create an android application to develop calculator. Note: 1. Take only one textbox with read only mode (User is not allowed to input

	using keyboard). 2. Take 0 – 9 buttons with +, -, /, X, = and Delete button. 3. performed all operation on button click.
	9. Create an android application to develop tic tac toe game.
	10. Create android application to take username and password from user and on click of login button check if username and password both are admin than open another activity and display message "welcome admin". If username and password is no match than display appropriate message on screen.
	11. Create an android application to demonstrate use of implicit intent. 1. Send email 2. Send SMS 3. Open Dialer 4. Make a call 5. Open web URL 6. Open Map with BMIIT location 7. Show Contacts 8. Show Contact Details 9. Show Call logs
	12. Create android application to create two fragment and two button on main activity. One clicks of first button display first fragment and on click of second button display second fragment.
	13. Create an android application to create two fragments. First fragment contains two text box and four button addition, subtraction, multiplication, and division. On Click of respective button performed math operation and display answer into another fragment.
PEO(s) to be achieved	**PEO1**: To provide sound foundation in the fundamentals of computer application along with analytical, problem-solving, design and communication skill for life-long learning in chosen field.
	PEO2: To provide quality practical skill of tools and technologies to solve industry problems.
PO(s) to be achieved	**PO6**: Ability to use the techniques, skills and modern tools as necessary for software development.
CO(s) to be achieved	CO1, CO2
Solution	Must contains: Layout files, Java files, Manifest files in case you have done any configuration etc..

Nature of submission	Handwritten/Printed code
Practical Problems for Practice	1.
Technical questions for Viva	1. Differentiate versionName and versionCode.
	2. What is significance of R.java file?
	3. Differentiate JVM and DVM.
	4. What is Activity?
	5. State the purpose of Intent.
	6. Enlist the types of Intent.
	7. Define: Android
	8. What is ACTION?
	9. Is there any difference between ACTION_CALL and ACTION_DIAL?
	10. Differentiate Implicit and explicit Intent.

Evaluation Parameters:

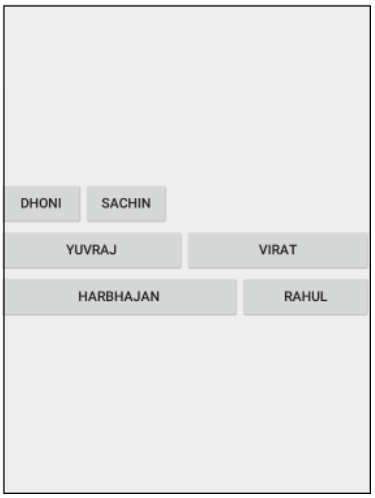
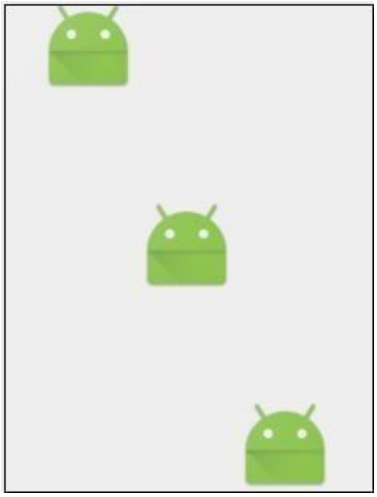
1. Knowledge of Activity | 2. Knowledge of Intent | 3. Viva | etc.

Max. Marks	Marks Obtained	Due Date	Submission Date

Teacher's Signature: **Date:**

Remarks:

Practical No : 2	**Enrollment No:**
Objective(s)	1. To understand the use of layouts and controls
	2. To understand the use of drawable resources and layout
	3.To understand GUI Elements
Pre-requisite	Layout, Activity, Intent

Duration for completion	8 hours
Practical Problems	1. Create an android application to display university information using TextView control. o/p Uka Tarsadia University Maliba Campus, Gopal Vidhyanagar, Bardoli-Mahuva Road, Tarsadi – 394 350. Tal: Mahuva Dist: Surat Gujarat, INDIA. +91 2625 290020, +91 2625 290074 2. Create an android application that having following layouts.   3. Create an android application which is having one EditText and one Button control. Application that accepts student name in EditText and on click of “Show” button display that student name in Toast message. 4. Create an android application in that user can select only one course from given options. Make use of RadioButton. 5. Create an android application that has option with caption: Iphone, Android, and Windows. User should be able to select more than one option from the list. Make use of Checkbox.

	6. Create an application that will display the list of color name in ListView. On click of any of the color name, change the background color of an Activity.
	7. Create an application that will have spinner with list of country names. On selection of any country name, that country name should be displayed in TextView.
	8. Create an android application, which displays mobile model's images in GridView.
	9. Create an application that displays ProgressBar on click of Download Button.
	10. Write an Android application which displays list of courses running in UTU in AutoCompleteTextView. On Selection of any of the course, selected course should be displayed on activity.
	11. Create an android application that having DatePicker, TimePicker and Button with caption show. On click of show button, application will display selected date and time on same activity.
	12. Create an app that will have three buttons with caption: Set Date, Set Time and Set Name. On click of Set Date open DatePickerDialog , selected date should display on same activity. On click of Set Time open TimePickerDialog, selected time should be display on same activity. On click of Set Name Custom Dialog should be open, entered name should be display on same activity.
	13. Create an app which having two EditText with caption No1 and No2. App also having Option menu having three options with caption: Addition, Subtraction and Multiplication. On selection of any option appropriate output should be display in TextView.
PEO(s) to be achieved	**PEO2**: To provide quality practical skill of tools and technologies to solve industry problems.
PO(s) to be achieved	**PO6**: Ability to use the techniques, skills and modern tools as necessary for software development.

CO(s) to be achieved	CO3
Solution	Must contains: Layout files, Java files, Resource Files, Manifest files in case you have done any configuration etc..
Nature of submission	Handwritten/Printed code
Practical Problems for Practice	
Technical questions for Viva	What is the use of linux kernel?
	State the purpose of layout.xml file.
	Give the significance of Activity file.
	What is the use of Manifest.xml file.
	State the purpose of Webkit library.
	Enlist the layouts available in Android.
	Give a key difference between LinearLayout and RelativeLayout.
	How to create multiline Textview?
	Differentiate ListView and Spinner Control.
	Enlist various types of buttons.
	Which event should be handled for button click?
	Differentiate EditText and AutoCompleteTextView.
	In how many ways button click event can be handled?

Evaluation Parameters:

1. Use of each widget | 2. Knowledge of widget's Properties | 4. Viva | etc.

Max. Marks	Marks Obtained	Due Date	Submission Date

Teacher's Signature: **Date:**

Remarks:

Practical No : 3	**Enrollment No:**
Objective(s)	1. To understand the use of data persistence methods
Pre-requisite	Layout, Activity, Intent, SQLite, ContentProviders, SharedPreference, FileSystem
Duration for completion	8 hours
Practical Problems	1. Create a Login application that having fields Email ID, Password and Remember me and Login button. On click of Login button open next activity with welcome message and if remember me option is checked than store values in SharedPreferences.
	2. Develop a Daily Diary application for Android device. Where user can add his daily activities which include date, time, and task description. After saving tasks user should navigate to another activity that display list of all task dates. On click of any date task detail of that date should be display to next activity. If no task found related to that date, then display appropriate Toast message.
	3. Develop an Android application which takes inputs from user and on click of “save” button writes contents into file. (Save file in an application memory)
	4. Create an Android application which reads contact name from phone, and display contact name to List View. On long press of any of the list item a context menu shall be display having an option called “Send SMS”. On click of “Send SMS” option, an inbuilt messaging application should be open with an appropriate data. (I.e., pass the phone number of selected contact to messaging application) (Note: Make the use of content provider).
	6. Create an Android application for a sales man, Application having two buttons called “Take Order” and “View Order”. On click of “Take Order” button a new activity shall be open, which accept customer phone number, item name, and quantity from user. Activity having a button also

	called “Save”. On click of “Save” button entered data shall be save to SQLite database. On click of “View Order” button a new activity should start which displays list of ordered item to ListView.
	7. Consider following details and create an Android application with proper UI: Rohan is using Store Management System for maintaining stock details. Products[Product ID, Product Name, Description, Price, Qty] Application should accept the "Product Name", "Price” and “Qty” from user. On click of "Calculate Amount" button, calculate total amount of product based on quantity and display calculated amount in notification. On click of "Save" button, entered product data should be saved in SQLite database. On click of "Display" button, display list of those product whose quantity greater than 10 and that list should be saved in file named “ProductDetails.txt” and file should be saved in internal storage of the device.
	7. The "Uka Tarsadia University” wants to create application which checks weather the student is eligible to get admission in Integrated M.Sc(IT) course or not. Application will ask user to enter his/her name, age, Stream, Passing Year, and Percentage. All data (except name) in integers only. This data would be processed to find whether a student can get admission or not. It is expected that percentage of student should be equal to or greater than 55 if he/she is from science stream and percentage of student should be equal to or greater than 60 if he/she is from commerce stream. Create an application to display admission eligibility to student and display the student information in proper format. If student not fulfils the specified conditions, then show appropriate message to the student and if eligible then store student information in database for further follow up. Student should be able to give rating to this application.

PEO(s) to be achieved	**PEO2**: To provide quality practical skill of tools and technologies to solve industry problems.
PO(s) to be achieved	**PO6**: Ability to use the techniques, skills and modern tools as necessary for software development.
CO(s) to be achieved	CO4
Solution	Must contains: Layout files, Java files, Resource Files, Manifest files in case you have done any configuration etc..
Nature of submission	Handwritten/Printed code
Practical Problems for Practice	
Technical questions for Viva	Which are the methods of SQLiteOpenHelper class?
	Why URI class is used with Content Provider?
	Write the path where sharedPreference files gets saved.
	Write permission for accessing external storage.
	Write the use of flush(), close(), write() methods.

Evaluation Parameters:

1. Knowledge of database operation | 2. Knowledge of Content Provider | 3. Use of File system | 4. Use of Shared Preference | 5. Viva etc.

Max. Marks	Marks Obtained	Due Date	Submission Date

Teacher's Signature: **Date:**

Remarks: