

040020301- Mobile Application Development

Objectives: To develop an understanding of how to design, develop, and deploy Android based applications for mobile devices.

Course Outcomes: Upon completion of the subject students will be able to

CO1: Describe details of Android SDK, and Android studio.

CO2: Use application designing elements namely View, View Group, Adapter View.

CO3: Design GUI for the mobile application.

CO4: Develop mobile applications using APIs namely Location Based, Web Services, and Telephony Manager.

CO5: Deployment of mobile applications.

Unit	Sub Unit	No. of Lecture	Topics	Reference Chapter/Additional Reading	Teaching Methodology to be used	Assessment Parameter
1		[06]	Introduction to Android and Development tools			
	1.1	1	Android platform basics: Architecture, Features, Versions	WM#1, Page No:2-5	Presentation	
	1.2	1	Android SDK	WM#1, Page No:10-14 RM#1, Page No: 6	Presentation	
	1.3	1	The Eclipse IDE	WM#1, Page No:14-20	Demonstration and discussion	
	1.4	1	Android device & market	WM#1, Page No:6-9	Chalk & Talk and Demonstration	
	1.5	2	Building Sample application	WM#1, Page No:20-33	Demonstration and discussion	TH quiz-1
2		[07]	Activities, Fragments, and Intents			
	2.1	1	Activity life cycle	WM#1, Page No:36-42	Chalk & Talk and Demonstration	
	2.2	2	Linking Activity using Intents	WM#1, Page No:53-57, 59-68	Demonstration and discussion	
	2.3	1	Calling built-in applications: ACTION_MAIN, ACTION_VIEW, ACTION_DIAL, ACTION_SEND, ACTION_CALL	WM#1, Page No:85-97	Demonstration and discussion	
	2.4	1	Fragments	WM#1, Page No:69-73	Demonstration and discussion	

	2.5	1	Android manifest file configurations	WM#1, Page No:31, RM#3,Page No:51-57	Demonstration and discussion	
	2.6	1	Working with Resources	RM#3,Page No:59-64	Demonstration and discussion	Unit Test-1
3		[11]	Designing User Interface			
	3.1	2	Layouts: Linear, Relative, Table, Frame, and ScrollView	WM#3,Page No: 105-123	Chalk & Talk and Demonstration	
	3.2	2	GUI Elements: Button, ImageButton, EditText, CheckBox, RadioButton, RadioGroup, WebView , ListView, Spinner, Gallery, AutoCompleteTextView, and ProgressBar	WM#4,Page No: 160-179,191-202 WM#5,Page No: 219-230,243-249	Demonstration and discussion	
	3.3	2	DatePicker, TimePicker, and Dialogs	WM#4,Page No:179-191 WM#4, Page No:42-53	Demonstration and discussion	
	3.4	2	Menu: Option Menu, and Context Menu	WM#5,Page No: 234-242	Demonstration and discussion	
	3.5	1	Animation basics: Frame by Frame, and Tween	RM#3,Page No:64-66	Chalk & Talk and Demonstration	
	3.6	2	Resolution and Density Independency	http://developer.android.com/guide/practices/screens_support.html	Chalk & Talk and Demonstration	PR quiz-1
4		[10]	Data Persistence			
	4.1	3	User Preferences	WM#6,Page No: 251-263	Demonstration and discussion	
	4.2	3	Database management through SQLite	WM#6,Page No: 273-290	Demonstration and discussion	
	4.3	2	Persisting Data to Files: Internal Storage, External Storage	WM#6,Page No: 263-273	Demonstration and discussion	TH quiz-2
	4.4	2	Content Provider	WM#7,Page No: 293-319 WM#8, Page No: 321-324	Demonstration and discussion	PR Internal-1
5		[10]	Services and Android APIs			
	5.1	2	Standard Broadcast Actions: ACTION_BOOT_COMPLETED, ACTION_PACKAGE_ADDED,	http://developer.android.com/reference/android/content/Intent.html	Chalk & Talk and Demonstration	

			ACTION_PACKAGE_REMOVED, and ACTION_SHUTDOWN			
	5.2	3	Location Based API	WM#9, Page No: 352-384	Chalk & Talk and Demonstration	
	5.3	2	Telephony API	http://developer.android.com/reference/android/telephony/TelephonyManager.html	Chalk & Talk and Demonstration	Unit Test-2
	5.4	3	Accessing web services	WM#10, Page No: 393-416	Chalk & Talk and Demonstration	PR Internal-2
6		[04]	Deploying an Application			
	6.1	2	Creating .apk files	WM#12, Page No: 463-471	Demonstration and discussion	
		1	Deployment of Application	WM#12, Page No: 471- 473	Demonstration and discussion	
	6.2	1	Selling the application	WM#12, Page No: 476-481	Chalk & Talk and Demonstration	

Text Book:

1. Wei-Meng Lee, Beginning Android 4 Application Development, Wiley India Pvt Ltd. **[WM]**

Reference Book:

1. Reto Meier, Professional Android 2 Application Development, Wiley India Pvt Ltd. **[RM]**
2. Mark L Murphy, Beginning Android, Wiley India Pvt Ltd.
3. Sayed Y Hashimi and Satya Komatineni, Pro Android, Wiley India Pvt Ltd.

Note: # indicates page number.

Course Objectives and Course Outcomes Mapping:

- Develop an understanding of mobile applications platform : CO1
- Design and develop Android based applications for mobile devices : CO1, CO2, CO3, CO4
- Deploy Android based application for mobile devices: CO5

Course Units and Course Outcomes Mapping:

Unit No.	Unit	Course Outcome				
		CO1	CO2	CO3	CO4	CO5
1	Introduction to Android and Development tools	✓	✓	✓	✓	
2	Activities, Fragments, and Intents		✓	✓	✓	
3	Designing User Interface		✓	✓		
4	Data Persistence				✓	
5	Services and Android APIs		✓		✓	
6	Deploying an Application					✓

Course out come and program outcome mapping

Course Outcomes	Program Outcomes					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1			✓		✓	✓
CO2		✓			✓	
CO3	✓	✓			✓	
CO4	✓	✓			✓	✓
CO5			✓		✓	✓

Activities/Practicum:

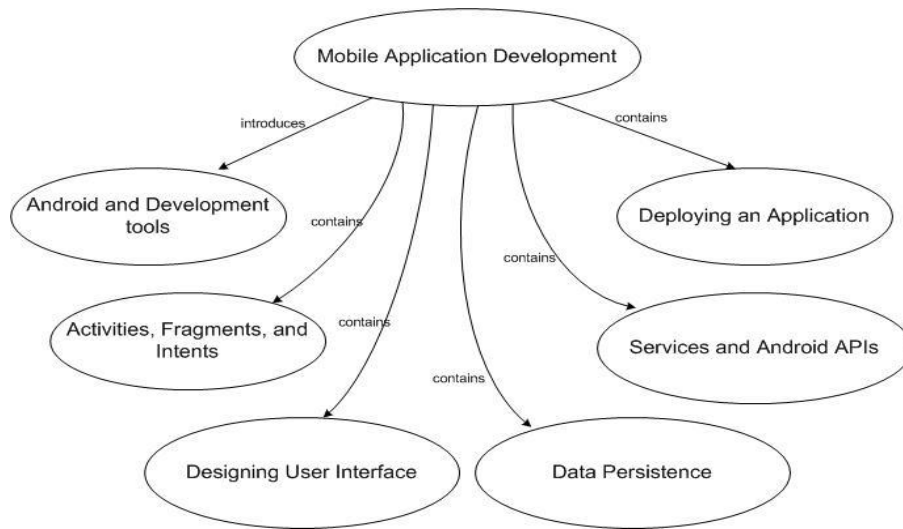
The following activities shall be carried out by the **students**.

1. Student shall do comparative study of mobile platforms namely iPhone, J2ME.
2. Student shall do comparative study of Android versions' features.
3. **Self-Study** of following part of the syllabus shall be done by the students:
 - i. 3.2: ImageButton, RadioGroup, WebView, AutoCompleteTextView
 - ii. 3.3: TimePicker

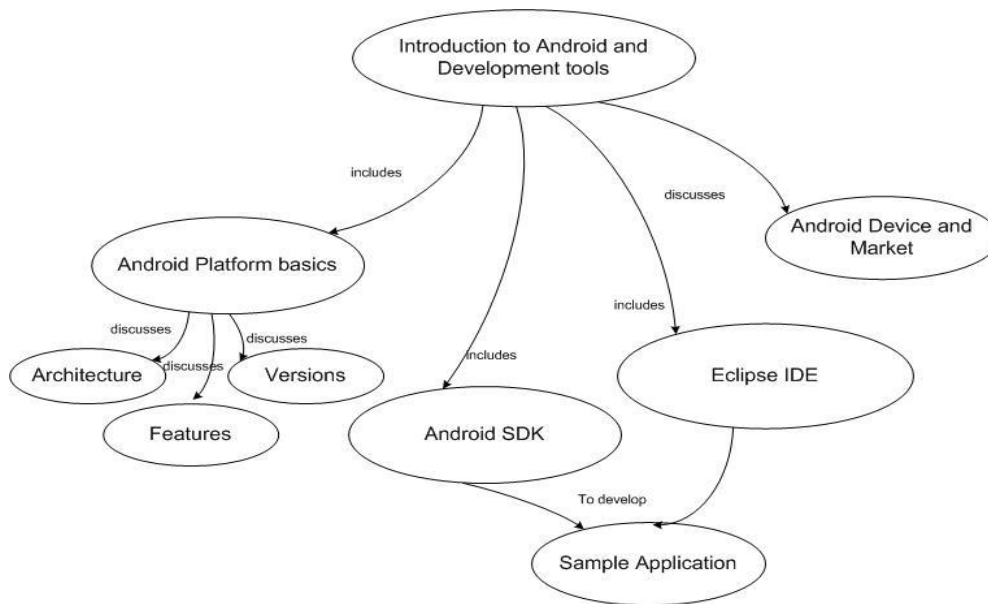
The following activities shall be carried out by the **teachers**.

1. Discuss the use of testing tool and CSV tool of Android studio.
2. Demonstrate the use of Activity life cycle, GUI elements, SQLite, and Services.

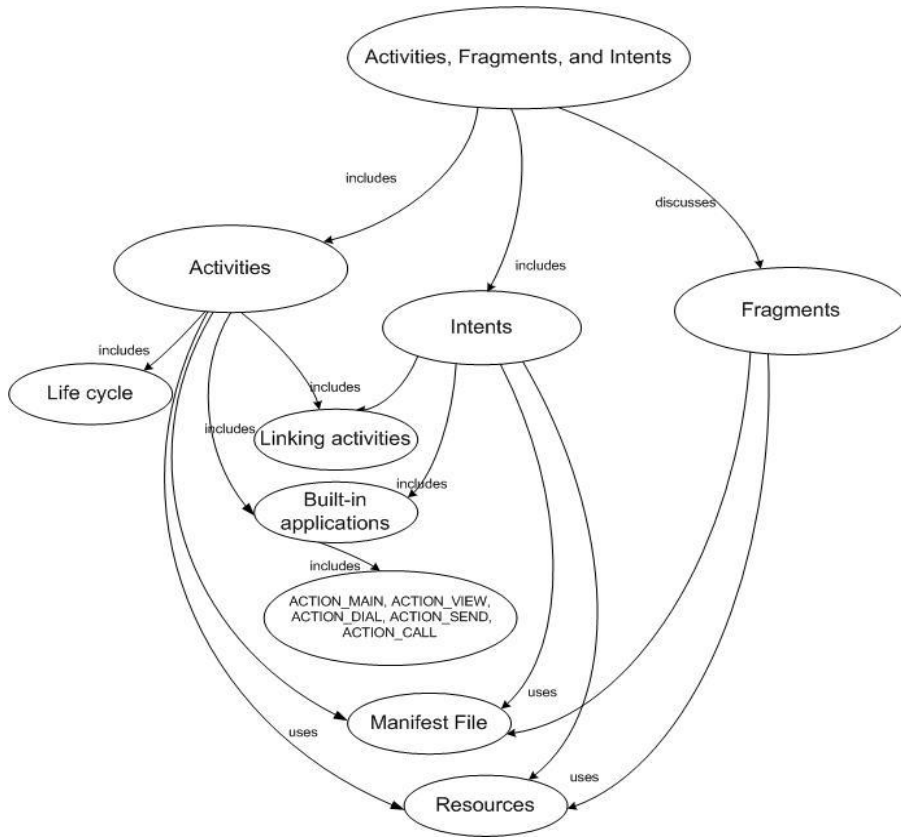
Concept Map



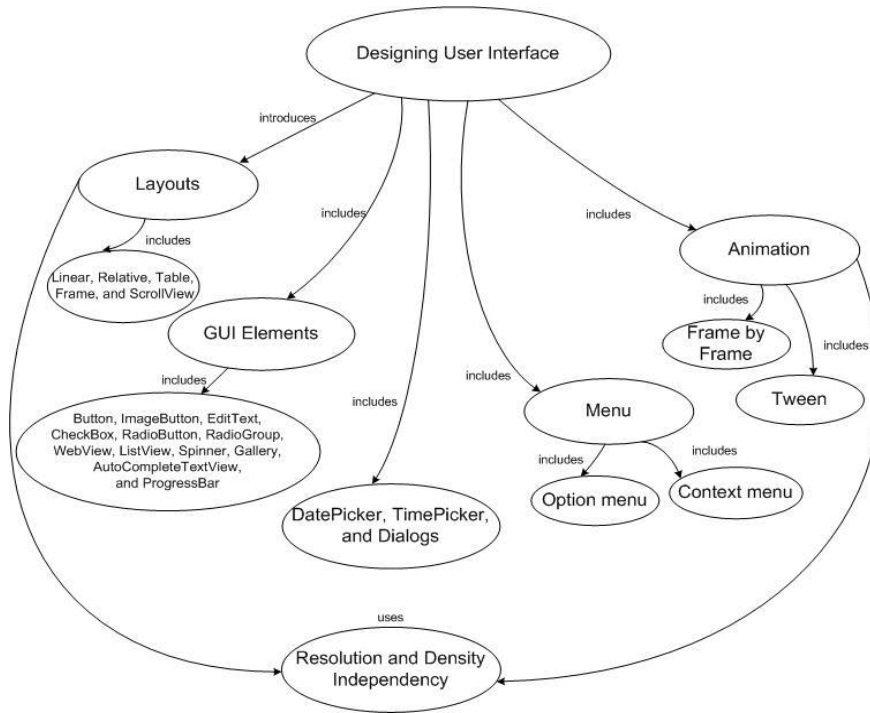
Unit-1:



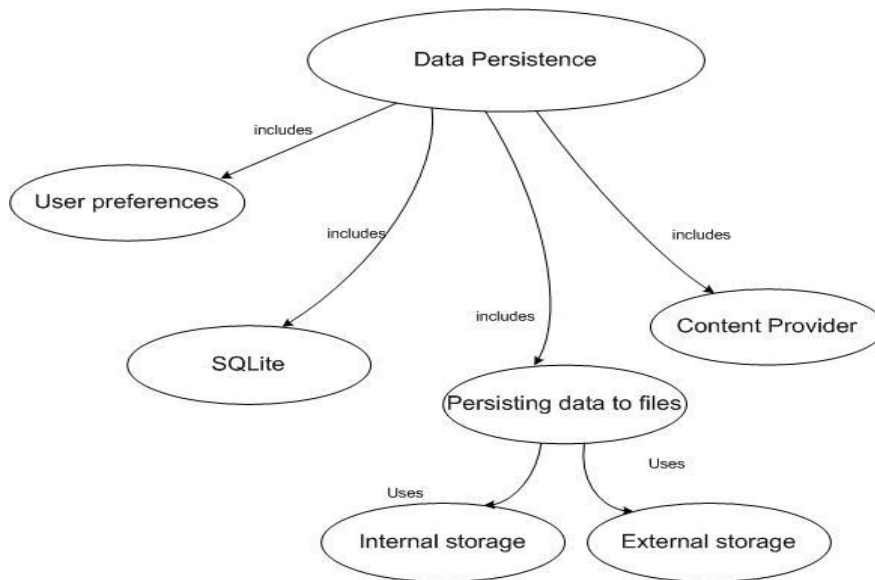
Unit-2:



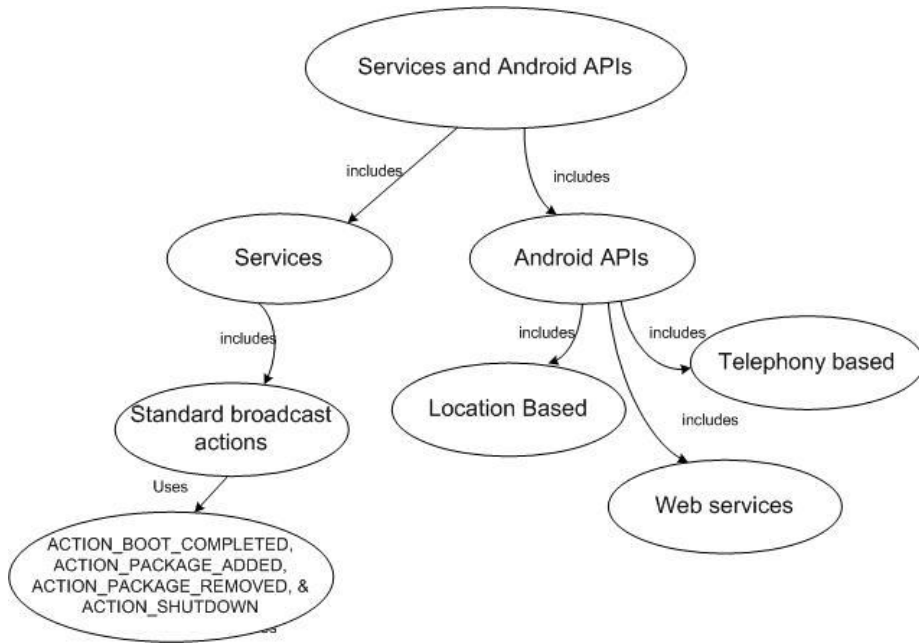
Unit-3:



Unit-4:



Unit-5:



Unit-6:

