Mobile Application Development MSE2 notes

MSE2 Programs List

1. Implement an AsyncTask to count from 1 to 1000 in the background and the display the progress using progress bar on the screen.
2. Implement a service concept to play the music in the background for long duration and perform a foreground job.
3. Implement broadcast receiver to carry out the of following:

   Read battery charge of your mobile, display it using progress bar and change the background color as given in table.

Color	Battery Charge
Red	10% To 30%
Blue	30% To 60%
Green	60% To 100%

4. Write an application to insert the data entered by a user into a database and display all the values in database.
5. Write an application to search for a given USN from a student database and call to that student.
6. Write an application that creates a notification message that will launch another activity after clicking on it.
7. Implement web view concept in application that contains two activities and opens default web page/user entered web page.
8. Implement an application to store and retrieve data by using shared preference. (Include save, delete and retrieve operations)
9. Implement the following animation concept
   i. Blink
   ii. Move the image object
   iii. Rotate.
   iv. Zoom In and Out

1.Implement an AsyncTask to count from 1 to 1000 in the background and the display the progress using progress bar on the screen.

```
package com.example.myapplicationb1;

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

```
import android.os.AsyncTask;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.ProgressBar;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements View.OnClickListener
{
   ProgressBar pb;
   Button start;
   TextView count;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      pb = (ProgressBar) findViewById(R.id.progressbar);
      pb.setMax(1000);
      start = (Button) findViewById(R.id.button);
      count = (TextView) findViewById(R.id.textView);
      start.setOnClickListener(this);
   }

      class T extends AsyncTask<String, Integer, String> {

         @Override
         protected String doInBackground(String... strings) {
            int max = Integer.parseInt(strings[0]);
            int i = 0;
            while (i < max) {
               try {
                  Thread.sleep(1000);
               } catch (InterruptedException e) {
                  e.printStackTrace();
               }
               i++;
               publishProgress(i);
            }

            return null;
         }

         @Override
         protected void onProgressUpdate(Integer... values) {
            pb.setProgress(values[0]);
            count.setText(values[0].toString());
            super.onProgressUpdate();
         }
      }


   @Override
```

```
    public void onClick(View view) {
        T t = new T();
        t.execute("1000");

    }
}
```

2. **Implement a service concept to play the music in the background for long duration and perform a foreground job.**

MusicService.java

```
package com.example.myapplicationb2;

import android.app.Service;
import android.content.Intent;
import android.media.MediaPlayer;
import android.os.IBinder;

public class MusicService extends Service {
    MediaPlayer music;
    public MusicService() {
    }

    @Override
    public void onCreate() {
        super.onCreate();
        music = MediaPlayer.create(this, R.raw.song);
    }

    @Override
    public void onStart(Intent intent, int startId) {
        super.onStart(intent, startId);
        music.start();
    }

    @Override
    public void onDestroy() {
        super.onDestroy();
        music.stop();
    }

    @Override
    public IBinder onBind(Intent intent) {
        // TODO: Return the communication channel to the service.
        throw new UnsupportedOperationException("Not yet implemented");
    }
}
```

MainActivity.java

```
package com.example.myapplicationb2;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;
```

```
import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

import java.util.Random;

public class MainActivity extends AppCompatActivity {
   Button play,stop,color;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      play=(Button)findViewById(R.id.button1);
      stop=(Button)findViewById(R.id.button2);
      color=(Button)findViewById(R.id.button3);
      play.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            startService(new Intent(getApplicationContext(),MusicService.class));
         }
      });
      stop.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            stopService(new Intent(getApplicationContext(),MusicService.class));
         }
      });
      color.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            ConstraintLayout cl=(ConstraintLayout)findViewById(R.id.cl);
            Random gen=new Random();

cl.setBackgroundColor(Color.rgb(gen.nextInt(255),gen.nextInt(255),gen.nextInt(255)
));
         }
      });
   }
}
```

3. Implement broadcast receiver to carry out the of following:

Read battery charge of your mobile, display it using progress bar and change the background color as given in table.

Color	Battery Charge
Red	**10% to 30%**
Blue	**30% to 60%**

Green 60% to 100%

```
package com.example.myapplicationb3;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.graphics.Color;
import android.os.BatteryManager;
import android.os.Bundle;
import android.widget.ProgressBar;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    TextView t;
    ProgressBar pb;
    BroadcastReceiver b;

    @Override
    protected void onStart() {
        super.onStart();
        registerReceiver( b,new IntentFilter( Intent.ACTION_BATTERY_CHANGED ) );
    }

    @Override
    protected void onStop() {
        super.onStop();
        unregisterReceiver( b );
    }

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
        t=(TextView)findViewById( R.id.textView);
        pb=(ProgressBar)findViewById( R.id.progressbar);
        b= new BroadcastReceiver() {
            @Override
            public void onReceive(Context context, Intent intent) {
                int level=intent.getIntExtra( BatteryManager.EXTRA_LEVEL,0);
                t.setText( "Battery level:"+level );
                pb.setProgress( level );
                ConstraintLayout cl= (ConstraintLayout)findViewById( R.id.cl);
                if(level>60)
                {
                    cl.setBackgroundColor(Color.GREEN );
                }
                else if(level>30)
                {
                    cl.setBackgroundColor(Color.BLUE );
                }
                else
                    cl.setBackgroundColor(Color.RED );
            }
        };
    }
    }
```

4. **Write an application to insert the data entered by a user into a database and display all the values in database.**

SQL.java

```
package com.example.myapplicationb4;
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import androidx.annotation.Nullable;
public class SQL extends SQLiteOpenHelper {
    public static String DB_name="StudentDB";
```

```
    public SQL(Context context) {
        super(context, DB_name,null,1);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("create table student(name,usn primary key, phone)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int i, int i1) {

    }
}
```

MainActivity.java

```
package com.example.myapplicationb4;
import androidx.appcompat.app.AppCompatActivity;

import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    SQLiteDatabase db;
    Button insert, select;
    EditText name, usn, phone;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        db = new SQL(this).getWritableDatabase();
```

```
        insert = (Button) findViewById(R.id.button1);
        select = (Button) findViewById(R.id.button2);
        name = (EditText) findViewById(R.id.editText1);
        usn = (EditText) findViewById(R.id.editText2);
        phone = (EditText) findViewById(R.id.editText3);
        insert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String iname, iusn, iphone;
                iname = name.getText().toString();
                iusn = usn.getText().toString();
                iphone = phone.getText().toString();
                if (iname.equals("") || iusn.equals("") || iphone.equals("")) {
                    Toast.makeText(getApplicationContext(), "Enter values to all 3
    fields", Toast.LENGTH_SHORT).show();
                } else {
                    ContentValues values = new ContentValues();
                    values.put("name", iname);
                    values.put("usn", iusn);
                    values.put("phone", iphone);
                    db.insert("student", null, values) ;
                        Toast.makeText(getApplicationContext(), "Inserted",
                                Toast.LENGTH_SHORT).show();

                }
            }

        });
        select.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Cursor cursor = db.rawQuery("select * from student", null);
                if (cursor.getCount() <= 0) {
                    Toast.makeText(getApplicationContext(), "No records found",
                            Toast.LENGTH_SHORT).show();
                } else {
```

```
                for (int i = 0; i < cursor.getCount(); i++) {
                    cursor.moveToNext();
                    String s = "";
                    s += "Name:" + cursor.getString(0);
                    s += "USN:" + cursor.getString(1);
                    s += "Phone:" + cursor.getString(2);
                    Toast.makeText(getApplicationContext(), s,
   Toast.LENGTH_SHORT).show();
                }
            }
            cursor.close();
        }
      });
    }
}}
```

5. Design a phone call application that takes a phone number from the user.

SQL.java

```
package com.example.myapplicationb5;
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import androidx.annotation.Nullable;

public class SQL extends SQLiteOpenHelper {
    public static String DB_NAME = "studentDB";
    public SQL(Context context) {
        super(context, DB_NAME, null, 1);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
```

```
        db.execSQL("create table student ( name, usn primary key, phone )");
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int i, int i1) {

    }
}
```

MainActivity.java

```
package com.example.myapplicationb5;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import android.Manifest;
import android.content.ContentValues;
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    SQLiteDatabase db;
    Button insert, call;
    EditText name, usn, phone , callUsn;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.CALL_PHONE}, 1);
        db = new SQL(this).getWritableDatabase();
        insert = (Button) findViewById(R.id.insertButton);
        call = (Button) findViewById(R.id.callButton);
        name = (EditText) findViewById(R.id.name_input);
        usn = (EditText) findViewById(R.id.usn_input);
        phone = (EditText) findViewById(R.id.phone_input);
        callUsn = (EditText) findViewById(R.id.call_usn_input);
        insert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String inpName, inpUSN, inpPhone;
                inpName = name.getText().toString();
                inpUSN = usn.getText().toString();
                inpPhone = phone.getText().toString();
                if(inpName.equals("") || inpUSN.equals("") || inpPhone.equals(""))
                {
                    Toast.makeText(getApplicationContext(),    "Enter    all    values",
Toast.LENGTH_SHORT).show();
                }
                else
                {
                    ContentValues values = new ContentValues();
                    values.put("name", inpName);
                    values.put("usn", inpUSN); values.put("phone", inpPhone);
                    db.insert("student", null, values);
                    Toast.makeText(getApplicationContext(),                "Inserted!",
Toast.LENGTH_SHORT).show();
                }
```

