Course:	Software for Mobile Devices	Course Code:	CS-440
Program:	BS (Computer Science)	Semester:	Spring 2020
Duration:	90 Minutes	Total Marks:	30
Paper Date:	'21-Oct-20	Weight	12.5 %
Section:	A	Page(s):	4
Exam:	Midterm-I	Reg. No.	

Instruction/Notes: This exam is open book and open notes.
Please solve the exam on paper. You may use rough sheets but no need to attach.
While writing code, make best effort to write correct and relevant code only. Minor syntactic errors are acceptable and will be ignored during marking but overall concept and approach must be correct.

Question 1 (4+3+3=10 points)

Answer the following questions (in the space provided):

1. **What issues need to be handled if the orientation of a device is changed at the runtime?**

2. **What is the concept of layout and menu inflation?**

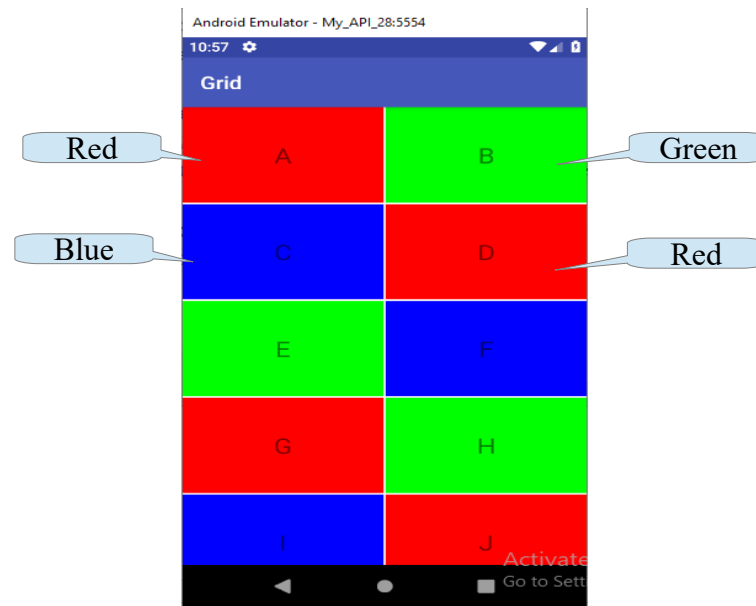3. **Contrast the memory management approach in Linux and Android.**

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Question 2 (20 points)

Suppose we want to use GridView to design a simple two-column layout for displaying alphabets (A-Z), as illustrated in the UI above. Each cell alternates among three colors (red, green and blue).

A basic code skeleton is given. Please fill-in the missing code sections to achieve the required layout. Make use of all the best practices required to handle scrolling of the contents considering re-cycling of views and the View Holder pattern.

Layout Files

```
activity_main.xml
```

```xml
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <GridView
        android:id="@+id/grid"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:numColumns="2"
        android:horizontalSpacing="5px"
        android:verticalSpacing="5px"
        />
</LinearLayout>
```

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grid_cell.xml

```xml
<TextView xmlns:android=
        "http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="1in"
    android:gravity="center"
    android:textSize="24sp"
    >
</TextView>
```

Source Code

```java
public class MainActivity extends Activity {
    GridView grid;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // specify any missing code below in the line
        _____
        bind();
    }
    void bind(){
        String array[] = {"A","B","C","D","E","F","G","H","I","J","K",
            "L","M","N","O","P","Q","R","S","T","U","V","W","X","Y","Z"};
        // specify any missing code below in the line
        GridAdapter adapter = _____;
        grid.setAdapter(adapter);
    }
}
```

```java
public class GridAdapter _____ {
    int[] colors = {0xFFFF0000,0xFF00FF00,0xFF0000FF}; // {red,green,blue}
    // TextView has setBackgroundColor function for changing color



```

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```
// continue writing code here




















}
```