70

Mobile Computing - Android Exam 1 - 75 points

Name Keerthi Chidurappa

Time: 75 minutes

-1

This exam is closed book, closed notes, closed for electronic devices. The only resource you are allowed to use is your brain!

9

Question 1) [10] Suppose that you have a layout for an activity that contains the following text view and button

```
<EditText
     android:id="@+id/startET"
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:text="Starting text"
/>

<Button
     android:id="@+id/smallerBTN"
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:layout_margin="8dp"
     android:onClick="removeAction"
     android:text="Remove first"
 />
```

Create a method that when the button is pressed will take the text from the text view and remove the first character (provided that the length is non-zero) and then puts the result back to the edit text.

```
public void removeAction (View v){
EditText e1 = (EditText) findViewById (R.id.startET);
String s = e1.getText.toString();
String s1 = s.substring(1);          if    -1
e1.setText (s1);
}
```

-1

Question 2) [6]

Create a little code fragment that will

1) Create an intent for activity DoNextActivity.
2) Add the following key value pairs to the intent
3) "age" => 10
4) "weight" => 101.5
5) Start the DoNextActivity

```
Intent in = new Intent(this, DoNextActivity.class);
in. putExtra("age", 10);
in. putExtra("weight", 101.5);
startActivity (in);
```

Question 3) [4]

A) What is the underlying operating system used by Android?

The underlying operating system used by Android is Linux 3.4.

B) Explain the role of DVM.

DVM stands for Dalvik Virtual Machine. This converts the Java Byte code generated to Dalvik Byte code which is further wrapped in Application packager.

-1

Question 4) [2] What two attributes must every view have?

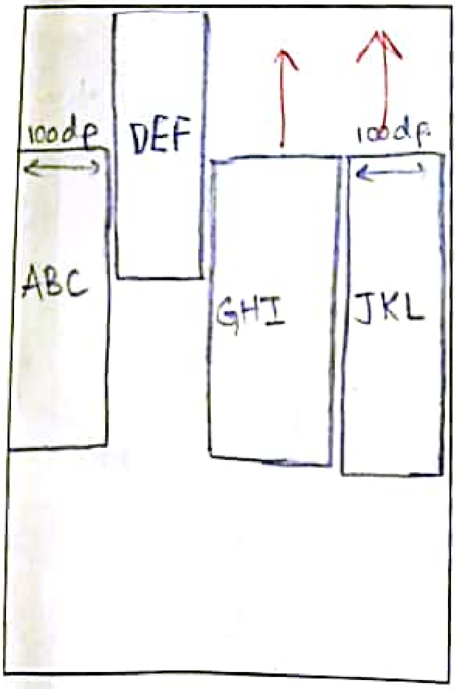
The two attributes that every view must have are layout_width and layout_height.

Question 5) [10] Place the views in this linear layout on the screen. (One character is about 10dp in height and width.)

-3

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    android:orientation="horizontal"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="right">

    <TextView
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="ABC"
        android:layout_gravity="center_vertical" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="top"
        android:text="DEF" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="GHI" />

    <TextView
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="JKL"
        android:layout_gravity="right" />
</LinearLayout>
```

-3



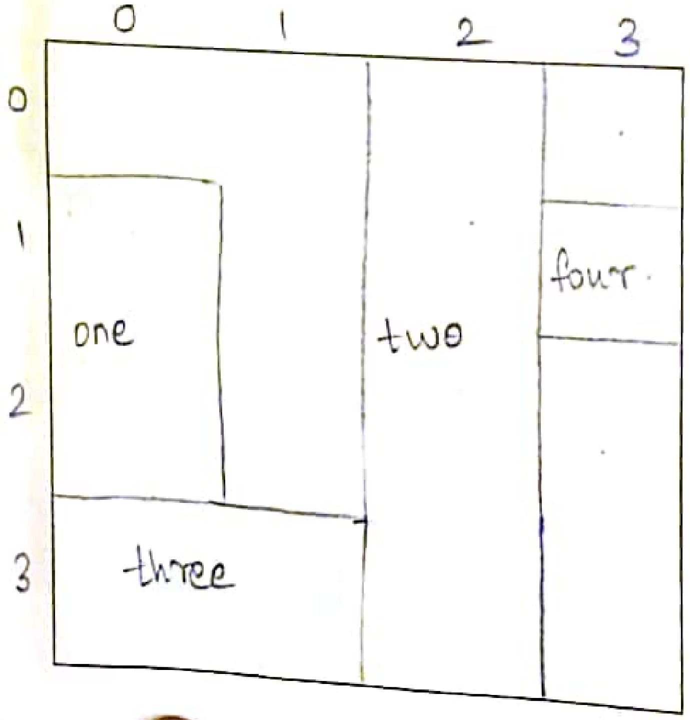
wrap

GHI

Question 6) [10] Place the views in this grid layout

```
<?xml version="1.0" encoding="utf-8"?>
<GridLayout
    android:id="@+id/gridLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:columnCount="4"
    android:rowCount="4" >
    <TextView
        android:layout_width="50dp"
        android:layout_height="100dp"
        android:layout_column="0"
        android:layout_row="1"
        android:layout_rowSpan="2"
        android:text="one" />
    <TextView
        android:layout_width="50dp"
        android:layout_height="200dp"
        android:layout_column="2"
        android:layout_row="0"
        android:layout_rowSpan="4"
        android:text="two" />
    <TextView
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_column="0"
        android:layout_columnSpan="2"
        android:layout_row="3"
        android:text="three" />
    <TextView
        android:layout_width="50dp"
        android:layout_height="50dp"
        android:layout_column="3"
        android:layout_row="1"
        android:text="four" />
```

-0



-0

Question 7) [6] Explain the difference, use, and connection between

`android:id="@+id/someItem"`

and

`R.id.someItem`

android:id = "@+id/someItem - This is used to add a resource named someItem to the class R.

R.id.someItem - This is used to refer to a resource in the class R named someItem.

Question 8) [8] For each of the following directories, what will be the type of the file is in that directory? How will those files be used?

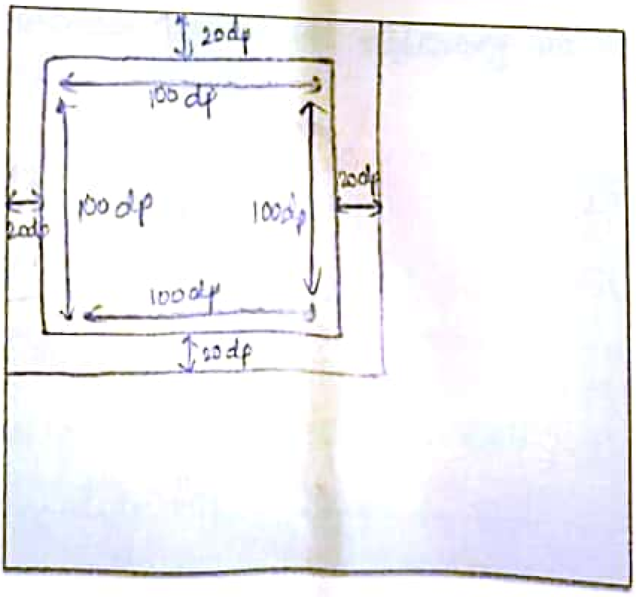
`MyProject/res/layout/` The type of file will be XML. These are used for the user interface of the application

`MyProject/res/drawable/` This contains the bitmap file (.jpg, .png, etc). These contain images, pictures that would be used in the app

`MyProject/res/values/` These contain the XML files. They are used to store styles, strings, int, boolean, etc

`MyProject/src/` These contain the java files. They are used for the main code of the application.

Question 9) [4] Suppose that you have a component with height and width that are both 100dp. If the component is placed at the upper left corner of the screen and it has a margin of 20dp, illustrate the position and size on a 200 by 200dp screen.



Question 10) [5] For each of the following states of an activity fill in the table:

State	Is the activity visible?	Is the activity able to interact with a user?	What method will be called as the activity enters the state?
Stopped	No	No	on Stop()
Paused	yes	No	onPause()
Resumed	yes	yes	on Resume()

Question 11) [4] Explain the difference between an explicit and an implicit intent. Give an example of when you would use each one.

Explicit Intent - This intent is used to specify the component with an explicit name. This is used within an application.

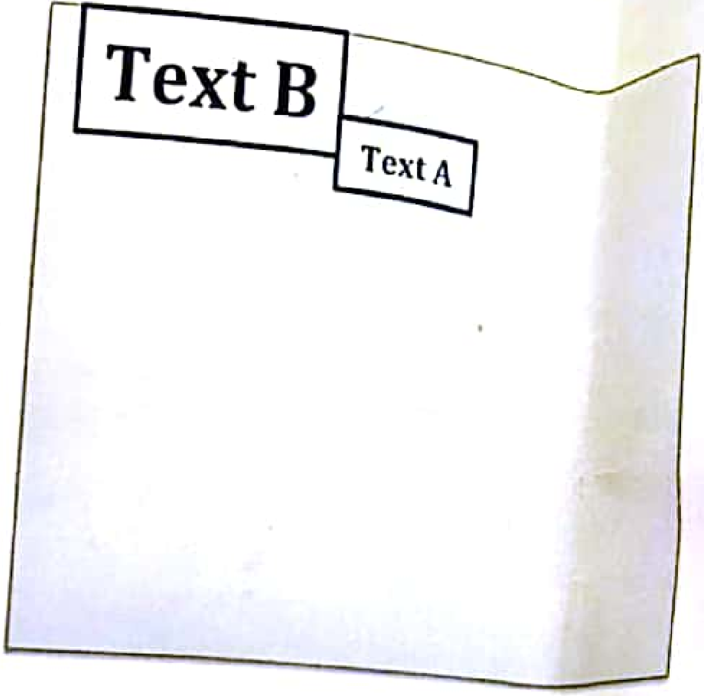
Eg. When you enter text in text box, it displays it without changing to another application allowing us to perform other entrie too.

Implicit Intent - The component is not specified with a name. The component is specified with action, data and category.

Eg. When you click a button to call, it redirects ~~to~~ other application for making a call.

-0

Question 12) [6] Suppose that we have the following components in a relative layout with the boundary shown. Consider each of the following relations and write YES/NO to indicate if the relation holds.



A) Text A aligns top with Text B

No

B) Text A right of Text B

Yes

C) Text A under Text B

No

D) Text B aligns top with parent

Yes

E) Text B aligns right with parent

No

F) Text B undert TextA

No

74/80

Mobile Computing - Android Exam 1 – 80 points

Anonymous Android ID from your seating chart B-14

Time: 90 minutes

Challa

This exam is closed book, closed notes, closed for electronic devices. The only resource you are allowed to use is your brain!

Question 1) [10]

A) Create a little code fragment that will

1) **Create an intent for TriggerActivity.**
2) **Add the following key value pairs to the intent**
3) **"start" →11**
4) **"duration" →21**
5) **Start the TriggerActivity**

TriggerActivity

Intent in = new Intent(this, ~~activity main~~.class);
in.putExtra("start", 11);
in.putExtra("duration",21);
startActivity(in);

-0.5

B) Create a little code fragment for the onCreate() method for TriggerActivity that will

1) **Get the intent.**
2) **Get the two integer values from the intent and assign then to variables startTime and length. (you may assume that they have already been declared.)**

```
Intent in = getIntent();
int startTime = in.getIntExtra("time", 1);
int length = in.getIntExtra("len", 1);
```

-0

Question 2) [4]

A) What is the underlying operating system for Android?

Linux is the underlying operating system for android

-0

B) Explain the role of DVM.

The Dalvik virtual Machine (DVM) will convert the Java byte code to dalvik byte code. And send the dalvik code to ART (Android Run Time), Dalvik helps to run multiple process efficiently.

-0

-0.5

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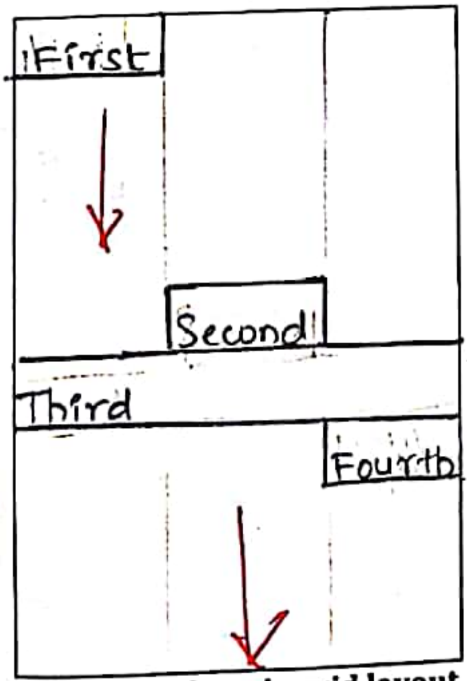
Question 3) [10] Place the views in this linear layout on the screen.

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="bottom">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="First"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
        android:hint="Second" />

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Third"

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fourth"
        android:layout_gravity="right" />
</LinearLayout>
```