```
        }
    });
    call.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String usn = callUsn.getText().toString();
            if(usn.equals(""))
            {
                Toast.makeText(getApplicationContext(), "Enter an USN!", Toast.LENGTH_SHORT).show();
            }
            else {
                Cursor cursor = db.rawQuery("select * from student where usn = '" + usn + "'", null);
                //dont forget the single quotes
                if (cursor.getCount() != 1) {
                    Toast.makeText(getApplicationContext(), "Student not found!", Toast.LENGTH_SHORT).show();
                }
                else
                {
                    cursor.moveToNext();
                    String phNumber = cursor.getString(2); //column 3 has phone number
                    Intent callIntent = new Intent(Intent.ACTION_CALL);
                    callIntent.setData(Uri.parse("tel:" + phNumber));
                    try {
                        startActivity(callIntent);
                    } catch (Exception e) {
                        Toast.makeText(getApplicationContext(), "call permission denied", Toast.LENGTH_SHORT).show();
                        //add this in manifest
```

```
                    //                                          <uses-permission
    android:name="android.permission.CALL_PHONE" />
                        }
                    }
                }
            }
        });
    }
}
```

6. **Write an application that creates a notification message that will launch another activity after clicking on it.**

ReadNotification.java

```
package com.example.myapplicationb6;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;

public class ReadNotification extends AppCompatActivity {
    TextView message;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_read_notification);
        message = (TextView) findViewById(R.id.message);
        String mes=getIntent().getStringExtra("body");
        message.setText(mes);
    }
}
```

MainActivity.java

```
package com.example.myapplicationb6;

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

```
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Context;
import android.content.Intent;
import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    Button notify;
    EditText message;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        notify = (Button) findViewById(R.id.notify);
        message = (EditText) findViewById(R.id.mess);
        notify.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                //creating Notification channel
                String channelId = "channel1";
                NotificationChannel channel = new NotificationChannel(channelId, "hello",
NotificationManager.IMPORTANCE_HIGH);
                NotificationManager nm =
(NotificationManager)getSystemService(Context.NOTIFICATION_SERVICE);
                nm.createNotificationChannel(channel);

                //creating the Notification object
                NotificationCompat.Builder mBuilder = new
NotificationCompat.Builder(getApplicationContext(),channelId);
                //you may set channel id using
```

```
            // mBuilder.setChannelId(channelId);

            mBuilder.setSmallIcon(R.mipmap.ic_launcher); //Will break if excluded
            mBuilder.setContentTitle("Notification!");
            mBuilder.setContentText(message.getText().toString());
            mBuilder.setAutoCancel(true); // makes auto cancel of notification
            //mBuilder.setPriority(NotificationCompat.PRIORITY_DEFAULT);          //set
priority of notification


            Intent i = new Intent(getApplicationContext(),ReadNotification.class);
            i.putExtra("body", message.getText().toString());
            PendingIntent pi = PendingIntent.getActivity(getApplicationContext(), 0 , i
, PendingIntent.FLAG_UPDATE_CURRENT);
            mBuilder.setContentIntent(pi);
            nm.notify(121 ,mBuilder.build());

        }
      });
   }
}
```

7. Implement web view concept in application that contains two activities and opens default web page/user entered web page.

MainActivity2.java

```
package com.example.myapplicationb7;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.webkit.WebView;
import android.webkit.WebViewClient;

public class MainActivity2 extends AppCompatActivity {
   WebView page;
   @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
        page = (WebView) findViewById(R.id.web);
        page.setWebViewClient(new WebViewClient());
        Intent i = getIntent();
        String url = i.getStringExtra("load");
        if (url.equals("d")) {
            page.loadUrl("https://www.google.com");
        } else {
            page.loadUrl(url);
        }
    }
}
```

MainActivity.java

```
package com.example.myapplicationb7;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    Button load;
    Button defalt;
    EditText url;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        defalt= (Button) findViewById(R.id.button1);
        load=(Button) findViewById(R.id.button2);
        url=(EditText) findViewById(R.id.editText);
        defalt.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
        public void onClick(View view) {
            Intent i=new Intent(getApplicationContext(),MainActivity2.class);
            i.putExtra("load","d");
            startActivity(i);
        }
    });
    load.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            Intent i=new Intent(getApplicationContext(),MainActivity2.class);
            i.putExtra("load",url.getText().toString());
            startActivity(i);
        }
    });
  }
}
```

8. Implement an application to store and retrieve data by using shared preference. (Include save, delete and retrieve operations)

```
package com.example.myapplicationb8;

import androidx.appcompat.app.AppCompatActivity;

import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText uname,uphone,uemail;
    Button add,delete,display;
    public static final String Myprefs="MyPrefs";
```

```
    public static final String Name="NameKey";
    public static final String Phone="PhoneKey";
    public static final String Email="EmailKey";
    SharedPreferences sp;
    SharedPreferences.Editor er;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        add=(Button)findViewById(R.id.button1);
        delete=(Button)findViewById(R.id.button2);
        display=(Button)findViewById(R.id.button3);
        uname=(EditText)findViewById(R.id.editText1);
        uphone=(EditText)findViewById(R.id.editText2);
        uemail=(EditText)findViewById(R.id.editText3);
        sp=getSharedPreferences(Myprefs,MODE_PRIVATE);
        add.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String name=uname.getText().toString();
                String phone=uphone.getText().toString();
                String email=uemail.getText().toString();
                SharedPreferences.Editor editor=sp.edit();
                editor.putString(Name,name);
                editor.putString(Phone,phone);
                editor.putString(Email,email);
                editor.commit();

 Toast.makeText(MainActivity.this,"Thanks",Toast.LENGTH_SHORT).show();
            }

        });
        delete.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                    er=sp.edit();
```

```
                er.clear();
                er.commit();
            }
        });
        display.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String s;
                s="Name:                "+sp.getString(Name,null)+"                Email:
"+sp.getString(Email,null) +" Phone: "+sp.getString(Phone,null);
                Toast.makeText(MainActivity.this,s,Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

9. Implement the following animation concept

i. **Blink**
ii. **Move the image object**
iii. **Rotate.**
iv. **Zoom In and Out**

blink_anim.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:interpolator="@android:anim/accelerate_interpolator"
        android:duration="500"
        android:repeatMode="reverse"
        android:repeatCount="infinite"/>
</set>
```

rotate_anim.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <rotate android:fromDegrees="360"
```

```
        android:toDegrees="0"
        android:pivotX="50%"
        android:pivotY="50%"
        android:duration="500"
        android:repeatCount="infinite"/>
    </set>
```

move_anim.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <translate
        android:fromXDelta="0%p"
        android:toXDelta="100%p"
        android:duration="500" />
</set>
```

zoom_anim.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <scale
        android:duration="500"
        android:fromXScale="1"
        android:fromYScale="1"
        android:pivotX="50%"
        android:pivotY="50%"
        android:toXScale="5"
        android:toYScale="5" />
</set>
```

MainActivity.java

```
package com.example.myapplicationb9;
import androidx.appcompat.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 MainActivity extends AppCompatActivity {
    ImageView imageView;
    Button blinkBTN, rotateBTN,  moveBTN,  zoomBTN;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        imageView = findViewById(R.id.imageView);
        blinkBTN = findViewById(R.id.blink);
        rotateBTN=findViewById(R.id.rotate);
        moveBTN=findViewById(R.id.move);
        zoomBTN=findViewById(R.id.zoom);
        blinkBTN.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Animation                    animation                    =
  AnimationUtils.loadAnimation(getApplicationContext(), R.anim.blink_anim);
                imageView.startAnimation(animation);
            }
        });
        rotateBTN.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Animation                    animation                    =
  AnimationUtils.loadAnimation(getApplicationContext(), R.anim.rotate_anim);
                imageView.startAnimation(animation);
            }
        });
        moveBTN.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
```

```
            Animation animation =
    AnimationUtils.loadAnimation(getApplicationContext(), R.anim.move_anim);
            imageView.startAnimation(animation);
        }
    });
    zoomBTN.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            Animation animation =
    AnimationUtils.loadAnimation(getApplicationContext(), R.anim.zoom_anim);
            imageView.startAnimation(animation);
        }
    });
  }
}
```