实验七 多媒体应用

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| **课 程** | 移动应用软件开发技术 | **实验项目** | 多媒体应用 | **成 绩** |  |
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**实验目的及要求：**

1. 掌握：摄像头的调取及使用
2. 掌握：相册的打开及选择
3. 实验报告上传：<http://study.swpu.edu.cn/portal>

**实验内容：**

1. 根据书上第8章，编写调用摄像头的代码和从相册显示图片的代码，并显示。

摄像头

相册

图片显示

# 代码

**package** com.example.cameraalbumtest;  
  
**import** androidx.annotation.NonNull;  
**import** androidx.annotation.Nullable;  
**import** androidx.appcompat.app.AppCompatActivity;  
**import** androidx.core.app.ActivityCompat;  
**import** androidx.core.content.ContextCompat;  
**import** androidx.core.content.FileProvider;  
  
**import** android.Manifest;  
**import** android.annotation.TargetApi;  
**import** android.content.ContentUris;  
**import** android.content.Intent;  
**import** android.content.pm.PackageManager;  
**import** android.database.Cursor;  
**import** android.graphics.Bitmap;  
**import** android.graphics.BitmapFactory;  
**import** android.net.Uri;  
**import** android.os.Build;  
**import** android.os.Bundle;  
**import** android.provider.DocumentsContract;  
**import** android.provider.MediaStore;  
**import** android.view.View;  
**import** android.widget.Button;  
**import** android.widget.ImageView;  
**import** android.widget.Toast;  
  
**import** java.io.File;  
**import** java.io.FileNotFoundException;  
**import** java.io.IOException;  
  
**public class** MainActivity **extends** AppCompatActivity {  
 **public static final int *TAKE\_PHOTO*** = 1;  
**public static final int *CHOOSE\_PHOTO***=2;  
 **private** ImageView **picture**;  
  
 **private** Uri **imageUri**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
 Button takePhoto = (Button) findViewById(R.id.***take\_photo***);  
 Button chooseFromAlbum=(Button)findViewById(R.id.***choose\_from\_album***);  
 **picture** = (ImageView) findViewById(R.id.***picture***);  
 takePhoto.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 *//创建File对象，用于存储拍照后的图片  
 //getExternalCacheDir()方法将图片存放在应用关联缓存目录下,也就是/sdcard/Android/data/应用的包名/cache中* File outputImage = **new** File(getExternalCacheDir(), **"output\_image.jpg"**);  
 **try** {  
 *//如果文件存在则删除，从新创建一个新的文件* **if**(outputImage.exists()) {  
 outputImage.delete();  
 }  
 outputImage.createNewFile();  
 } **catch** (IOException e) {  
 e.printStackTrace();  
 }**if** (Build.VERSION.***SDK\_INT*** >= 24) {  
 **imageUri** = FileProvider.*getUriForFile*(MainActivity.**this**,  
 **"com.example.cameraalbumtest.fileprovider"**, outputImage);  
 } **else** {  
 **imageUri** = Uri.*fromFile*(outputImage);  
 }  
 *//启动相机程序* Intent intent = **new** Intent(**"android.media.action.IMAGE\_CAPTURE"**);  
 *//指定图片的输出地址* intent.putExtra(MediaStore.***EXTRA\_OUTPUT***, **imageUri**);  
 *//使用startActivityForResult()方法启动活动，因此拍完照片后会有结果返回到onActivityResult()方法中  
 //如果发现拍照成功，就可以调用BitmapFactory的decodeStream()方法将ouput\_iamge.jpg这张照片解析成Bitmap  
 //对象，然后把它设置到ImageView中显示出来* startActivityForResult(intent, ***TAKE\_PHOTO***);  
  
 }  
 });  
 chooseFromAlbum.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 *//动态申请获取访问 读写磁盘的权限* **if** (ContextCompat.*checkSelfPermission*(MainActivity.**this**,  
 Manifest.permission.***WRITE\_EXTERNAL\_STORAGE***) != PackageManager.***PERMISSION\_GRANTED***) {  
 ActivityCompat.*requestPermissions*(MainActivity.**this**, **new** String[]{Manifest.permission.***WRITE\_EXTERNAL\_STORAGE***}, 1);  
 } **else** {  
 openAlbum();  
 }  
 }  
 });  
 }  
**private void** openAlbum() {  
 *//打开相册* Intent intent = **new** Intent(Intent.***ACTION\_GET\_CONTENT***);  
 *//Intent.ACTION\_GET\_CONTENT = "android.intent.action.GET\_CONTENT"* intent.setType(**"image/\*"**);  
 startActivityForResult(intent,***CHOOSE\_PHOTO***);  
}  
 @Override  
 **public void** onRequestPermissionsResult(**int** requestCode, String[] permissions,  
 **int**[] grantResults) {  
 **switch** (requestCode) {  
 **case** 1:  
 **if** (grantResults.**length** > 0 && grantResults[0] == PackageManager.***PERMISSION\_GRANTED***) {  
 openAlbum();  
 } **else** {  
 Toast.*makeText*(**this**, **"你拒绝了申请"**, Toast.***LENGTH\_SHORT***).show();  
 }  
 **break**;  
 **default**:  
 }  
 }  
  