-2



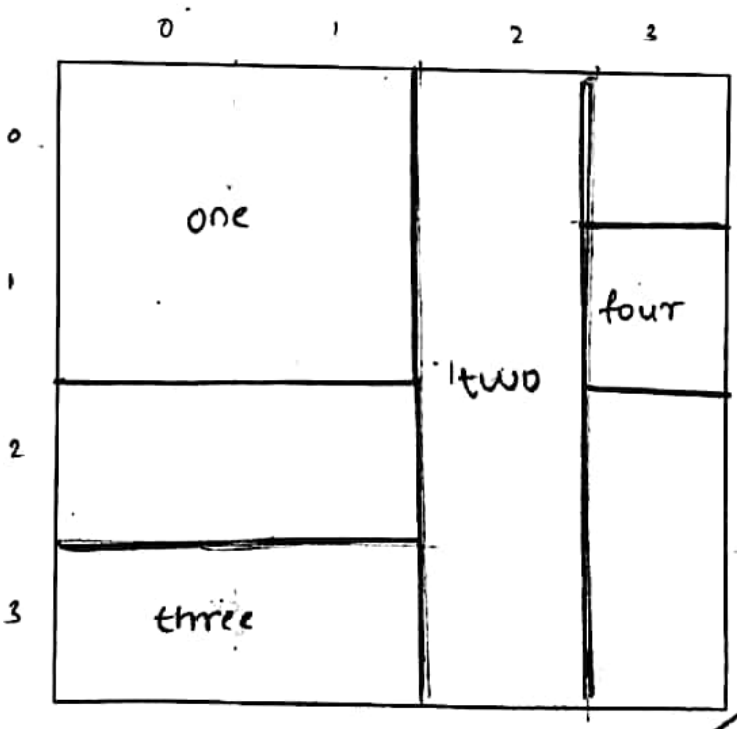
No margin

Question 4) [10] Place views in grid layout

-2

```
<?xml version="1.0" encoding="utf-8"?>
<GridLayout
    android:id="@+id/gridLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:columnCount="4"
    android:rowCount="4" >
    <TextView
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_column="0"
        android:layout_columnSpan="2"
        android:layout_row="0"
        android:layout_rowSpan="2"
        android:text="one" />
    <TextView
        android:layout_width="50dp"
        android:layout_height="200dp"
        android:layout_column="2"
        android:layout_row="0"
        android:layout_rowSpan="4"
        android:text="two" />
    <TextView
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_column="0"
        android:layout_columnSpan="2"
        android:layout_row="3"
        android:text="three" />
    <TextView
        android:layout_width="50dp"
        android:layout_height="50dp"
        android:layout_column="3"
        android:layout_row="1"
        android:text="four" />
</GridLayout>
```

-0



-0

Question 5) [10] Suppose that you have a layout for an activity that contains the following text view and button

```
<TextView
     android:id="@+id/displayTV"
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:text="Starting text"
/>

<Button
     android:id="@+id/transBTN"
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:layout_margin="8dp"
     android:onClick="transformAction"
     android:text="Transform"
 />
```

Create a method that when the button is pressed will take the text from the text view and concatenate it with the string " and more" and then puts the result back to the text view.

```
public void transformAction (View v) {
     TextView  tv = (TextView) findViewById (this, R.id.displayTV);
     String input = tv.getText().toString();
     string output = input + "and more" ;
     tv.setText (output);
}
```

-0

-0

Question 6) [4] Explain the difference between

`android:id="@+id/item"`

and

`android:id="@id/item".`

@+id/item will add a new resource id in the R class

-0 @id/item will refer an existing resource id in the R class.

How would you refer to this resource in XML? How would you refer to this resource in Java?

XML : @id/item

-0 Java : R.id.item

Question 7) [4] Explain what kind and type of files you would find in each of the following four directories :

`MyProject/src/`

All .java files used in the application

`MyProject/res/drawable/`

The images are present in drawable. png

-0

`MyProject/res/layout/`

XML files where application design is defined, are stored in layouts

`MyProject/res/values/`

strings, styles, colors, integers, booleans. etc

Question 8) [2] What two attributes must every view have?

-0 Every view must have layout_height and layout_width.

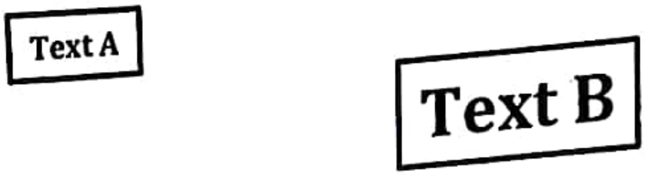
Question 9) [4] Explain why you would want to use a margin? What is the difference between margin and padding?

1) Margins are used to create a space between 2 widgets/views

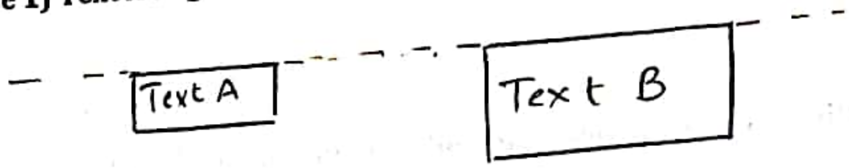
-0 2) Margin is present outside the view which does not effect the content inside the view. where as in padding the content of the view is compressed to fit inside padding.

-0

Question 10) [6] Given the following two text views, sketch what would happen for each case. Show the alignment clearly in your sketch.



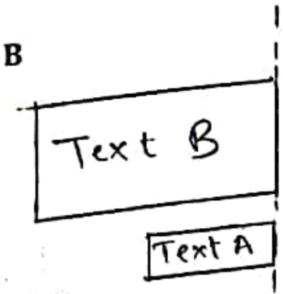
Case 1) Text A aligns top with Text B



-0

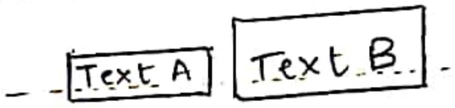
Case 2) Text A aligns right with Text B

-0



Case 3) Text A aligns baseline with Text B

-0



Question 11) [4] Explain how an ArrayAdapter works with a ListView.

An ArrayAdapter takes the data to be listed in the listview in the form of an array of strings and populate the ListView with the data available in the array in the form of ~~Lists~~ views when adapter is called. An ArrayAdapter can also be used on ArrayList.

-0

-0

Question 12) [4] Explain the difference between an explicit and an implicit intent. Give an example of when you would use each one.

Explicit Intent: An intent which is referred by a name, and is used within an application. Ex: These intents are used when one activity should call another activity within an app.

-0 Implicit Intent: An intent which is referred by an "ACTION". Android OS will search for that action to match an activity using intent filters. Ex: Dial action, where you want to dial a number on clicking dial button.

Question 13) [4] For each of the following states of an activity fill in the table:

-0

State	Is the activity visible?	Is the activity able to interact with a user?	What method will be called as the activity enters the state?
Resumed	Yes ✓	Yes ✓	onResume() ✓
Paused	Yes ✓	No	onPause() ✓
Stopped	No ✓	No ✓	onStop() ✓

-0

Question 14) [4] Sketch what the activity stack would look like given the starting configuration for each of the following cases

Case a)

A
B
C

```
Intent mystery = new Intent(this, B.class)
startActivity(mystery)
```

C
A
B

X

B
A
B
C

-2

Case b)

A
~~B~~
~~C~~

B
A
C

```
Intent mystery2 = new Intent(this, B.class)
mystery2.setFlags(Intent.FLAG_ACTIVITY_REORDER_TO_FRONT)
startActivity(mystery2)
```

A
B
C

X

-1

Case c)

~~A~~
B
C

B
C

The back button is pressed.

The app will close when you click back button.

Activity is destroyed.

-0.5

-3.5