Software for Mobile Devices
Task 10

Name: Huraira Muzammal

Section: BCS 6B

Roll number: 22F-3853

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Submitted to: Mam Kanwal Naz

Question 1:

Download Service.java

```java
package com.example.foregroundservice;

import android.app.Service;
import android.content.Intent;
import android.os.IBinder;
import android.util.Log;

import androidx.annotation.Nullable;

public class DownloadService extends Service {
    @Nullable
    @Override
    public IBinder onBind(Intent intent) {
        return null;
    }

    @Override
    public int onStartCommand(Intent intent, int flags, int startId) {

        Log.d("services","Service onstartCommand");

        new Thread(()->{
            for  (int i=0;i<=100;i+=100)
            {
                Log.d("services","Download Progress"+i+"%");

                try
                {
                    Thread.sleep(1000);
                } catch (InterruptedException e) {
                    e.printStackTrace();
                }
            }
        }).start();
        return START_STICKY;
    }
}
```

Foreground service

```java
package com.example.foregroundservice;

import android.app.Notification;
import android.app.Service;
import android.content.Intent;
import android.os.IBinder;

import androidx.annotation.Nullable;

public class ForegroundService extends Service {

    @Override
    public int onStartCommand(Intent intent, int flags, int startId) {
        Notification notification=new Notification
            .Builder(this,"channel_id").setContentTitle("Foreground
Service").setContentText("Running....").setSmallIcon(R.drawable.ic_launcher_foreground).build();
        startForeground(1,notification);
        new Thread(()->{}).start();
        return START_STICKY;
    }

    @Nullable
    @Override
    public IBinder onBind(Intent intent) {
        return null;
    }
}
```

Activtiy main java

```java
package com.example.foregroundservice;

import android.content.Intent;
import android.os.Bundle;
import android.widget.Button;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {
```

```java
    @Override
    protected void onCreate(Bundle savedInstanceState) {

      Button startBtn,stopBtn;
      super.onCreate(savedInstanceState);
      EdgeToEdge.enable(this);
      setContentView(R.layout.activity_main);
     startBtn=findViewById(R.id.btn1);
     stopBtn=findViewById(R.id.button3);

      startBtn.setOnClickListener(view->startService(new Intent(this,DownloadService.class)));
      stopBtn.setOnClickListener(view->stopService(new Intent(this, DownloadService.class)));
    }
}
          activity main 2.java

package com.example.foregroundservice;

import android.content.ComponentName;
import android.content.Context;
import android.content.Intent;
import android.content.ServiceConnection;
import android.os.Bundle;
import android.os.IBinder;
import android.widget.Button;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity2 extends AppCompatActivity {
    private MusicServices musicServices;
    private  boolean isBound=false;
    private Button playBtn,pauseBtn;


    private ServiceConnection serviceConnection=new ServiceConnection() {
      @Override
      public void onServiceConnected(ComponentName name, IBinder service) {
        MusicServices.MusicBinder binder=(MusicServices.MusicBinder)service;
        musicServices=binder.getService();
        isBound=true;
```

```java
        }

        @Override
        public void onServiceDisconnected(ComponentName name) {
            isBound=false;
        }
    };


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main2);
        playBtn=findViewById(R.id.button5);
        pauseBtn=findViewById(R.id.button6);


        Intent intent=new Intent(this, MusicServices.class);
        Intent serviceIntent = new Intent(this, MusicServices.class);
        startService(serviceIntent); // This triggers onStartCommand()
        bindService(serviceIntent, serviceConnection, Context.BIND_AUTO_CREATE);

        bindService(intent,serviceConnection, Context.BIND_AUTO_CREATE);

        playBtn.setOnClickListener(v->{if(isBound)musicServices.play(); Intent startIntent = new Intent(this,
MusicServices.class);
            startService(startIntent);});
        pauseBtn.setOnClickListener(v->{if (isBound)musicServices.pause(); Intent stopIntent = new
Intent(this, MusicServices.class);
            stopService(stopIntent);});

    }
}
```

mediaplayer.java

package com.example.foregroundservice;

import android.app.Notification;
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.Service;

```java
import android.content.Intent;
import android.media.MediaPlayer;
import android.os.Binder;
import android.os.Build;
import android.os.Bundle;
import android.os.IBinder;
import android.util.Log;

import androidx.activity.EdgeToEdge;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MusicServices extends Service {

    private MediaPlayer mediaPlayer;
    private static final String TAG="MusicService";

    private final IBinder binder=new MusicBinder();


    public class MusicBinder extends  Binder {
        public MusicServices getService(){
            return MusicServices.this;
        }
    }

    @Override
    public void onCreate() {
        super.onCreate();

        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
            NotificationChannel channel = new NotificationChannel(
                    "music_channel_id",
                    "Music Playback",
                    NotificationManager.IMPORTANCE_LOW
            );
            channel.setDescription("Channel for music playback service");

            NotificationManager manager = getSystemService(NotificationManager.class);
            if (manager != null) {
```

```java
            manager.createNotificationChannel(channel);
        }
    }
}


@Override
public int onStartCommand(Intent intent, int flags, int startId) {

    Notification notification = new NotificationCompat.Builder(this, "music_channel_id")
        .setContentTitle("Playing Music")
        .setContentText("Your tune is playing in the background.")
        .setSmallIcon(R.drawable.ic_launcher_foreground)  // Must be a valid icon
        .setPriority(NotificationCompat.PRIORITY_LOW)
        .build();

    startForeground(1, notification);

    return START_STICKY;
}


@Override
public void onDestroy() {
    if(mediaPlayer!=null)
    {
        mediaPlayer.release();
        mediaPlayer=null;
    }
    super.onDestroy();
}

@Nullable
@Override
public IBinder onBind(Intent intent) {
    Log.d(TAG,"Service Bound");
    return binder;
}


@Override
public boolean onUnbind(Intent intent) {
    Log.d(TAG,"Service unbound");
    return super.onUnbind(intent);
}
```

```java
    public void play()
    {
        if(mediaPlayer==null)
        {
            mediaPlayer=MediaPlayer.create(this,R.raw.tune);
            mediaPlayer.setLooping(true);

        }
        mediaPlayer.start();
    }

    public void pause()
    {
        if(mediaPlayer!=null&& mediaPlayer.isPlaying())
        {
            mediaPlayer.pause();
        }
        stopForeground(true);
        super.onDestroy();
    }

}
```

XML files

```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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
```

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

    <Button
        android:id="@+id/btn1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="165dp"
        android:layout_marginTop="215dp"
        android:layout_marginEnd="156dp"
        android:layout_marginBottom="93dp"
        android:text="Button"
        app:layout_constraintBottom_toTopOf="@+id/textView"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="169dp"
        android:text="Button"
        app:layout_constraintStart_toStartOf="parent"
        tools:layout_editor_absoluteY="500dp" />

</androidx.constraintlayout.widget.ConstraintLayout>


<?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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity2">

    <Button
        android:id="@+id/button5"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="160dp"
        android:layout_marginTop="140dp"
```
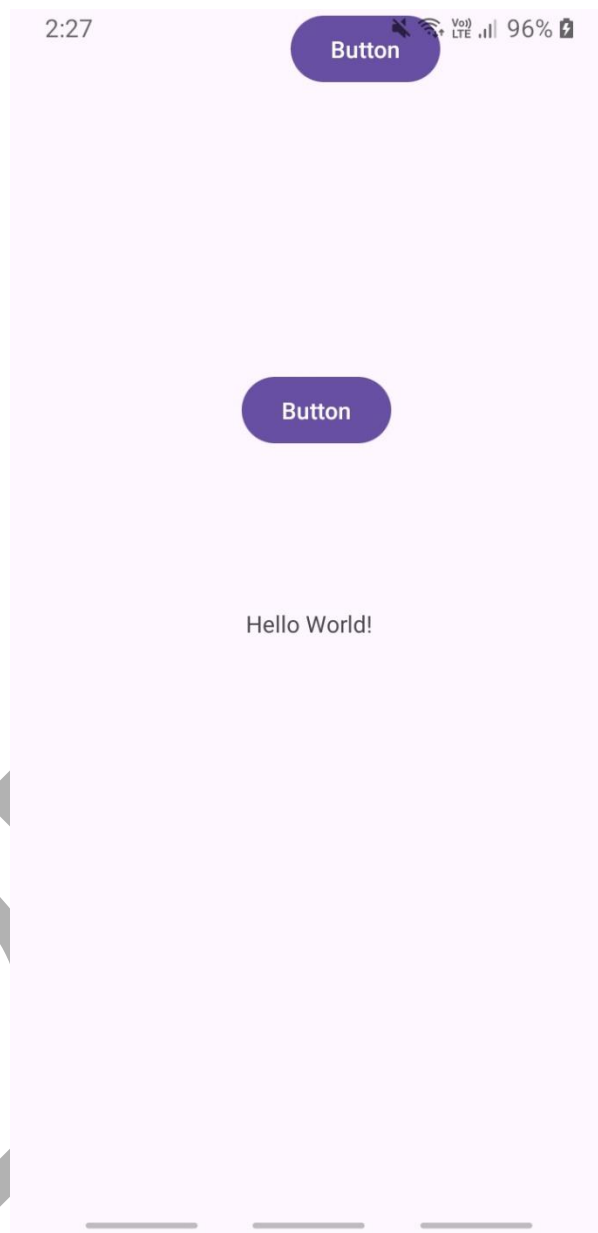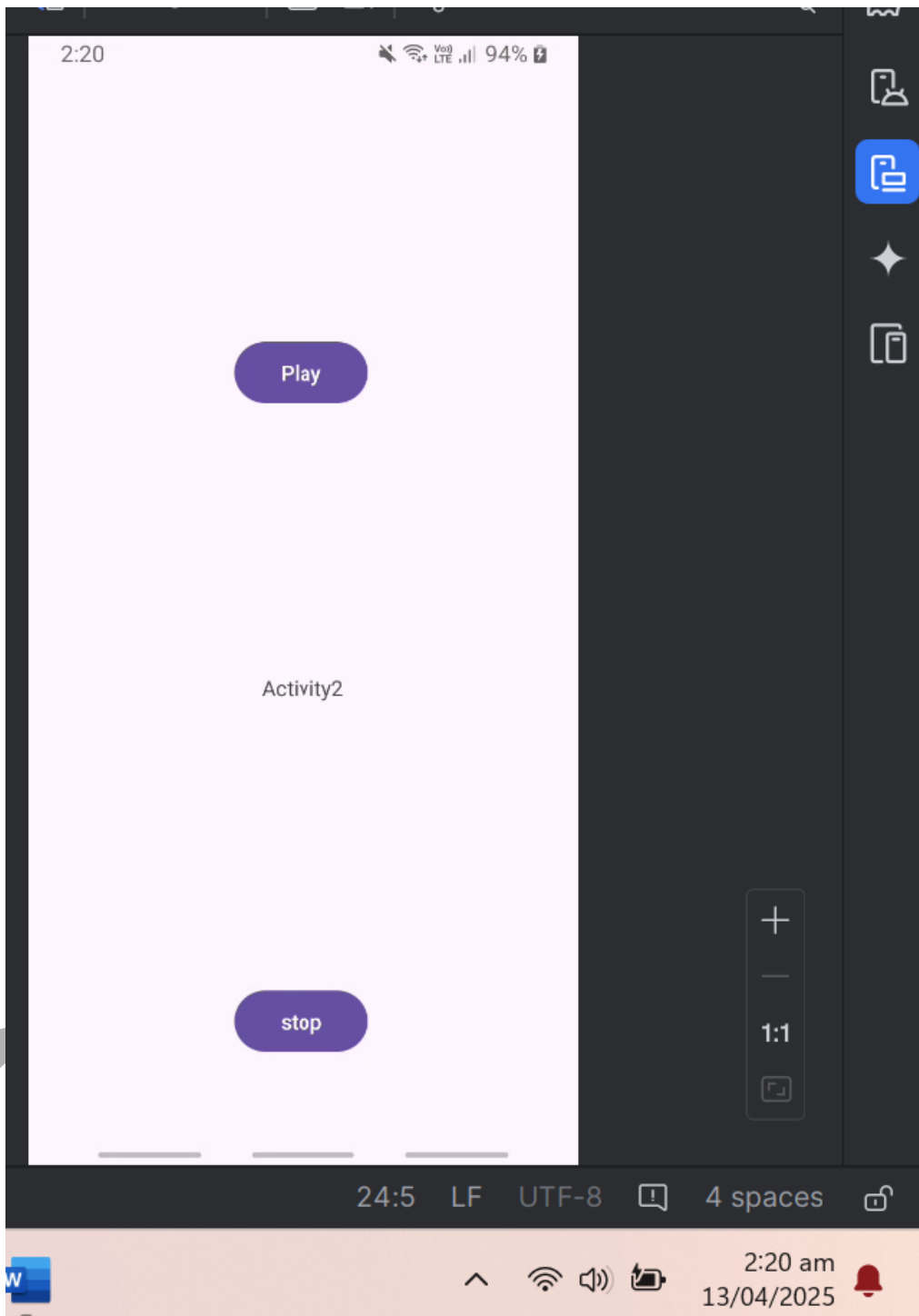
```xml
        android:layout_marginEnd="163dp"
        android:layout_marginBottom="40dp"
        android:text="Play"
        app:layout_constraintBottom_toTopOf="@+id/button6"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="160dp"
        android:layout_marginTop="281dp"
        android:layout_marginEnd="163dp"
        android:layout_marginBottom="15dp"
