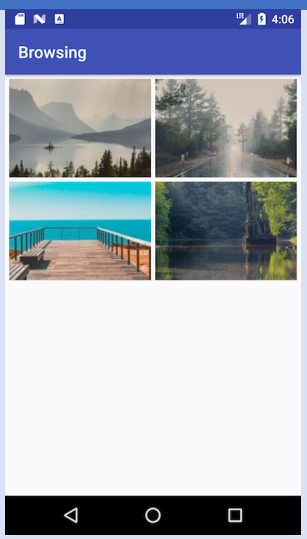
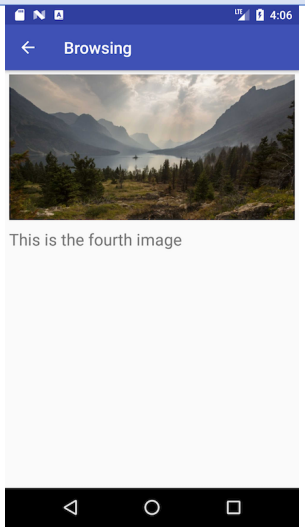
# Software Development for Mobile Devices

## Submission for Assignment A4.2P

### App Screenshot

| Activity | Screen |
|---|---|
| **MainActivity** |   |
| **ImageDisplayActivity** |   |

# Source code

## Main Layout (activity_main.xml)

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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="com.example.swinburne.browsing.MainActivity">

    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:paddingTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp">
       <TableRow android:layout_marginBottom="5dp">
            <ImageButton android:id="@+id/imgBtnFirst"
                android:layout_height="120dp"
                android:layout_width="wrap_content"
                android:src="@drawable/image1"
                android:layout_marginEnd="5dp"
                android:onClick="clickFirstButton"
                android:layout_weight="1"/>

            <ImageButton android:id="@+id/imgBtnSecond"
                android:layout_height="120dp"
                android:layout_width="wrap_content"
                android:src="@drawable/image2"
                android:onClick="clickSecondButton"
                android:layout_weight="1"/>
        </TableRow>

        <TableRow>
            <ImageButton android:id="@+id/imgBtnThird"
                android:layout_height="120dp"
                android:layout_width="wrap_content"
                android:src="@drawable/image3"
                android:layout_marginEnd="5dp"
                android:onClick="clickThirdButton"
                android:layout_weight="1"/>

            <ImageButton android:id="@+id/imgBtnFourth"
                android:layout_height="120dp"
                android:layout_width="wrap_content"
                android:onClick="clickFourthButton"
                android:src="@drawable/image4"
                android:layout_weight="1"/>
        </TableRow>

    </TableLayout>

</android.support.constraint.ConstraintLayout>
```

## Image Display Layout (activity_image_display.xml)

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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="com.example.swinburne.browsing.ImageDisplayActivity">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp">

        <ImageView
            android:id="@+id/imgView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:scaleType="fitXY"
            android:adjustViewBounds="true"
            />

        <TextView
            android:id="@+id/txtDescription"
            android:layout_marginTop="10dp"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:textSize="20sp"/>

    </LinearLayout>


</android.support.constraint.ConstraintLayout>
```

## MainActivity

```
public class MainActivity extends AppCompatActivity {


    ImageButton imgBtn1;
    ImageButton imgBtn2;
    ImageButton imgBtn3;
    ImageButton imgBtn4;

    private static int COMPRESS_QUALITY = 50;


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        initializeUI();
    }

    private void initializeUI() {
```

```
        imgBtn1 = findViewById(R.id.imgBtnFirst);
        imgBtn2 = findViewById(R.id.imgBtnSecond);
        imgBtn3 = findViewById(R.id.imgBtnThird);
        imgBtn4 = findViewById(R.id.imgBtnFourth);

    }

    public void clickFirstButton(View v) {
        try {
            Intent intent = new Intent(this, ImageDisplayActivity.class);
            byte[] byteArray = convertImageToBytes((BitmapDrawable)
imgBtn1.getDrawable(), COMPRESS_QUALITY);
            intent.putExtra("image", byteArray);
            intent.putExtra("description", "This is the fourth image");
            startActivity(intent);
        } catch (IOException ex) {
            Log.e("Error", "Cannot convert image");
        }
    }

    public void clickSecondButton(View v) {
        try {
            Intent intent = new Intent(this, ImageDisplayActivity.class);
            byte[] byteArray = convertImageToBytes((BitmapDrawable)
imgBtn2.getDrawable(), COMPRESS_QUALITY);
            intent.putExtra("image", byteArray);
            intent.putExtra("description", "This is the fourth image");
            startActivity(intent);
        } catch (IOException ex) {
            Log.e("Error", "Cannot convert image");
        }
    }

    public void clickThirdButton(View v) {
        try {
            Intent intent = new Intent(this, ImageDisplayActivity.class);
            byte[] byteArray = convertImageToBytes((BitmapDrawable)
imgBtn3.getDrawable(), COMPRESS_QUALITY);
            intent.putExtra("image", byteArray);
            intent.putExtra("description", "This is the fourth image");
            startActivity(intent);
        } catch (IOException ex) {
            Log.e("Error", "Cannot convert image");
        }
    }

    public void clickFourthButton(View v) {
        try {
            Intent intent = new Intent(this, ImageDisplayActivity.class);
            byte[] byteArray = convertImageToBytes((BitmapDrawable)
imgBtn4.getDrawable(), COMPRESS_QUALITY);
            intent.putExtra("image", byteArray);
            intent.putExtra("description", "This is the fourth image");
            startActivity(intent);
        } catch (IOException ex) {
            Log.e("Error", "Cannot convert image");
        }

    }

    /**
```

```
     * Convert image from drawable to byteArray[]
     * @param bitmapDrawable resource drawable image
     * @param quality   image quality after scaling
     * @return byteArray[] with quality
     * @throws IOException closing exception
     */
    private byte[] convertImageToBytes (BitmapDrawable bitmapDrawable, int quality)
throws IOException {
        ByteArrayOutputStream stream = new ByteArrayOutputStream();
        Bitmap bitmap = bitmapDrawable.getBitmap();
        bitmap.compress(Bitmap.CompressFormat.JPEG,quality, stream);
        byte[] byteArray = stream.toByteArray();
        stream.close();
        return byteArray;
    }

}
```

## ImageDisplayActivity

```
public class ImageDisplayActivity extends AppCompatActivity {

    ImageView imgView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_image_display);
        byte[] byteArray = getIntent().getByteArrayExtra("image");
        Bitmap bmp = BitmapFactory.decodeByteArray(byteArray, 0, byteArray.length);
        imgView = findViewById(R.id.imgView);
        imgView.setImageBitmap(bmp);
        String description = getIntent().getStringExtra("description");
        TextView txtView = findViewById(R.id.txtDescription);
        txtView.setText(description);
    }
}
```