

SSN COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
UCS1711 - Mobile Application Development Lab
Exercise – 6 Android Application using Multi-threading

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AIM:

To develop an Android Application that uses multi-threading to create a moving banner which changes the color for every movement and also display the starting position (x,y) of the banner on the device

CODE:

Activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">
```

```
<TextView
    android:id="@+id/banner"
    android:layout_width="133dp"
    android:layout_height="45dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="204dp"
    android:background="#FFEB3B"
    android:backgroundTint="#FFC107"
    android:text="Banner"
    android:textSize="20sp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<TextView
    android:id="@+id/coord"
    android:layout_width="133dp"
    android:layout_height="45dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="260dp"
    android:text=""
    app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toTopOf="parent" />
```

```
<Button
```

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

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_marginStart="156dp"
```

```
    android:layout_marginTop="552dp"
```

```
    android:text="Count"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toTopOf="parent" />
```

```
<TextView
```

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

```
    android:layout_width="105dp"
```

```
    android:layout_height="35dp"
```

```
    android:layout_marginStart="153dp"
```

```
    android:layout_marginTop="502dp"
```

```
    android:text="1"
```

```
    android:textSize="20sp"
```

```
    android:textStyle="bold"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toTopOf="parent" />
```

```
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```
package com.example.a078_movingbanner;
```

```
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.graphics.Color;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.Button;
```

```
import android.widget.TextView;
```

```
import java.util.Random;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    private TextView banner, coord, counter_text;
```

```
    private Button counter;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
```

```

        banner = (TextView) findViewById(R.id.banner);
        counter_text = (TextView) findViewById(R.id.counter);
        coord = (TextView) findViewById(R.id.coord);
        counter = (Button) findViewById(R.id.button);

        counter.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                int current = Integer.parseInt(counter_text.getText().toString());
                current++;
                counter_text.setText(String.valueOf(current));
            }
        });

```

```

        new Thread(new Runnable() {
            public void run() {
                int i = 0;
                while (i < 100) {
                    try {
                        Thread.sleep(100);
                    } catch (InterruptedException e) {
                        e.printStackTrace();
                    }
                    runOnUiThread(new Runnable() {
                        @Override
                        public void run() {
                            banner.animate().translationXBy(20f);
                            coord.animate().translationXBy(20f);
                            int[] location = new int[2];
                            banner.getLocationOnScreen(location);
                            coord.setText("Location: (" + location[0] + ", " + location[1] + ")");
                            Random random = new Random(); int color = Color.argb(255, random.nextInt(256),
random.nextInt(256), random.nextInt(256));
                            banner.setTextColor(color);
                        }
                    });
                }
            }
        });

```

```

    }
}
}).start();

```

```

}
}

```

OUTPUT:



