1、首先我们先进行程序运行后的设计,即 主程序(MainActivity.java)和主程序 页面(activity_main.xml)

Activity_main.xml 的代码如下:

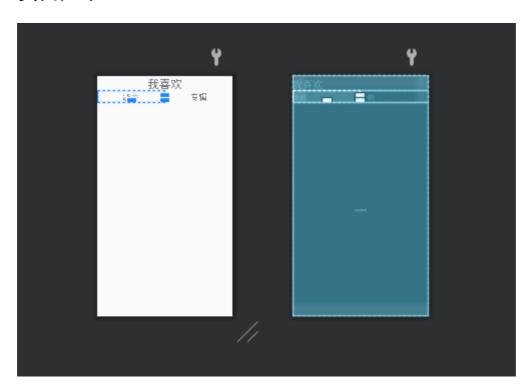
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"</pre>
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:orientation="vertical">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
        <TextView
             android:layout_width="0dp"
             android:layout_height="wrap_content"
             android:layout_weight="1"
             android:gravity="center"
             android:text="我喜欢"
             android:textSize="35dp"/>
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
        <TextView
             android:id="@+id/menu1"
             android:layout_width="0dp"
             android:layout_height="wrap_content"
             android:layout_weight="1"
             android:gravity="center"
             android:text="歌曲"
```

android:textSize="25dp"

```
/>
    <TextView
        android:id="@+id/menu2"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:text="专辑"
        android:textSize="25dp"
        />
</LinearLayout>
<FrameLayout
    android:id="@+id/content"
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="9">
</FrameLayout>
```

</LinearLayout>

页面如下



其中我喜欢和专辑代表的是两个fragment, 分别对应着fragi 和 fragil, 点击"我喜欢"显示音乐列表,点击"专辑"显示专辑列表,程序运

行后默认显示音乐列表

MainActivity.java 的代码如下:

package com.example.myapplication;

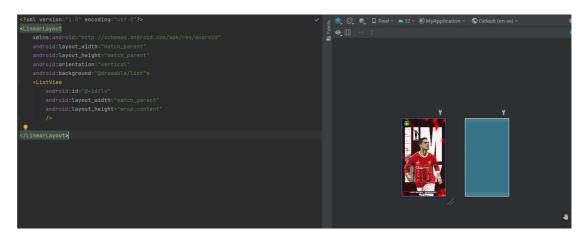
```
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;
import androidx.recyclerview.widget.StaggeredGridLayoutManager;
import android.annotation.SuppressLint;
import android.content.Intent;
import android.graphics.Rect;
import android.nfc.NfcAdapter;
import android.os.Bundle;
import android.os.Handler;
import android.provider.ContactsContract;
import android.provider.Settings;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;
import java.util.zip.lnflater;
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    private TextView tv1,tv2;
    private FragmentManager fm;
    private FragmentTransaction ft;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
         super.onCreate(savedInstanceState);
         setContentView(R.layout.activity_main);
         //绑定控件
         tv1=findViewById(R.id.menu1);
         tv2=findViewById(R.id.menu2);
```

```
//设置监听器
         tv1.setOnClickListener(this);
         tv2.setOnClickListener(this);
         //fm 为 Fragment 的管理者, ft 为其改变者
         fm=getSupportFragmentManager();
         //默认显示 frag1
         ft= fm.beginTransaction();
         ft.replace(R.id.content,new frag1());
         ft.commit();
    }
    @Override
    public void onClick(View view) {
         ft= fm.beginTransaction();
         //切换
         switch(view.getId()){
             case R.id.menu1:
                  ft.replace(R.id.content,new frag1());
                  break:
             case R.id.menu2:
                  ft.replace(R.id.content,new frag2());
                  break:
             default:
                  break:
         }
         ft.commit();
    }
}
```

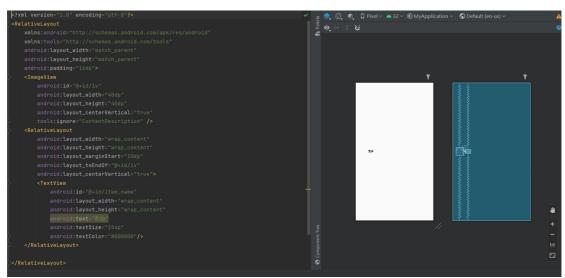
2、接下来我们进行 frag1 的设计, frag1 显示音乐列表, 并设置点击事件, 点击歌曲后跳转到 MusicActivity 中播放该歌曲, 与 frag1 对应的布局文件有music_list 和 item_layout, music_list获取音乐列表并让音乐垂直排列, item_layout 让每首歌曲以图片、

曲名的方式排列

music_list.xml 的代码及页面如下:



item_layout.xml 的代码及页面如下:



Frag1.java 的代码如下:

package com.example.myapplication;

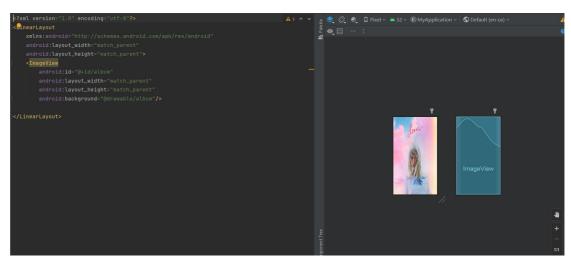
import android.annotation.SuppressLint; import android.content.Intent; import android.os.Bundle; import android.view.LayoutInflater; import android.view.View; import android.view.ViewGroup; import android.widget.AdapterView; import android.widget.BaseAdapter;

```
import android.widget.ImageView;
    import android.widget.ListView;
    import android.widget.TextView;
    import androidx.fragment.app.Fragment;
    public class frag1 extends Fragment {
        private View view;
        //创建歌曲的 String 数组和歌手图片的 int 数组
        public String[] name={"Two Steps From Hell _ Thomas Bergersen -
Victory","Wiz Khalifa _ Charlie Puth - See You Again (feat_ Charlie Puth)","鹿先森乐
队 - 春风十里"};
        public
                                         static
                                                                         int[]
icons={R.drawable.music0,R.drawable.music1,R.drawable.music2};
        @Override
        public
               View
                      onCreateView(final LayoutInflater inflater,ViewGroup
container,Bundle savedInstanceState){
            //绑定布局
            view= inflater.inflate(R.layout.music list,null);
            //创建 listView 列表并且绑定控件
            ListView listView = view.findViewByld(R.id.lv);
            //实例化一个适配器
            MyBaseAdapter adapter = new MyBaseAdapter();
            listView.setAdapter(adapter);
            //列表元素的点击监听器
            listView.setOnltemClickListener(new AdapterView.OnltemClickListener()
{
                 @Override
                 public void onItemClick(AdapterView<?> adapterView, View view,
int position, long id) {
                     //创建 Intent 对象,参数从 frag1 跳转到 MusicActivity
                     Intent
                                       intent
                                                                         new
Intent(frag1.this.getContext(),MusicActivity.class);
                     //将歌曲名和歌曲的下标存入 Intent 对象
                     intent.putExtra("name",name[position]);
                     intent.putExtra("position",String.valueOf(position));
                     //开始跳转
                     startActivity(intent);
                }
            });
```

```
return view;
        }
         //创建自定义适配器
         class MyBaseAdapter extends BaseAdapter{
             @Override
             public int getCount() {
                  return name.length;
             }
             @Override
             public Object getItem(int i) {
                  return name[i];
             }
             @Override
             public long getItemId(int i) {
                  return i;
             }
             @Override
             public View getView(int i, View convertView, ViewGroup parent) {
                  //绑定好 Vlew, 然后绑定控件
                  @SuppressLint("ViewHolder")
                                                      View
                                                                   view
View.inflate(frag1.this.getContext(),R.layout.item_layout,null);
                  TextView tv_name = view.findViewByld(R.id.item_name);
                  ImageView iv=view.findViewById(R.id.iv);
                  tv_name.setText(name[i]);
                  iv.setImageResource(icons[i]);
                  return view;
             }
        }
}
```

3、然后进行 frag2 的设计,与 frag2 对应的布局文件为 frag2_layout.xml,里面放置专辑图片,也可以放置歌手信息等,可自由拓展

frag2_layout.xml 的代码及页面如下:



Frag2.java 的代码如下:

```
ackage com.example.myapplication;
    import android.os.Bundle;
    import android.view.LayoutInflater;
    import android.view.View;
    import android.view.ViewGroup;
    import androidx.core.app.BundleCompat;
    import androidx.fragment.app.Fragment;
    public class frag2 extends Fragment {
         //创建一个 View
         private View album;
         //显示布局
         public View on Create View (final Layout Inflater inflater, View Group container,
Bundle savedInstanceState){
             album=inflater.inflate(R.layout.frag2_layout,null);
             return album:
        }
}
```

4、 最 后 进 行 播 放 服 务 (MusicService.java) 、 播 放 页 面 (activity_music.xml)、播放程序 (MusicActivity.java)的设计 播放页面合有背景图片、转动光盘、积名、进度套、当 有播放时长、总时长、上一首、暂停、播放、下一首、 运回

activity_music.xml 的代码如下:

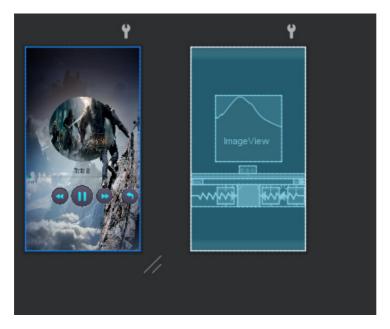
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout width="match parent"
    android:layout_height="match_parent"
    android:background="@drawable/background"
    tools:context=".MusicActivity"
    android:gravity="center"
    android:orientation="vertical">
    <ImageView
        android:id="@+id/iv_music"
        android:layout_width="240dp"
        android:layout_height="240dp"
        android:layout_gravity="center_horizontal"
        android:layout_margin="15dp"
        android:src="@drawable/music0"/>
    <TextView
        android:id="@+id/song_name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="歌曲名"
        android:textSize="20sp"
        />
    <SeekBar
        android:id="@+id/sb"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>
    <RelativeLayout
        android:layout_width="match_parent"
```

```
android:layout_height="wrap_content"
    android:paddingLeft="8dp"
    android:paddingRight="8dp">
    <TextView
        android:id="@+id/tv_progress"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="00:00" />
    <TextView
        android:id="@+id/tv_total"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentRight="true"
        android:text="00:00" />
</RelativeLayout>
<RelativeLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <Button
        android:id="@+id/btn_continue_play"
        android:layout width="80dp"
        android:layout_height="80dp"
        android:layout_centerHorizontal="true"
        android:background="@drawable/play"/>
    <Button
        android:id="@+id/btn_pause"
        android:layout_width="80dp"
        android:layout_height="80dp"
        android:layout_centerHorizontal="true"
        android:background="@drawable/pause" />
    <Button
        android:id="@+id/btn_play"
        android:layout_width="80dp"
        android:layout_height="80dp"
        android:layout_centerHorizontal="true"
        android:background="@drawable/play"/>
    <Button
        android:id="@+id/btn_last"
        android:layout_width="60dp"
        android:layout_height="60dp"
        android:layout_centerVertical="true"
```

```
android:layout_marginRight="10dp"
        android:layout_toLeftOf="@id/btn_play"
        android:background="@drawable/last"/>
    <Button
        android:id="@+id/btn_next"
        android:layout_width="60dp"
        android:layout_height="60dp"
        android:background="@drawable/next"
        android:layout_centerVertical="true"
        android:layout_marginLeft="10dp"
        android:layout_toRightOf="@id/btn_play"
        />
    <Button
        android:id="@+id/btn_exit"
        android:layout_width="60dp"
        android:layout_height="60dp"
        android:background="@drawable/exit"
        android:layout_centerVertical="true"
        android:layout_marginLeft="30dp"
        android:layout_toRightOf="@id/btn_next"/>
</RelativeLayout>
```

</LinearLayout>

页面如下:



播放服务中设置计时器、MusicControl
MusicService.java 的代码如下:

```
package com.example.myapplication;
import android.app.Service;
import android.content.Intent;
import android.media.MediaPlayer;
import android.net.Uri;
import android.os.Binder;
import android.os.Bundle;
import android.os.IBinder;
import android.os.Message;
import java.util.Timer;
import java.util.TimerTask;
public class MusicService extends Service {
    //声明一个 MediaPlayer 引用
    private MediaPlayer player;
    //声明一个计时器
    private Timer timer;
    public MusicService() {
    @Override
    public IBinder onBind(Intent intent) {
        // TODO: Return the communication channel to the service.
        return new MusicControl();
   }
    @Override
    public void onCreate(){
        super.onCreate();
        //创建音乐播放器对象
        player=new MediaPlayer();
   }
    //添加计时器用于设置音乐播放器中的播放进度条
    public void addTimer(){
        //如果计时器不存在,也就是没有引用实例
        if (timer==null){
            //创建计时器对象
            timer=new Timer();
            TimerTask task=new TimerTask() {
                @Override
                public void run() {
                     if (player==null)
```

```
return;
                else {
                   //获取歌曲总时长
                   int duration = player.getDuration();
                   //获取歌曲当前播放时长
                   int currentPosition = player.getCurrentPosition();
                   //创建消息对象
                    Message message = MusicActivity.handler.obtainMessage();
                   //将音乐总时长和播放进度封装至 bundle 中
                    Bundle bundle = new Bundle();
                    bundle.putInt("duration",duration);
                    bundle.putInt("currentPosition",currentPosition);
                   //再将 bundle 封装到 message 消息对象中
                    message.setData(bundle);
                    MusicActivity.handler.sendMessage(message);
                }
            }
        };
        //开始即使任务后的 5 毫秒, 第一次执行 task 任务, 以后 1000 毫秒 (1s) 执
        timer.schedule(task,5,1000);
    }
}
//创建一个内部类 MusicControl, 功能是让主程序控制 service 里面的多媒体对象。
  IBinder 是 Binder 的子类,因此要返回 MusicControl 给 IBinder。
class MusicControl extends Binder{
    public void play(int i){
        //下面这步有点奇怪
                                                                        uri
  =Uri.parse("android.resource://"+getPackageName()+"/raw/"+"music"+i);
        try {
            //重置音乐播放器
            player.reset();
            //加载多媒体文件
            player=MediaPlayer.create(getApplicationContext(),uri);
            //播放音乐
            player.start();
            //添加计时器
            addTimer();
        }catch (Exception exception){
            exception.printStackTrace();
        }
    }
```

```
//暂停播放音乐
    public void pausePlay(){
        player.pause();
    }
    //继续播放音乐
    public void continuePlay(){
         player.start();
    }
    //设置音乐播放位置
    public void seekTo(int progress){
         player.seekTo(progress);
    }
}
//停止播放并销毁
@Override
public void onDestroy(){
    super.onDestroy();
    if (player==null){
        return;
    if (player.isPlaying()){
        player.stop();//停止播放音乐
    player.release();//释放占用资源
    player=null;
    try {
        timer.cancel();//计时器归零
    }catch (Exception exception){
     exception.printStackTrace();
}
```

播放程序中段置按钮点击事件、光盘转动事件、进度条监听 事件和服务连接事件

MusicActivity.java 的代码如下:

package com.example.myapplication;

import static java.lang.lnteger.min; import static java.lang.lnteger.parseInt;

import androidx.annotation.NonNull;

```
import androidx.appcompat.app.AppCompatActivity;
import android.animation.ObjectAnimator;
import android.content.ComponentName;
import android.content.Intent;
import android.content.ServiceConnection;
import android.os.Build;
import android.os.Bundle;
import android.os.Handler;
import android.os.lBinder;
import android.os.Looper;
import android.os.Message;
import android.view.View;
import android.view.animation.LinearInterpolator;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.SeekBar;
import android.widget.TextView;
@RequiresApi(api = Build.VERSION_CODES.KITKAT)
public class MusicActivity extends AppCompatActivity implements View.OnClickListener{
    //定义歌名名称的数组
    public String[] musicName={"Two Steps From Hell _ Thomas Bergersen - Victory","Wiz
      Khalifa _ Charlie Puth - See You Again (feat_ Charlie Puth)",
                                  "鹿先森乐队 - 春风十里"};
    private static SeekBar sb://定义进度条
    //定义开始和总时长, 歌名
    private static TextView tv_progress,tv_total,name_song;
    //定义旋转的动画
    private ObjectAnimator animator;
    //声明 MusicService 中的音乐控制器
    private MusicService.MusicControl musicControl;
    //定义各个按钮
    private Button play;
    private Button pause;
    private Button continue_play;
    private Button last;
    private Button next;
    private Button exit;
    private ImageView iv_music;//定义歌曲图片框
```

import androidx.annotation.RequiresApi;

```
Intent intent1,intent2;//定义两个意图
MyServiceConn myServiceConn;
private boolean isUnbind = false;//记录服务器是否被解绑
public int change = 0;//记录下标的变化值,便于之后的上一首下一首操作
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_music);
    //获得意图
    intent1 = getIntent();
    //初始化控件
    init();
}
private void init(){
    //依次绑定控件
    tv progress=findViewByld(R.id.tv progress);
    tv_total=findViewById(R.id.tv_total);
    sb=findViewById(R.id.sb);
    name_song=findViewById(R.id.song_name);
    iv_music=findViewById(R.id.iv_music);
    play=findViewByld(R.id.btn_play);
    pause=findViewByld(R.id.btn_pause);
    continue_play=findViewById(R.id.btn_continue_play);
    last=findViewByld(R.id.btn_last);
    next=findViewById(R.id.btn_next);
    exit=findViewById(R.id.btn_exit);
    //设置监听事件
    play.setOnClickListener(this);
    pause.setOnClickListener(this);
    continue_play.setOnClickListener(this);
    last.setOnClickListener(this);
    next.setOnClickListener(this);
    exit.setOnClickListener(this);
    //创建意图对象
    intent2=new Intent(this,MusicService.class);
    myServiceConn=new MyServiceConn();//创建服务连接对象
    bindService(intent2,myServiceConn,BIND_AUTO_CREATE);//绑定服务
```

//从歌曲列表传过来的歌曲名

```
String name = intent1.getStringExtra("name");
 //设置歌曲显示
 name_song.setText(name);
 //定义歌曲列表传过来的下标 position
 String position = intent1.getStringExtra("position");
 //将字符串转化为整形 i
 int i =parseInt(position);
 //图像框设置为 frag1 里面的图标数组, 下标为 i
 iv_music.setImageResource(frag1.icons[i]);
 //为滑动条设置监听事件
 sb.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
      @RequiresApi(api = Build.VERSION_CODES.KITKAT)
      @Override
      public void onProgressChanged(SeekBar seekBar, int progress, boolean
fromUser) {
         //当滑动条滑到末端时, 自动播放下一首
         if(progress==seekBar.getMax()){
             change++;//自动下一首,下标加一
             String position = intent1.getStringExtra("position");
             int nowPosition = (parseInt(position)+change)% musicName.length;//
当前歌曲下标
             iv_music.setImageResource(frag1.icons[nowPosition]);// 切 换 到
nowPosition 这首歌的封面
             name_song.setText(musicName[nowPosition]);//切换到 nowPosition
这首歌的歌名
             musicControl.play(nowPosition);//播放 nowPosition 这首歌
             musicControl.seekTo(0);//重置播放进度
             //pause.setVisibility(View.VISIBLE);
         }
     }
      @Override
      public void onStartTrackingTouch(SeekBar seekBar) {//滑动条开始滑动时调用
         musicControl.pausePlay();
         animator.pause();
     }
      @Override
      public void onStopTrackingTouch(SeekBar seekBar) {//滑动条停止滑动时调用
         //根据滑动条的进度改变音乐播放进度
         int progress = seekBar.getProgress();
         //切换到当前播放进度
         musicControl.seekTo(progress);
```

```
musicControl.continuePlay();
            animator.resume();
        }
    });
    //执行动画的对象是 iv_music,// 动画效果是 0-360°旋转 (用的是浮点数,所以加
    animator=ObjectAnimator.ofFloat(iv_music,"rotation",0.0f,360.0f);
    animator.setDuration(10000);//动画旋转一周的时间为 10000 毫秒
    animator.setInterpolator(new LinearInterpolator());//匀速转动
    animator.setRepeatCount(-1);//无限循环
}
//Handler 主要用于异步消息的处理,在这里是处理子线程 MusicService 传来的消息
public static Handler handler = new Handler(Looper.getMainLooper()){
    //从主线程中处理从子进程发送过来的消息
    @Override
    public void handleMessage(@NonNull Message message){
        //获取从子线程中发送过来的音乐播放进度
        Bundle bundle = message.getData();
        int duration = bundle.getInt("duration");
        int currentPosition = bundle.getInt("currentPosition");
        sb.setMax(duration);
        sb.setProgress(currentPosition);
        //歌曲总时长,单位为毫秒
        int minute=duration/1000/60;
        int second=duration/1000%60;
        String strMinute=null;
        String strSecond=null;
        if (minute < 10){
            strMinute="0"+minute;
        }
        else {
            strMinute=minute+"";
        }
        if (second<10){
            strSecond="0"+second;
        }
        else {
            strSecond=second+"";
        }
        tv_total.setText(strMinute+":"+strSecond);
```

```
//歌曲当前播放时长
         minute = currentPosition / 1000 /60:
         second = currentPosition / 1000 % 60;
         if (minute < 10){
             strMinute="0"+minute;
         }
         else {
              strMinute=minute+"":
         }
         if (second<10){
              strSecond="0"+second;
         }
         else {
             strSecond=second+"";
         tv_progress.setText(strMinute+":"+strSecond);
    }
};
//设置点击事件
@RequiresApi(api = Build.VERSION_CODES.KITKAT)//迷惑
@Override
public void onClick(View view) {
    String position = intent1.getStringExtra("position");
    //将字符串转为整数
    int i=parseInt(position);
    switch(view.getId()){
         case R.id.btn_play:
              play.setVisibility(View.INVISIBLE);
              pause.setVisibility(View.VISIBLE);
              continue_play.setVisibility(View.INVISIBLE);
              musicControl.play(i);
              animator.start();
             break;
         case R.id.btn_last:
              if ((i+change)<1){
                  change= musicName.length-1-i;
                  musicControl.play(i+change);
                  iv_music.setImageResource(frag1.icons[i+change]);
                  name_song.setText(musicName[i+change]);
                  play.setVisibility(View.INVISIBLE);
                  pause.setVisibility(View.VISIBLE);
                  continue_play.setVisibility(View.INVISIBLE);
```

```
animator.start();
         break;
    }
    else{
         change--;
         musicControl.play(i+change);
         iv_music.setImageResource(frag1.icons[i+change]);
         name_song.setText(musicName[i+change]);
         play.setVisibility(View.INVISIBLE);
         pause.setVisibility(View.VISIBLE);
         continue_play.setVisibility(View.INVISIBLE);
         animator.start();
         break;
    }
case R.id.btn_next:
    if ((i+change)== musicName.length-1){
         change=-i;
         musicControl.play(i+change);
         iv_music.setImageResource(frag1.icons[i+change]);
         name_song.setText(musicName[i+change]);
         play.setVisibility(View.INVISIBLE);
         pause.setVisibility(View.VISIBLE);
         continue_play.setVisibility(View.INVISIBLE);
         animator.start();
         break;
    }
    else{
         change++;
         iv_music.setImageResource(frag1.icons[i+change]);
         name_song.setText(musicName[i+change]);
         musicControl.play(i+change);
         play.setVisibility(View.INVISIBLE);
         pause.setVisibility(View.VISIBLE);
         continue_play.setVisibility(View.INVISIBLE);
         animator.start();
         break:
    }
case R.id.btn_pause:
    pause.setVisibility(View.INVISIBLE);
    continue_play.setVisibility(View.VISIBLE);
    play.setVisibility(View.INVISIBLE);
    musicControl.pausePlay();
    animator.pause();
    break;
```

```
case R.id.btn_continue_play:
             play.setVisibility(View.INVISIBLE);
             continue_play.setVisibility(View.INVISIBLE);
             pause.setVisibility(View.VISIBLE);
             musicControl.continuePlay();
             animator.resume();
             break;
         case R.id.btn_exit:
             unbind(isUnbind);
             isUnbind=true;
             finish();
             break;
    }
}
//用于实现连接服务
class MyServiceConn implements ServiceConnection{
    @Override
    public void onServiceConnected(ComponentName componentName, IBinder
  service) {
         musicControl=(MusicService.MusicControl) service;
    }
    @Override
    public void onServiceDisconnected(ComponentName componentName) {
    }
}
//未解绑则解绑
private void unbind(boolean isUnbind){
    if (!isUnbind){
         musicControl.pausePlay();
         unbindService(myServiceConn);//解绑服务
    }
}
@Override
protected void onDestroy(){
    super.onDestroy();
    unbind(isUnbind);//解绑服务
}
```

}

运行结果将会在录制的视频中呈现,视频为下一个附件