        android:text="stop"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button5" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="176dp"
        android:layout_marginTop="249dp"
        android:layout_marginEnd="177dp"
        android:layout_marginBottom="260dp"
        android:text="Activity2"
        app:layout_constraintBottom_toTopOf="@+id/button6"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button5" />
</androidx.constraintlayout.widget.ConstraintLayout>
```
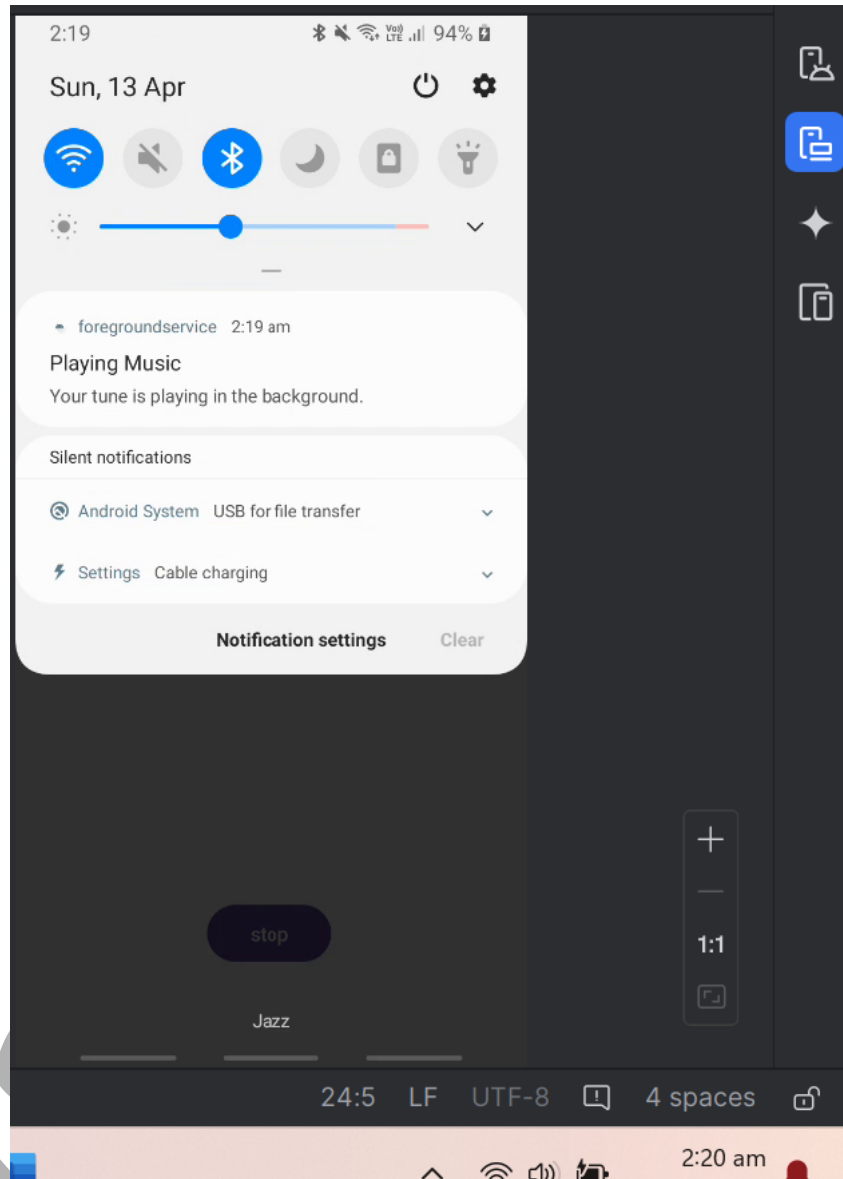
Play

Activity2

stop

2:20
94%

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13/04/2025

End of code file