CHANDIGARH UNIVERSITY

UNIVERSITY INSTITUTE OF NGINEERING
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Subject Name	Web and Mobile Security Lab
Subject Code	20CSP-338
Branch	Computer Science and Engineering
Semester	5th

Experiment - 10

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Branch: BE-CSE(LEET) **Section/Group: WM-20BCS-616/A**
Semester: 5th **Date of Performance: 02/11/2022**
Subject Name: Web and Mobile Security Lab **Subject Code: 20CSP-338**

1. Aim/Overview of the practical:

Create animations and graphical primitives in Android environment

2. Task to be done/ Which logistics used:

To draw 2D graphics and Animation in android application.

3. Apparatus / Simulator Used:

- Windows 7 & above version.
- Google Chrome
- Android Studio

Introduction:

Android graphics provides low level graphics tools such as canvases, color, filters, points and rectangles which handle drawing to the screen directly.
- Android provides a huge set of 2D-drawing APIs that allow you to create graphics.
- Android has got visually appealing graphics and mind blowing animations.
- The Android framework provides a rich set of powerful APIS for applying animation to UI elements and graphics as well as drawing custom 2D and 3D graphics.

Following are the three animation systems used in Android applications:

1. Property Animation

2. View Animation

3. Drawable Animation

1. Property Animation
- Property animation is the preferred method of animation in Android.
- This animation is the robust framework which lets you animate any properties of any objects, view or non-view objects.
- The android.animation provides classes which handle property animation.

2. View Animation

- View Animation is also called as Tween Animation.
- The android.view.animation
- This animation can be used to provides classes which handle view animation. animate the content of a view.
- It is limited to simple transformation such as moving, re-sizing and rotation, but not its background color.

3. Drawable Animation

- Drawable animation is implemented using the AnimationDrawable class.
- This animation works by displaying a running sequence of 'Drawable' resources that is images, frame by frame inside a view object.

Reading Material (add reference links along with material):
Android Simple Graphics Example
The android.graphics.Canvas can be used to draw graphics in android. It provides methods to draw oval, rectangle, picture, text, line etc.
The android.graphics.Paint class is used with canvas to draw objects. It holds the information of color and style.

Canvas

- Android graphics provides low level graphics tools such as canvases, color, filters, points and rectangles which handle drawing to the screen directly.
- The Android framework provides a set of 2D-DRAWING APIs which allows user to provide own custom graphics onto a canvas or to modify existing views to customize their look and feel.

There are two ways to dra 2D graphics,
1. Draw your animation into a View object from your layout.
2. Draw your animation directly to a Canvas.

Some of the important met
i) drawText()
ii) drawRoundRect()
iii) drawCircle()
iv) drawRect()
v) drawBitmap()
vi) drawARGB()

- You can use these methods itods of Canvas Class are as follows onDraw() method to create your own custom user interface.
- Drawing an animation with a View is the best option to draw simple grap ics that do not need to change dynamically nd are not a part of a performance-intensive game. It is used when user wants to display a static graphic or predefined animation.
- Drawing an animation with a Canvas is better option when your application needs to re-draw itself regularly.

4. Program/ Steps/ Method:

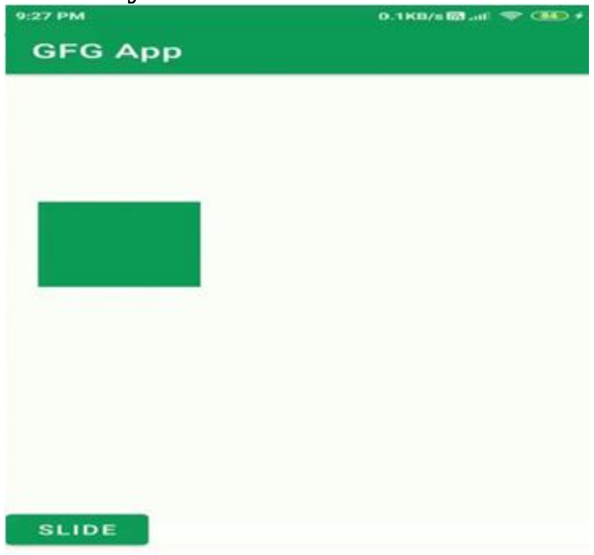
- Open eclipse or android studio and select new android project
- Give project name and select next
- Choose the android version. Choose the lowest android version(Android 2.2) and select next
- Enter the package name. package name must be two word separated by comma and click finish
- Go to package explorer in the left hand side. select our project.
- Go to res folder and select layout. Double click the main.xml file. Don’t change anything in layout. Leave as default.

```
<?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=".MainActivity">

        <ImageView
        android:id="@+id/imageview"
        android:layout_width="200dp"
        android:layout_height="200dp"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="40dp"
        android:contentDescription="@string/app_name"
        android:src="@drawable/gfgimage" />

        <LinearLayout
        android:id="@+id/linear1"
        android:layout_width="match_parent"
```

```
android:layout_height="wrap_content"
android:layout_below="@id/imageview"
android:orientation="horizontal"
android:weightSum="3">

        <!--To start the blink animation of the image-->

        <Button
        android:id="@+id/BTNblink"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/blink"
        android:textColor="@color/white" />

        <!--To start the rotate animation of the image-->

        <Button
        android:id="@+id/BTNrotate"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/clockwise"
        android:textColor="@color/white" />

         <!--To start the fading animation of the image-->

        <Button
        android:id="@+id/BTNfade"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/fade"
        android:textColor="@color/white" />

</LinearLayout>

<LinearLayout
android:id="@+id/linear2"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_below="@id/linear1"
android:layout_marginTop="30dp"
android:orientation="horizontal"
android:weightSum="3">


        <!--To start the move animation of the image-->

        <Button
        android:id="@+id/BTNmove"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/move"
        android:textColor="@color/white" />

        <!--To start the slide animation of the image-->

        <Button
        android:id="@+id/BTNslide"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
```

```
            android:text="@string/slide"
            android:textColor="@color/white" />

            <!--To start the zoom animation of the image-->

            <Button
            android:id="@+id/BTNzoom"
            style="@style/TextAppearance.AppCompat.Widget.Button"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_margin="10dp"
             android:padding="3dp"
            android:text="@string/zoom"
            android:textColor="@color/white" />

        </LinearLayout>

        <!--To stop the animation of the image-->

        <Button
        android:id="@+id/BTNstop"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/linear2"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="30dp"
        android:layout_marginRight="30dp"
        android:text="@string/stop_animation" />

</RelativeLayout>
```

5. Result/Output/Writing Summary:



Learning outcomes (What I have learnt):

Learned Basics of Android, Android Layouts and Widgets and Communication and Media.

Evaluation Grid (To be created per the faculty's SOP and Assessment guidelines):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Worksheet completion including writing learning objectives/Outcomes. (To be submitted at the end of the day).		
2.	Post-Lab Quiz Result.		
3.	Student Engagement in Simulation/Demonstration/Performance and Controls/Pre-Lab Questions.		
	Signature of Faculty (with Date):	Total Marks Obtained:	