  
 @Override  
 **protected void** onActivityResult(**int** requestCode, **int** resultCode, Intent data) {  
 **super**.onActivityResult(requestCode, resultCode, data);  
 **switch** (requestCode) {  
 **case *TAKE\_PHOTO***:  
 **if** (resultCode == ***RESULT\_OK***) {  
 **try** {  
 *//将拍摄的照片显示出来* Bitmap bitmap = BitmapFactory.*decodeStream*(getContentResolver().openInputStream(**imageUri**));  
 **picture**.setImageBitmap(bitmap);  
 } **catch** (FileNotFoundException e) {  
 e.printStackTrace();  
 }  
 }  
 **break**;  
 **case *CHOOSE\_PHOTO***:  
 **if** (resultCode == ***RESULT\_OK***) { *// 判断手机系统版本号* **if** (Build.VERSION.***SDK\_INT*** >= 19) {  
 *// 4.4及以上系统使用这个方法处理图片* handleImageOnKitKat(data);  
 } **else** {  
 *// 4.4以下系统使用这个方法处理图片* handleImageBeforeKitKat(data);  
 }  
 }  
 **break**;  
 **default**:  
 **break**;  
  
 }  
  
 }  
 @TargetApi(19)  
 **private void** handleImageOnKitKat(Intent data) {  
 String imagePath = **null**;  
 Uri uri = data.getData();  
 **if** (DocumentsContract.*isDocumentUri*(**this**, uri)) {  
 *// 如果是document类型的Uri，则通过document id处理* String docId = DocumentsContract.*getDocumentId*(uri);  
 **if** (**"com.android.providers.media.documents"**.equals(uri.getAuthority())) {  
 String id = docId.split(**":"**)[1];  
 *// 解析出数字格式的id* String selection = MediaStore.Images.Media.***\_ID*** + **"="** + id;  
 imagePath = getImagePath(MediaStore.Images.Media.***EXTERNAL\_CONTENT\_URI***, selection);  
 } **else if** (**"com.android.providers.downloads.documents"**.equals(uri.getAuthority())) {  
 Uri contentUri = ContentUris.*withAppendedId*(Uri.*parse*(**"content: //downloads/public\_downloads"**), Long.*valueOf*(docId));  
 imagePath = getImagePath(contentUri, **null**);  
 }  
 } **else if** (**"content"**.equalsIgnoreCase(uri.getScheme())) {  
 *// 如果是content类型的Uri，则使用普通方式处理* imagePath = getImagePath(uri, **null**);  
 } **else if** (**"file"**.equalsIgnoreCase(uri.getScheme())) {  
 *// 如果是file类型的Uri，直接获取图片路径即可* imagePath = uri.getPath();  
 }  
 *// 根据图片路径显示图片* displayImage(imagePath);  
 }  
  
 */\*\*  
 \* android 4.4以前的处理方式  
 \** ***@param data*** *\*/* **private void** handleImageBeforeKitKat(Intent data) {  
 Uri uri = data.getData();  
 String imagePath = getImagePath(uri, **null**);  
 displayImage(imagePath);  
 }  
  
 **private** String getImagePath(Uri uri, String selection) {  
 String path = **null**;  
 *// 通过Uri和selection来获取真实的图片路径* Cursor cursor = getContentResolver().query(uri, **null**, selection, **null**, **null**);  
 **if** (cursor != **null**) {  
 **if** (cursor.moveToFirst()) {  
 path = cursor.getString(cursor.getColumnIndex(MediaStore.Images.Media.***DATA***));  
 }  
 cursor.close();  
 }  
 **return** path;  
 }  
  
 **private void** displayImage(String imagePath) {  
 **if** (imagePath != **null**) {  
 Bitmap bitmap = BitmapFactory.*decodeFile*(imagePath);  
 **picture**.setImageBitmap(bitmap);  
 } **else** {  
 Toast.*makeText*(**this**, **"获取相册图片失败"**, Toast.***LENGTH\_SHORT***).show();  
 }  
 }  
}

# 截图



