

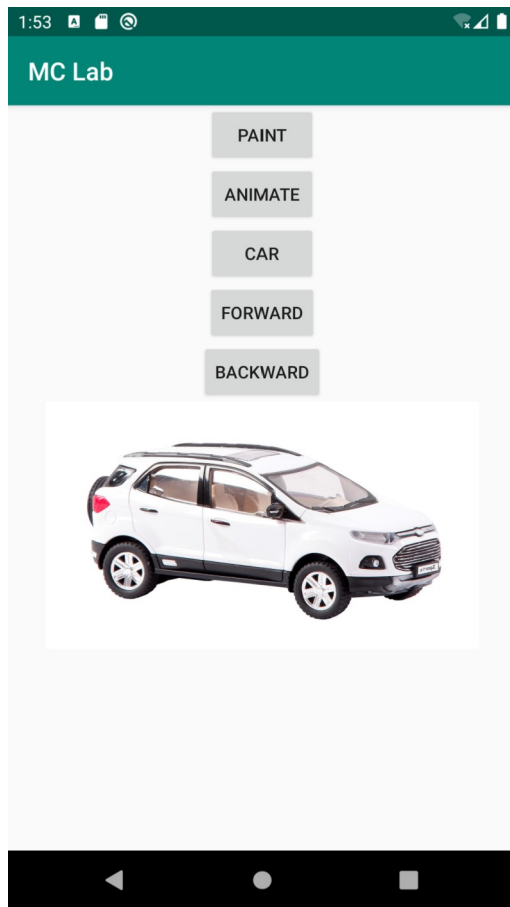
Ex 4: Application Development using basic graphical primitives

Question:

Generate the following using graphical primitives.

- Draw shapes such as Line, Circle, Rectangle and Arc
- Perform animation using any Image (Gif, Jpeg)
- Perform transformation – Rotation, Zooming
- Draw a car and animate the car.

Input:



//ex4_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="cocomo.lab.ex4_main">

    <Button
        android:id="@+id/bt_paint"
        android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
    android:text="Paint"
    android:layout_centerHorizontal="true"/>
```

```
<Button
    android:id="@+id/bt_animate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Animate"
    android:layout_below="@+id/bt_paint"
    android:layout_centerHorizontal="true"/>
```

```
<Button
    android:id="@+id/bt_car"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Car"
    android:layout_below="@+id/bt_animate"
    android:layout_centerHorizontal="true"/>
```

```
<Button
    android:id="@+id/bt_forward"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Forward"
    android:layout_below="@+id/bt_car"
    android:layout_centerHorizontal="true"/>
```

```
<Button
    android:id="@+id/bt_backward"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Backward"
    android:layout_below="@+id/bt_forward"
    android:layout_centerHorizontal="true"/>
```

```
<ImageView
    android:id="@+id/iv_animate"
    android:layout_width="match_parent"
    android:layout_height="200dp"
    android:layout_marginLeft="30dp"
    android:layout_marginRight="30dp"
    android:layout_below="@+id/bt_backward"
    android:background="@drawable/car"/>
```

```
</RelativeLayout>
```

//ex4_main.java

```
package cocomo.lab;
```

```
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.RectF;
import android.graphics.drawable.BitmapDrawable;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.view.animation.Animation;
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageView;
```

```
public class ex4_main extends AppCompatActivity {
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.ex4_main);
```

```
        Button bt_paint=findViewById(R.id.bt_paint);
        Button bt_animate=findViewById(R.id.bt_animate);
        Button bt_car=findViewById(R.id.bt_car);
        Button bt_forward=findViewById(R.id.bt_forward);
        Button bt_backward=findViewById(R.id.bt_backward);
```

```
        final ImageView iv_animate=findViewById(R.id.iv_animate);
```

```
        bt_paint.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                paint p=new paint(ex4_main.this);
                setContentView(p);
            }
        });
```

```
        bt_animate.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

```
            iv_animate.startAnimation(AnimationUtils.loadAnimation(getApplicationContext(),R.anim.zoom_in));
        }
    });
```

```
        bt_car.setOnClickListener(new View.OnClickListener() {
```

```

@Override
public void onClick(View v) {
    Bitmap b=Bitmap.createBitmap(720,1280, Bitmap.Config.ARGB_8888);
    iv_animate.setBackgroundDrawable(new BitmapDrawable(b));

    Canvas canvas=new Canvas(b);
    Paint p=new Paint();

    p.setStrokeWidth(10);
    p.setColor(Color.RED);

    RectF r=new RectF(100,100,400,300);
    canvas.drawRect(r,p);
}
});

bt_forward.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        iv_animate.animate().translationXBy(300f).setDuration(600);
    }
});

bt_backward.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        iv_animate.animate().translationXBy(-300f).setDuration(600);
    }
});
}
}

```

//Insert car.jpg in res > drawable
//Create a directory 'anim' inside res.
//Create below files inside 'anim' directory:

//fade_in.xml

```

<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <alpha
        android:fromAlpha="0.0"
        android:toAlpha="1.0"
        android:duration="2000"/>
</set>

```

//rotate_in.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <rotate
        android:fromDegrees="0"
        android:toDegrees="360"
        android:pivotX="50%"
        android:pivotY="50%"
        android:duration="1000" />
</set>
```

//zoom_in.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <scale xmlns:android="http://schemas.android.com/apk/res/android"
        android:fromXScale="0.5"
        android:fromYScale="0.5"
        android:toXScale="1.0"
        android:toYScale="1.0"
        android:duration="3000"
        android:pivotX="50%"
        android:pivotY="50%" />
</set>
```