

**M.C.A. Semester – V**  
**Subject: - Mobile Computing (650003)**  
**Week : 1**

**1) Explain underlying architecture of Android Platform. (Unit :- 1, Chapter :- 1)**

Suggested Answer:-

Draw Figure: 1.8 from textbook given on Pg. No. 24

Points

- Linux OS as Hardware abstraction layer.
  - Each application considered as OS users & benefit of it.
  - Application security using permission.
  - Concept of Dalvik VM.
- 

**2) What is activity? How android manages activities? Explain lifecycle of activity in android. (Unit :-2, Chapter :- 4)**

What is activity?

- Definition of activity.

How android manages activities?

- Activity management by Android done using **Activity Stack** (Draw Figure: 4.2 from textbook given on Pg. No. 72 without icons)

Lifecycle of an activity

- Draw Figure: 4.3 from textbook given on Pg. No. 73
- Explain following methods of activity lifecycle.
  - **onCrate()**
    - **Called when:** first method to be called.
    - Single parameter Bundle, initially null.
    - Bundle contains info when activity is restarted.
    - **Appropriate place to code for:** any startup, layout setup & data binding.
  - **onResume()**



- **Called when:** Background activity comes on top of stack and becomes foreground activity.
    - **Appropriate place to code for:** To retrieve any resources required by activity to run.
  - **onPause()**
    - **Called when:** When any activity is pushed down the stack i.e. Activity migrates from foreground to background.
    - **Appropriate place to code for:** Stop any audio, video, animation, deactivate resources such as database cursor, clean up & release any resource.
  - **onDestory()**
    - **Called when:** When activity is being destroyed (Due to two reason : voluntarily or forcefully by platform.)
  - **onSaveInstanceState() & onRestoreInstanceState()**
    - Saving & retrieving information state to bundle object.
- 

### 3) Explain managing following resources with example. (Unit :-2, Chapter :- 6)

- Color
- Dimension
- Menu

For every resource explain purpose, subfolder & xml file name to be saved under application's resource folder, xml file tags, how to retrieve resource programmatically in java file, example.

- Color
  - Purpose : To define colors which can be applied to other screen elements.
  - Define in : /res/values/colors.xml
  - Color value starts with #. List color formats (RGB, ARGB, RRGGBB, AARRGGBB)
  - <resource> parent tag, <color> sub tag
  - getResources.getColor() java method
  - Example



- Dimension
  - Purpose : to define dimension resource used to draw control on layout.
  - Defined in : /res/values/dimen.xml
  - Dimension values can be any dimension unit measurement support
  - <resource> parent tag, <dimen> sub tag
  - getResources().getDimension() java method
  - Example
- Menu
  - Purpose : to create items for menu resource, can be reused in menu control.
  - Defined in : /res/menu/menu1.xml
  - <menu> parent tag, <item> sub tag
  - Override onCreateOptionsMenu() use getMenuInflater.inflate() method.

---

**4) Write an android application which allows user to reserve room for “ABC Hotel”. Get details such as name, phno length filter for 10 digits, email id, room type (Gold, Silver – Spinner), Booking date from (Date picker control), No. of days. When user Submit these details it should goto next activity & display it as summary. (Spinner, EditText, TextView, Button, DatePicker, Moving from one activity to other). (Unit :-2, Chapter :- 7)**

#### Tasks to be done

- Design interface (XML layout)
- Retrieve all widgets in java file using findViewById() method.
- Name, Phno, Email id, No. of days are EditText use getText() method and store all it in one String variable (use “+” for string concatenation)
- For phno length filter use setFilters() method of EditText & InputFilter.LengthFilter() method. (Ref. pg no. 142).
- For spinner set entries using /res/array/roomtype.xml file (Create roomtype.xml file as string-array.
- To retrieve selected item from spinner use getSelectedItem() and cast it to TextView (Ref. pg. no. 144).
- For booking date get getYear(), getMonth() & getDayOfMonth() method of datepicker widget.

- Store all above retrieved information in string variable & set that string variable's value using setText() method to TextView as summary.
- 

**5) Write android application to have button to draw various shapes like Circle, Rectangle, Rounded rectangle, Oval, Circle, Text on screen using Paint Class. Provide Radio buttons for linear, radial & Sweep gradient effect to these shapes. (Using Canvas class methods) (Unit :- 2, Chapter :- 9)**

- Create a class that should extend View
  - Import appropriate packages
  - Override onDraw(Canvas c) method.
  - Create object of paint
  - To draw circle → use drawCircle() method of Canvas.
  - To draw Rectangle → use drawRect() method of Canvas.
  - To draw Rounded Rectangle → use drawRoundRect() method of Canvas.
  - To draw Oval → use drawOval() method of Canvas.
  - To draw Circle → use drawCircle() method of Canvas.
  - To draw Text → use drawText() method of Canvas.
  - In main class that extends activity set the instance of newly created class using setContentView(<instance of new class>).
- 

**6) Write an android application to provide two button "Write data" & "Read data" to the user. Write data should write information entered by user in edit text to text file and Read data should read data from text file and display it into the textview. (Unit :-3, Chapter:- 10)**

- Write Data (Ref. pg. no. 236)
  - Creating & saving file to default directory at /data/data/<package name>/files/
  - Create instance of FileOutputStream with appropriate argument filename, mode MODE\_PRIVATE.
  - Use write method of FileOutputStream object to write data to files.
  - Close the file using close() method.



- Note: To append data only change is in mode i.e. 2<sup>nd</sup> argument of creating instance MODE\_APPEND)
  - Reading Data (Ref. pg. no. 37)
    - Create instance of FileInputStream with filename as argument.
    - Create instance of StringBuffer & DataInputStream with FileInputStream instance as argument.
    - Use readLine() method to read data and store it in string buffer.
    - Close the file using close() method.
    - Use setText() method to display String data to TextView.
- 

**7) Write android application to get information about content located on specific URL & read display the data from that url. (Unit :- 3, Chapter :- 12)**

- Get Information about Content
  - Create instance of URL with the url from which content needs to be retrieved.
  - Create instance of HttpURLConnection. (use openConnection() method of url class)
  - Use getContentLength() & getContentType() method of HttpURLConnection class.
- Read data located on internet
  - Create instance of URL with the url from which content needs to be retrieved.
  - Create instance of InputStream class (use openConnection() method of url class)
  - Use read() method of InputStream Class, use no. of bytes to be read as parameter.
- Task requires permission mention it in manifest file
  - android.permission.INTERNET



8) Write an android application to display html content in webview. Html file should have welcome message and prompts user name. When user clicks on Display message button alert user with welcome <username>. (Unit :- 3, Chapter :- 13)

- Create & store html file in assets folder
- Write a code for html file to design interface and <script> tag in <head> tag to create function display\_message() which alerts, call this function in button click in html.
- Design layout file (put <WebView> widget)
- Retrieve instance of webview.
- Create instance of WebSettings using webview instance's getSettings() method.
- Use it to enable javascript using setJavaScriptEnabled(true).
- Use loadUrl() method of Webview to load the html file stored in html (Argument will be [file:///android\\_asset/test.html](file:///android_asset/test.html))

---

9) Write an android application which allows user to enter any number and when user clicks on dial button, phone call should be made to that number, allow user to view call log history from your application. (Unit :- 3, Chapter :- 16)

Placing Call.

- Write permission tag in manifest file to place a call.
  - android.permission.CALL\_PHONE
- Create instance of URI, provide phone no. to dial as argument of parse.
- Create instance of Intent pass arguments
  - Intent action (Intent.ACTION\_DIAL : launches dialer / Intent.ACTION\_CALL places call directly)
  - Uri instance

Viewing Call Log (Ref. pg. no. 262)

- Write mangedQuery() method pass arguments



- CallLog.Calls.CONTENT\_URI, requestedColumns
  - CallLog.Calls.CACHED\_NUMBER\_LABEL
  - Retrieve that information in a Cursor object, use moveToFirst(), moveToNext() for positioning ,and getString() methods to retrieve info. and display it in textview using setText() method.
- 

**10) What steps developer must consider before packaging android application? Explain in brief. (Unit :- 4, Chapter :- 29)**

- Setting application name & icon
- Versioning the application
- Verifying target platforms
- Configure android manifest file
- Disable debugging
- Verifying application permission

