中山大学数据科学与计算机学院本科生实验报告

（2017 年秋季学期）

课程名称：移动应用开发　　　　任课教师：刘宁

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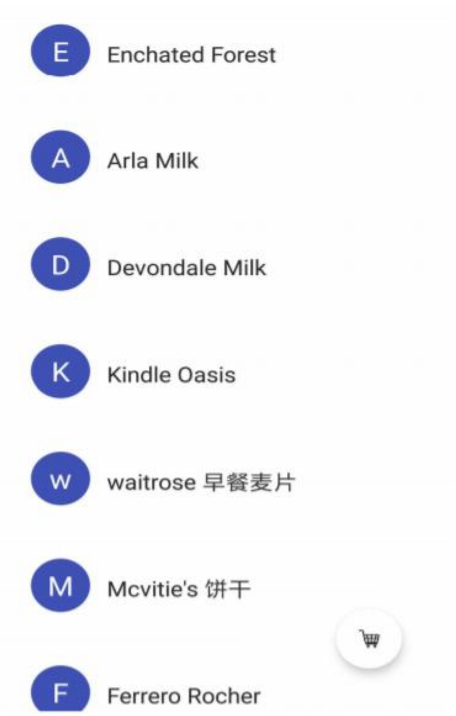
开始日期	2017.10.16	完成日期	2017.10.22

一、 实验题目

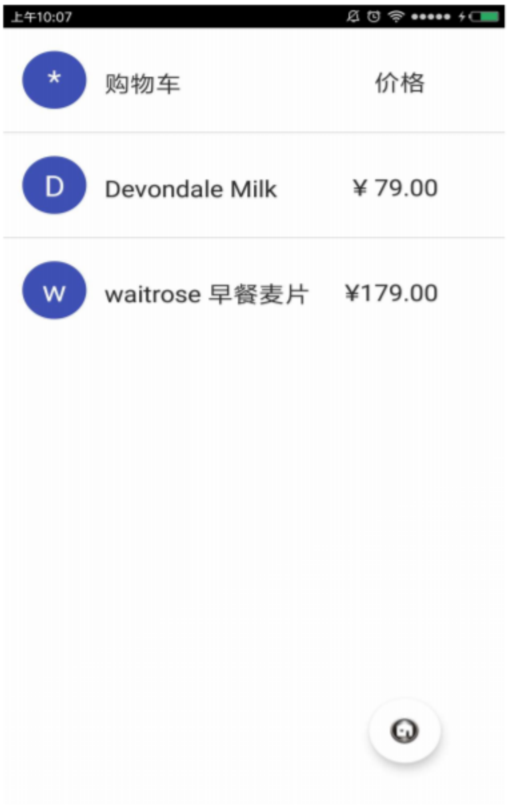
Intent、Bundle 的使用以及 RecyclerView、ListView 的应用

二、 实现内容

1. 实模拟现一个商品表，有两个界面，第一个界面用于呈现商品，点击悬浮按钮切换到购物车

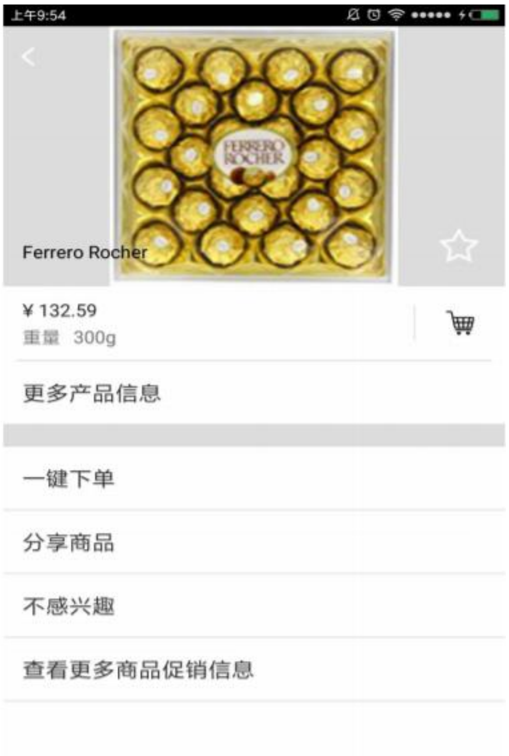


E Enchated Forest
A Arla Milk
D Devondale Milk
K Kindle Oasis
W waitrose 早餐麦片
M Mcvitie's 饼干
F Ferrero Rocher



*	购物车	价格
D	Devondale Milk	¥ 79.00
W	waitrose 早餐麦片	¥179.00

上面两个列表点击任意一项，切换到详情页面



上午9:54

Ferrero Rocher

¥ 132.59
重量 300g

更多产品信息

一键下单

分享商品

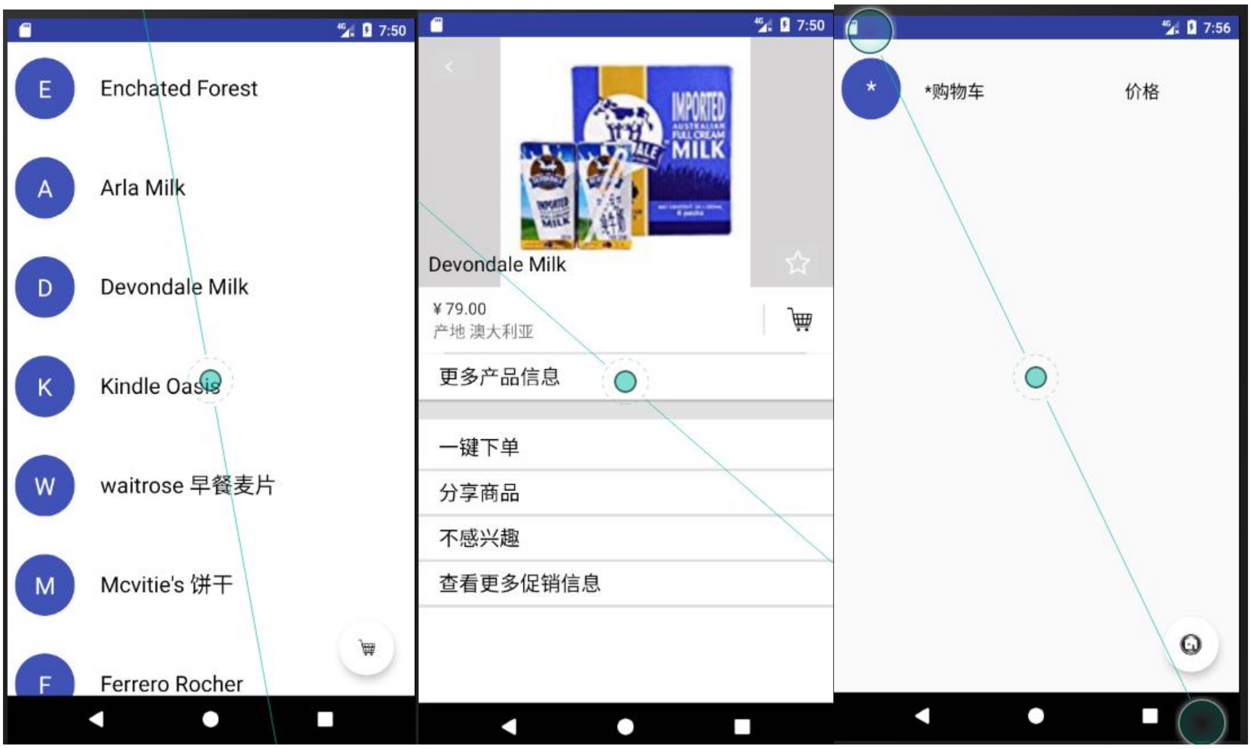
不感兴趣

查看更多商品促销信息

注意：两个页面顶部都没有标题栏

三、 课堂实验结果

（1） 实验截图



7:50

E Enchated Forest

A Arla Milk

D Devondale Milk

K Kindle Oasis

W waitrose 早餐麦片

M Mcvitie's 饼干

F Ferrero Rocher

7:50

Devondale Milk

¥79.00
产地 澳大利亚

更多产品信息

一键下单

分享商品

不感兴趣

查看更多促销信息

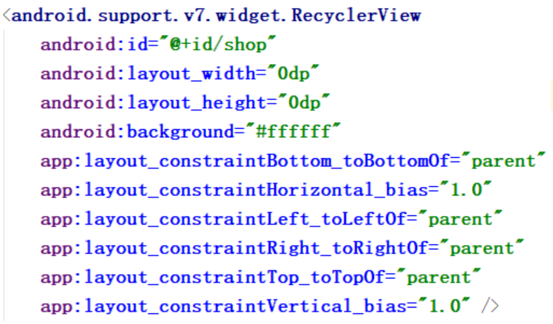
7:56

* *购物车 价格

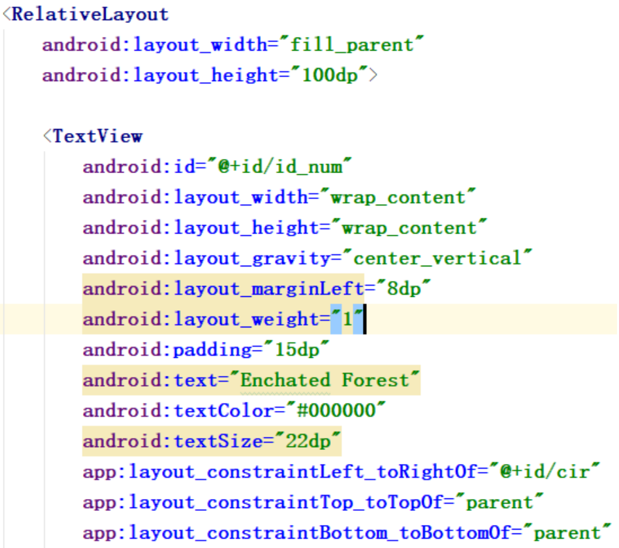
（2） 实验步骤以及关键代码

1. 实现 RecyclerView

写 XML 文件，包括 RecyclerView 控件和每条列表的格式

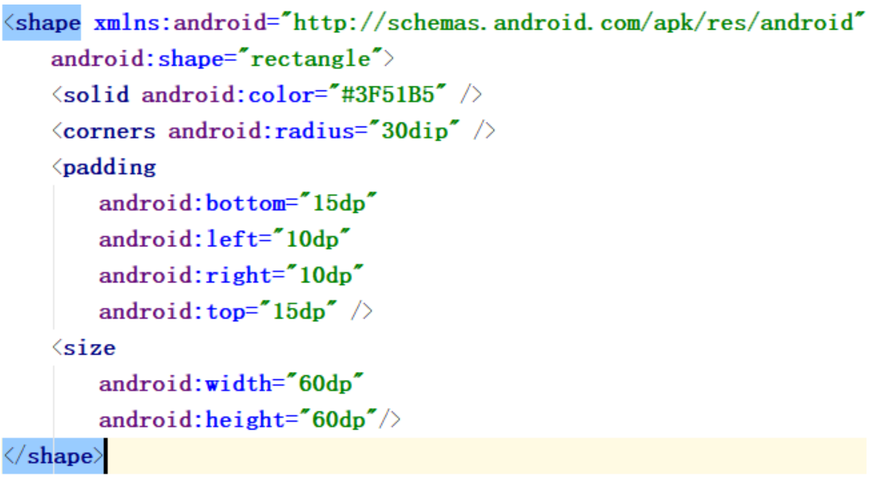


```xml
<android.support.v7.widget.RecyclerView
    android:id="@+id/shop"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:background="#ffffff"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="1.0" />
```



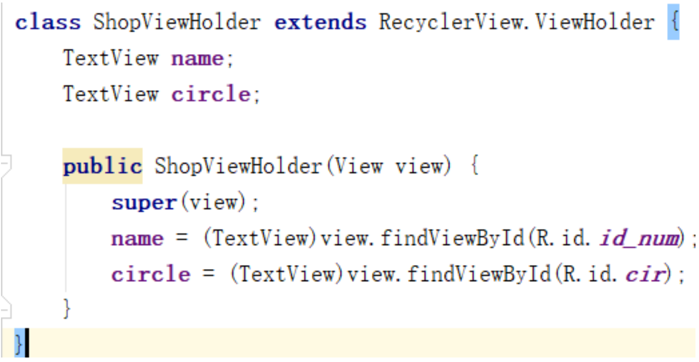
```xml
<RelativeLayout
    android:layout_width="fill_parent"
    android:layout_height="100dp">

    <TextView
        android:id="@+id/id_num"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_vertical"
        android:layout_marginLeft="8dp"
        android:layout_weight="1"
        android:padding="15dp"
        android:text="Enchated Forest"
        android:textColor="#000000"
        android:textSize="22dp"
        app:layout_constraintLeft_toRightOf="@+id/cir"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toBottomOf="parent"
```

其中圆圈的样式设计



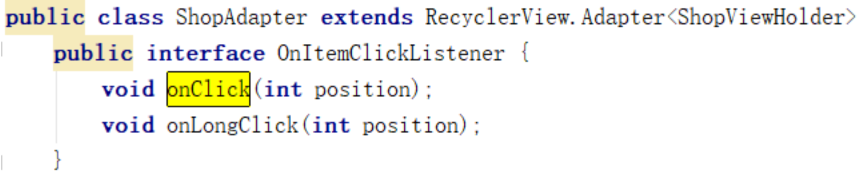
```xml
<shape xmlns:android="http://schemas.android.com/apk/res/android"
    android:shape="rectangle">
    <solid android:color="#3F51B5" />
    <corners android:radius="30dip" />
    <padding
        android:bottom="15dp"
        android:left="10dp"
        android:right="10dp"
        android:top="15dp" />
    <size
        android:width="60dp"
        android:height="60dp"/>
</shape>
```

ShopViewHolder 与列表样式传递数据

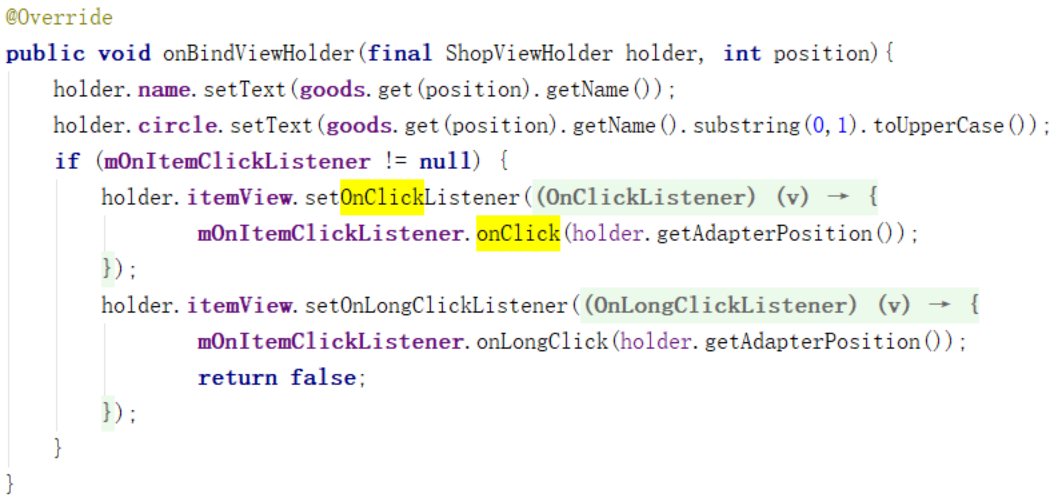


```java
class ShopViewHolder extends RecyclerView.ViewHolder {
    TextView name;
    TextView circle;

    public ShopViewHolder(View view) {
        super(view);
        name = (TextView)view.findViewById(R.id.id_num);
        circle = (TextView)view.findViewById(R.id.cir);
    }
}
```

自定义 ShopAdapter，需要定义长按和短按两种交互方式

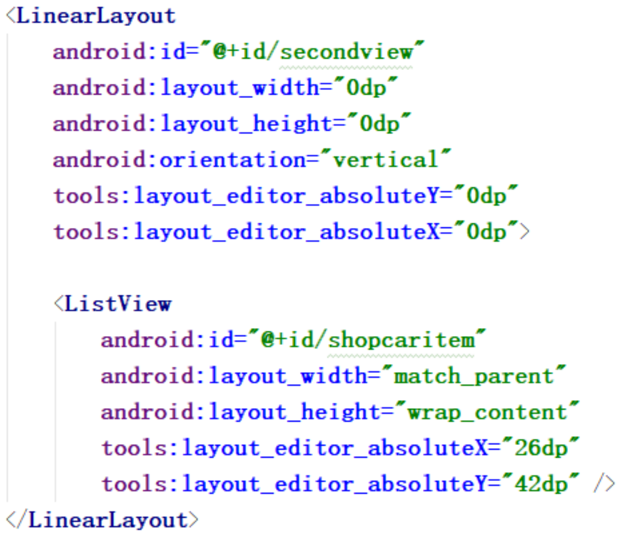


```java
public class ShopAdapter extends RecyclerView.Adapter<ShopViewHolder>
    public interface OnItemClickListener {
        void onClick(int position);
        void onLongClick(int position);
    }
```



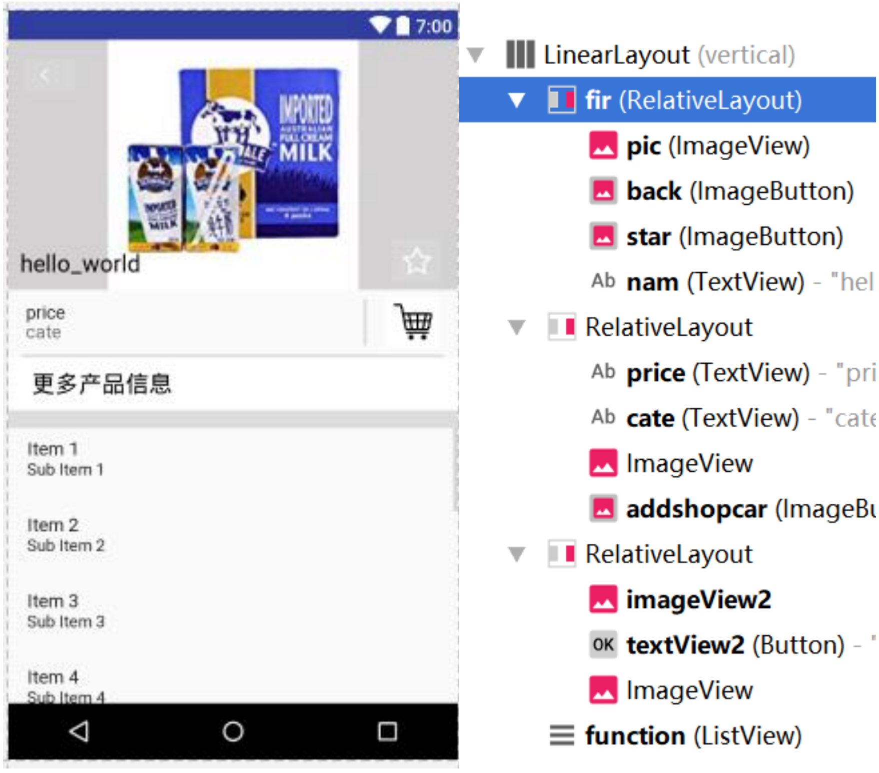
```java
@Override
public void onBindViewHolder(final ShopViewHolder holder, int position){
    holder.name.setText(goods.get(position).getName());
    holder.circle.setText(goods.get(position).getName().substring(0,1).toUpperCase());
    if (mOnItemClickListener != null) {
        holder.itemView.setOnClickListener((OnClickListener) (v) → {
                mOnItemClickListener.onClick(holder.getAdapterPosition());
        });
        holder.itemView.setOnLongClickListener((OnLongClickListener) (v) → {
                mOnItemClickListener.onLongClick(holder.getAdapterPosition());
                return false;
        });
    }
}
```

2. ListView 实现购物车页面



```xml
<LinearLayout
    android:id="@+id/secondview"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:orientation="vertical"
    tools:layout_editor_absoluteY="0dp"
    tools:layout_editor_absoluteX="0dp">

    <ListView
        android:id="@+id/shopcaritem"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        tools:layout_editor_absoluteX="26dp"
        tools:layout_editor_absoluteY="42dp" />
</LinearLayout>
```

3. 实现详情页面

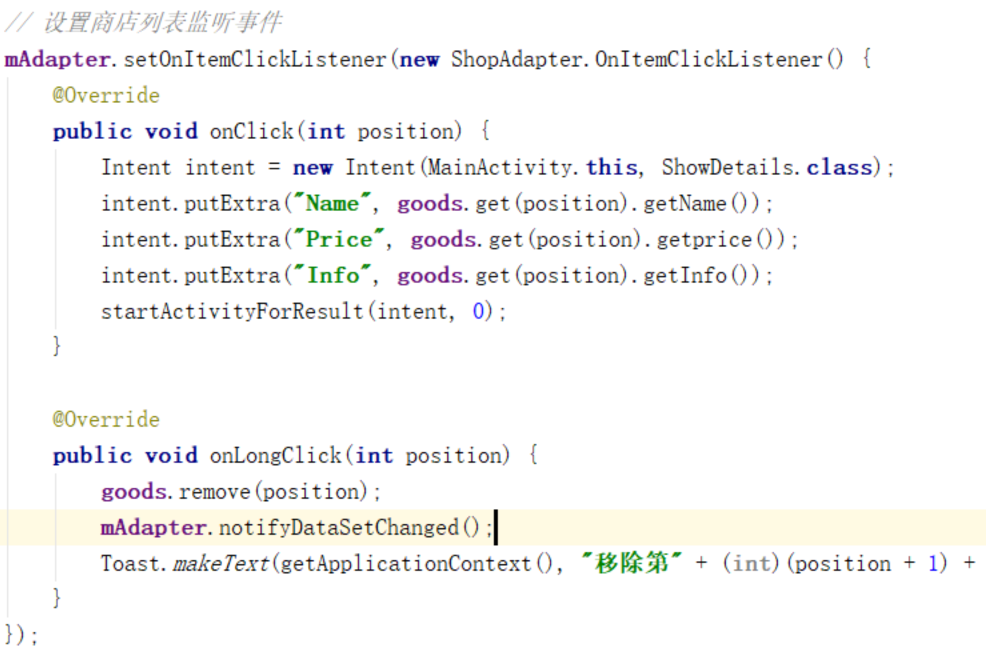


```
LinearLayout (vertical)
    fir (RelativeLayout)
        pic (ImageView)
        back (ImageButton)
        star (ImageButton)
        Ab nam (TextView) - "hel
    RelativeLayout
        Ab price (TextView) - "pri
        Ab cate (TextView) - "cate
        ImageView
        addshopcar (ImageBu
    RelativeLayout
        imageView2
        OK textView2 (Button) - "
        ImageView
    function (ListView)
```

4. 在 MainActivity 中初始化列表

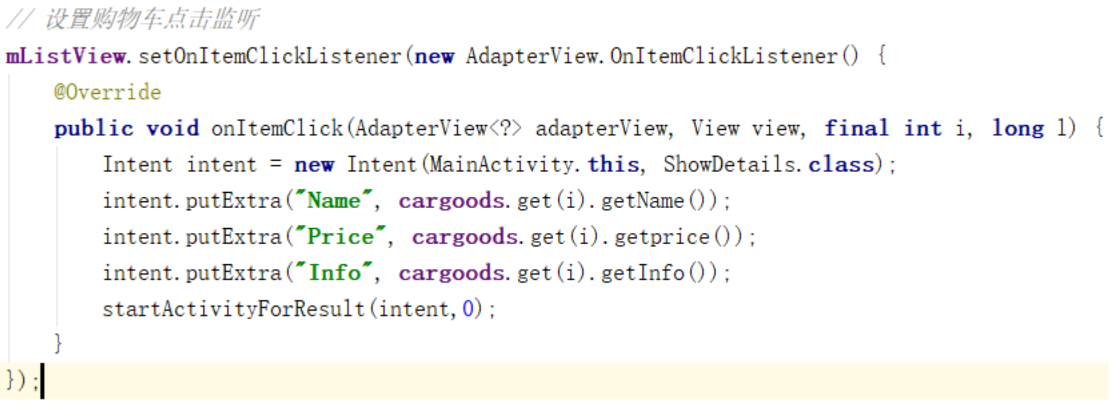
```
// 设置购物车界面不可见
final LinearLayout linearLayout = (LinearLayout)findViewById(R.id.secondview);
linearLayout.setVisibility(View.INVISIBLE);

// 设置物品清单
final String[] Name = new String[]{"Enchated Forest", "Arla Milk", "De
final String[] Price = new String[]{"¥ 5.00", "¥ 59.00", "¥ 79.00", "¥
final String[] Info = new String[]{"作者 Johanna Basford", "产地 德国",
goods = new ArrayList<Goods>();
cargoods = new ArrayList<Goods>();
for (int i = 0; i < Name.length; i++)
    goods.add(new Goods(Name[i], Info[i], Price[i]));
// 将物品清单装填到RecyclerView中
mRecyclerView = (RecyclerView)findViewById(R.id.shop);
mRecyclerView.setLayoutManager(new LinearLayoutManager(this));
mAdapter = new ShopAdapter(goods, MainActivity.this);
mRecyclerView.setAdapter(mAdapter);

// 将购物车清单装填到ListView中
cargoods.add(new Goods("*购物车", "", "价格"));
shopAdapter = new ShopcarAdapter(cargoods, MainActivity.this);
mListView = (ListView)findViewById(R.id.shopcaritem);
mListView.setAdapter(shopAdapter);
```

设置 RecyclerView 的监听事件，包含 Intent 传递数据并跳转 Activity 和列表元素更新操作



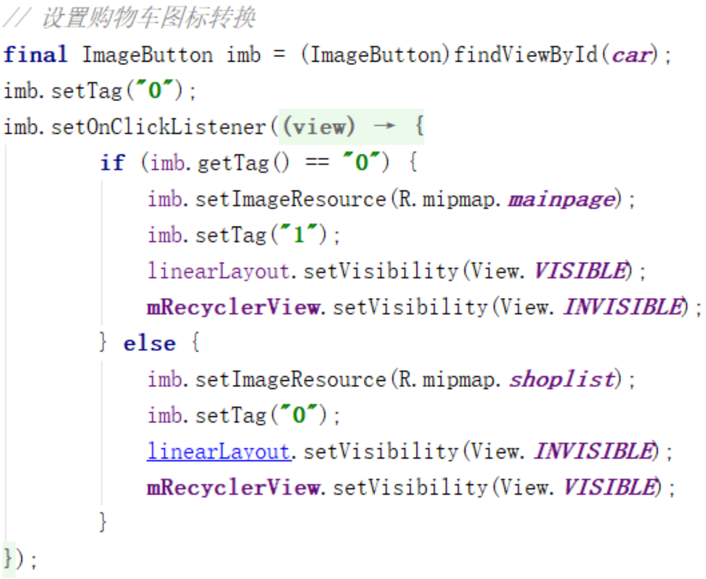
```
// 设置商店列表监听事件
mAdapter.setOnItemClickListener(new ShopAdapter.OnItemClickListener() {
    @Override
    public void onClick(int position) {
        Intent intent = new Intent(MainActivity.this, ShowDetails.class);
        intent.putExtra("Name", goods.get(position).getName());
        intent.putExtra("Price", goods.get(position).getprice());
        intent.putExtra("Info", goods.get(position).getInfo());
        startActivityForResult(intent, 0);
    }

    @Override
    public void onLongClick(int position) {
        goods.remove(position);
        mAdapter.notifyDataSetChanged();
        Toast.makeText(getApplicationContext(), "移除第" + (int)(position + 1) +
    }
});
```

设置 ListView 的监听事件，包含 Intent 传递数据并跳转 Activity 和列表元素更新操作



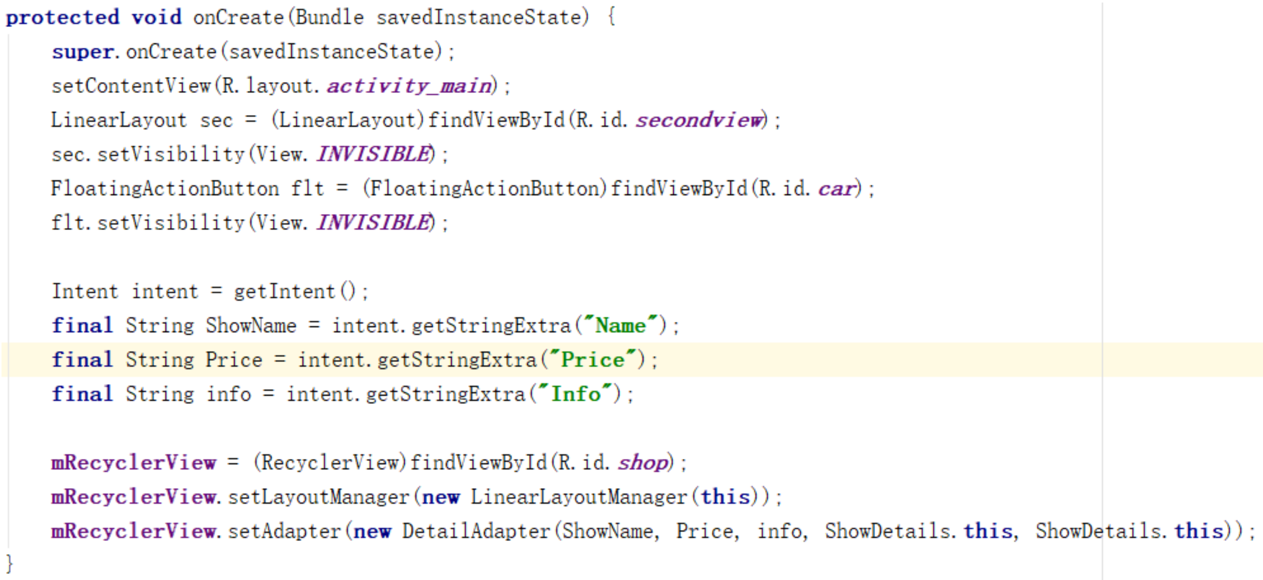
```
// 设置购物车点击监听
mListView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
    @Override
    public void onItemClick(AdapterView<?> adapterView, View view, final int i, long l) {
        Intent intent = new Intent(MainActivity.this, ShowDetails.class);
        intent.putExtra("Name", cargoods.get(i).getName());
        intent.putExtra("Price", cargoods.get(i).getprice());
        intent.putExtra("Info", cargoods.get(i).getInfo());
        startActivityForResult(intent,0);
    }
});
```

用 Tag 记录 FloatingActionButton 的购物车图标转换和可见界面的切换

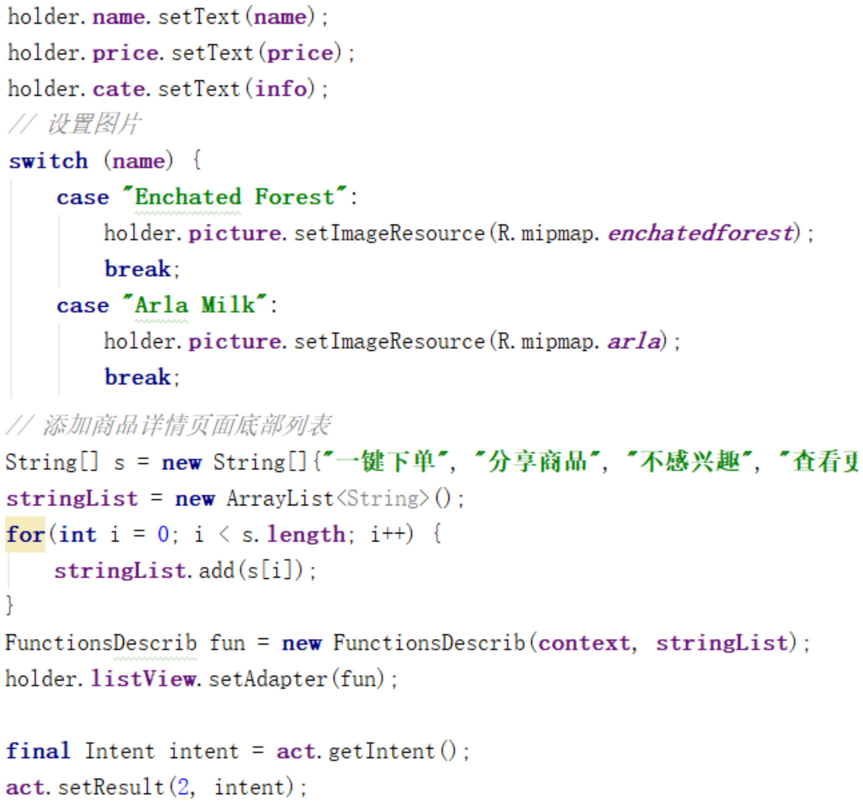


```
// 设置购物车图标转换
final ImageButton imb = (ImageButton)findViewById(car);
imb.setTag("0");
imb.setOnClickListener((view) → {
        if (imb.getTag() == "0") {
            imb.setImageResource(R.mipmap.mainpage);
            imb.setTag("1");
            linearLayout.setVisibility(View.VISIBLE);
            mRecyclerView.setVisibility(View.INVISIBLE);
        } else {
            imb.setImageResource(R.mipmap.shoplist);
            imb.setTag("0");
            linearLayout.setVisibility(View.INVISIBLE);
            mRecyclerView.setVisibility(View.VISIBLE);
        }
});
```

5. Detail 页面根据 Intent 传递进入的参数创建

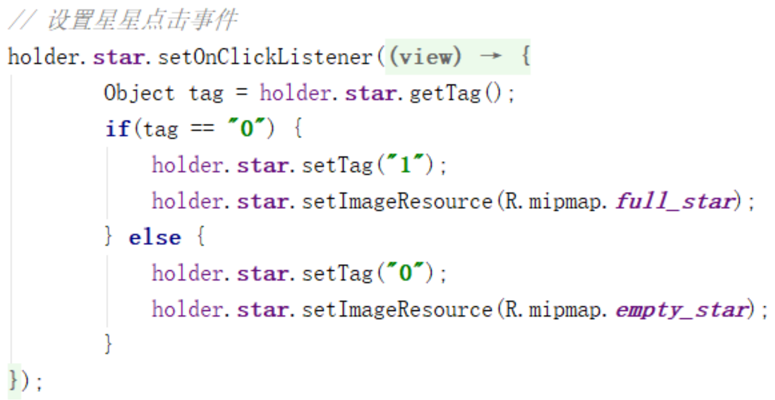


```
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    LinearLayout sec = (LinearLayout)findViewById(R.id.secondview);
    sec.setVisibility(View.INVISIBLE);
    FloatingActionButton flt = (FloatingActionButton)findViewById(R.id.car);
    flt.setVisibility(View.INVISIBLE);

    Intent intent = getIntent();
    final String ShowName = intent.getStringExtra("Name");
    final String Price = intent.getStringExtra("Price");
    final String info = intent.getStringExtra("Info");

    mRecyclerView = (RecyclerView)findViewById(R.id.shop);
    mRecyclerView.setLayoutManager(new LinearLayoutManager(this));
    mRecyclerView.setAdapter(new DetailAdapter(ShowName, Price, info, ShowDetails.this, ShowDetails.this));
}
```



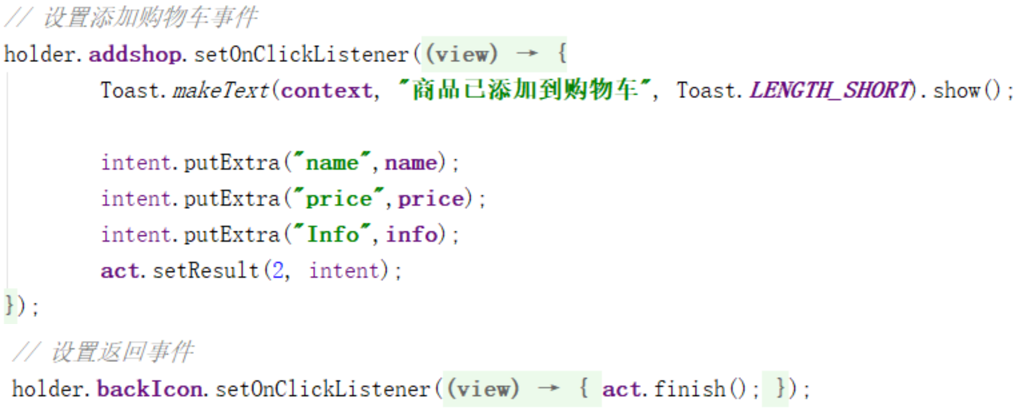
```
holder.name.setText(name);
holder.price.setText(price);
holder.cate.setText(info);
// 设置图片
switch (name) {
    case "Enchated Forest":
        holder.picture.setImageResource(R.mipmap.enchatedforest);
        break;
    case "Arla Milk":
        holder.picture.setImageResource(R.mipmap.arla);
        break;
// 添加商品详情页面底部列表
String[] s = new String[]{"一键下单", "分享商品", "不感兴趣", "查看更
stringList = new ArrayList<String>();
for(int i = 0; i < s.length; i++) {
    stringList.add(s[i]);
}
FunctionsDescrib fun = new FunctionsDescrib(context, stringList);
holder.listView.setAdapter(fun);

final Intent intent = act.getIntent();
act.setResult(2, intent);
```

利用 Tag 实现星星点击事件

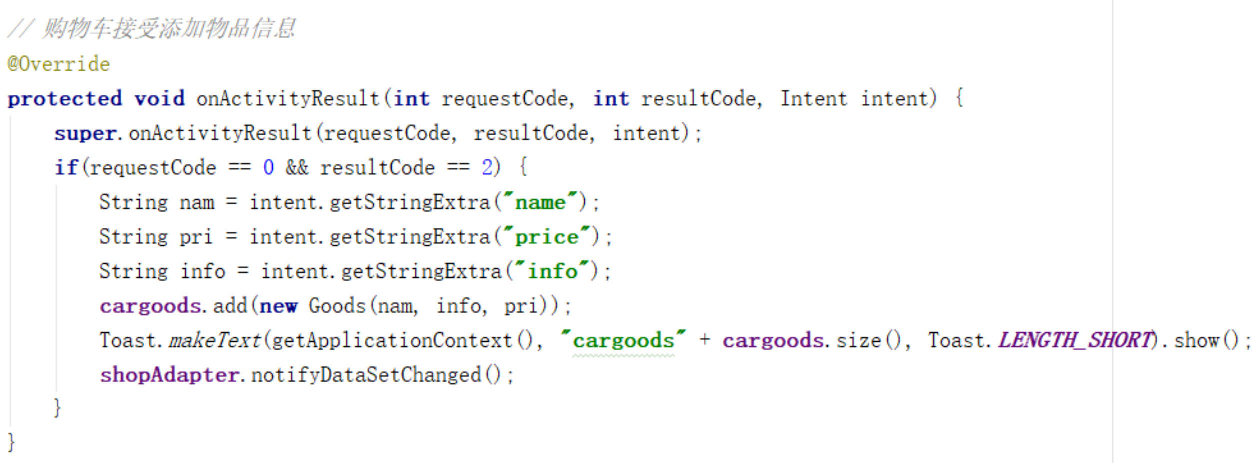


```
// 设置星星点击事件
holder.star.setOnClickListener((view) → {
        Object tag = holder.star.getTag();
        if(tag == "0") {
            holder.star.setTag("1");
            holder.star.setImageResource(R.mipmap.full_star);
        } else {
            holder.star.setTag("0");
            holder.star.setImageResource(R.mipmap.empty_star);
        }
});
```

同样使用 Intent 实现添加购物车功能，信息通过 Result 传递到购物车解析并储存与列表中

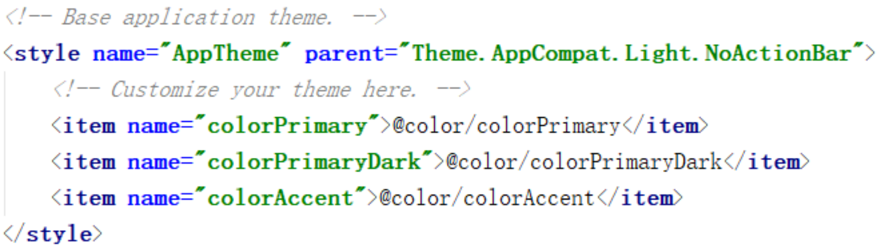


```
// 设置添加购物车事件
holder.addshop.setOnClickListener((view) → {
        Toast.makeText(context, "商品已添加到购物车", Toast.LENGTH_SHORT).show();

        intent.putExtra("name", name);
        intent.putExtra("price", price);
        intent.putExtra("Info", info);
        act.setResult(2, intent);
});
 // 设置返回事件
 holder.backIcon.setOnClickListener((view) → { act.finish(); });
```



```
// 购物车接受添加物品信息
@Override
protected void onActivityResult(int requestCode, int resultCode, Intent intent) {
    super.onActivityResult(requestCode, resultCode, intent);
    if(requestCode == 0 && resultCode == 2) {
        String nam = intent.getStringExtra("name");
        String pri = intent.getStringExtra("price");
        String info = intent.getStringExtra("info");
        cargoods.add(new Goods(nam, info, pri));
        Toast.makeText(getApplicationContext(), "cargoods" + cargoods.size(), Toast.LENGTH_SHORT).show();
        shopAdapter.notifyDataSetChanged();
    }
}
```

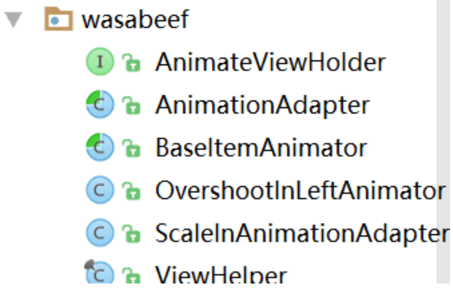
6. 去掉标题栏，修改 styles.XML 文件中 parent 值即可



```
<!-- Base application theme. -->
<style name="AppTheme" parent="Theme.AppCompat.Light.NoActionBar">
    <!-- Customize your theme here. -->
    <item name="colorPrimary">@color/colorPrimary</item>
    <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
    <item name="colorAccent">@color/colorAccent</item>
</style>
```

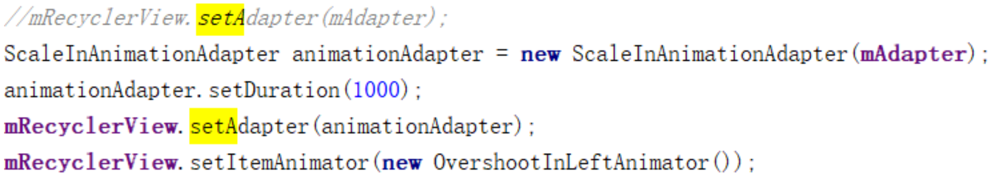
7. 为 RecyclerView 添加动画

（由于 jp.wasabeef:recyclerview-animators:2.2.7 依赖安装翻车，自行导入了 wasabeef 的文件



```
▼ wasabeef
    AnimateViewHolder
    AnimationAdapter
    BaseItemAnimator
    OvershootInLeftAnimator
    ScaleInAnimationAdapter
    ViewHelper
```

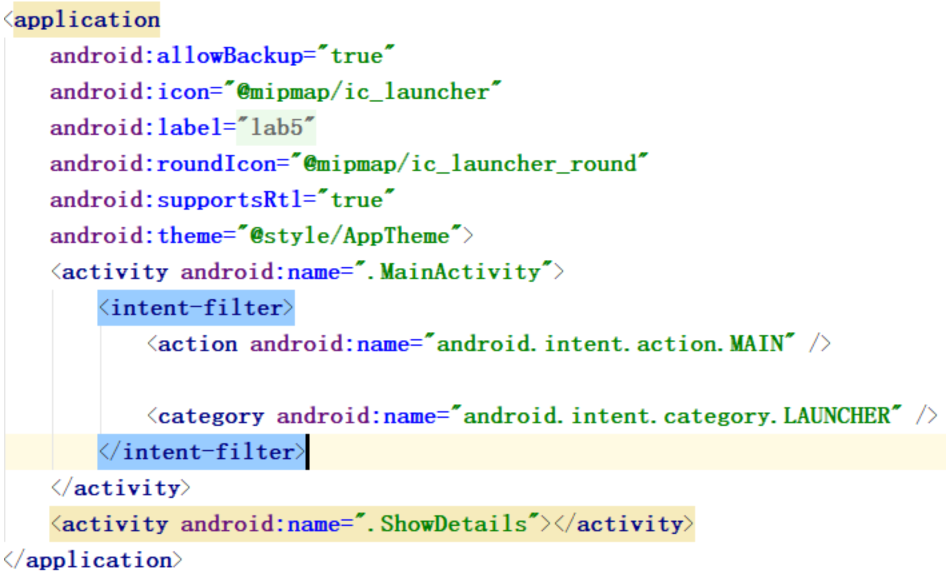
设置动画效果



```
//mRecyclerView.setAdapter(mAdapter);
ScaleInAnimationAdapter animationAdapter = new ScaleInAnimationAdapter(mAdapter);
animationAdapter.setDuration(1000);
mRecyclerView.setAdapter(animationAdapter);
mRecyclerView.setItemAnimator(new OvershootInLeftAnimator());
```

（3） 实验遇到困难以及解决思路

1. Detail 页不能跳转，在 AndroidManifest 中注册 ShowDetails 解决

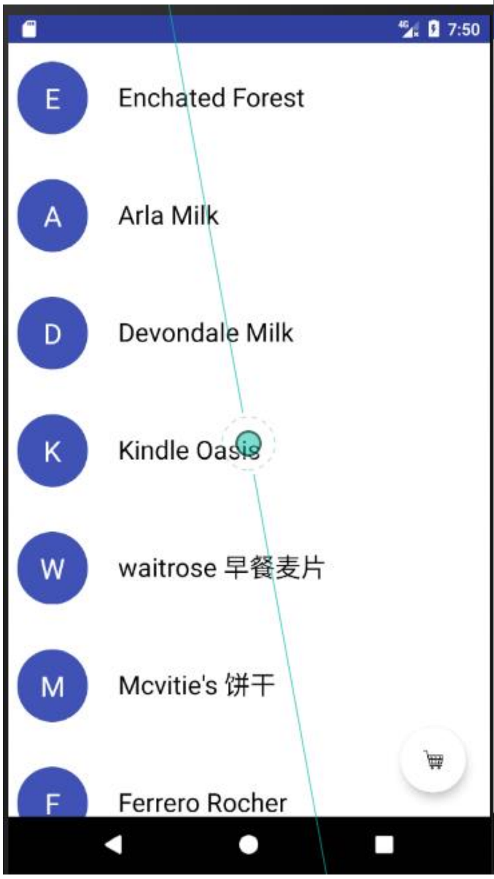


```
<application
    android:allowBackup="true"
    android:icon="@mipmap/ic_launcher"
    android:label="lab5"
    android:roundIcon="@mipmap/ic_launcher_round"
    android:supportsRtl="true"
    android:theme="@style/AppTheme">
    <activity android:name=".MainActivity">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
    <activity android:name=".ShowDetails"></activity>
</application>
```

2. 设置 RecyclerView 动画的包安装失败，没有解决 QAQ
3. 购物车接收不到点击加入传递的信息，重新设置 requestCode 和 resultCode 的值解决
4. jp.wasabeef:recyclerview-animators:2.2.7 依赖安装翻车，自行导入了 wasabeef 的文件

四、 课后实验结果

1. shop 界面，点击购物车 FloatingActionButton 切换到购物车界面



7:50

E Enchated Forest

A Arla Milk

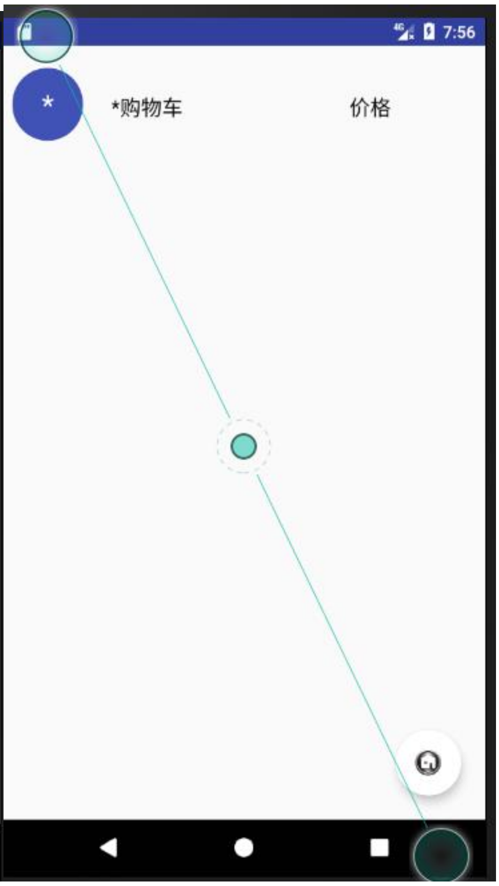
D Devondale Milk

K Kindle Oasis

W waitrose 早餐麦片

M Mcvitie's 饼干

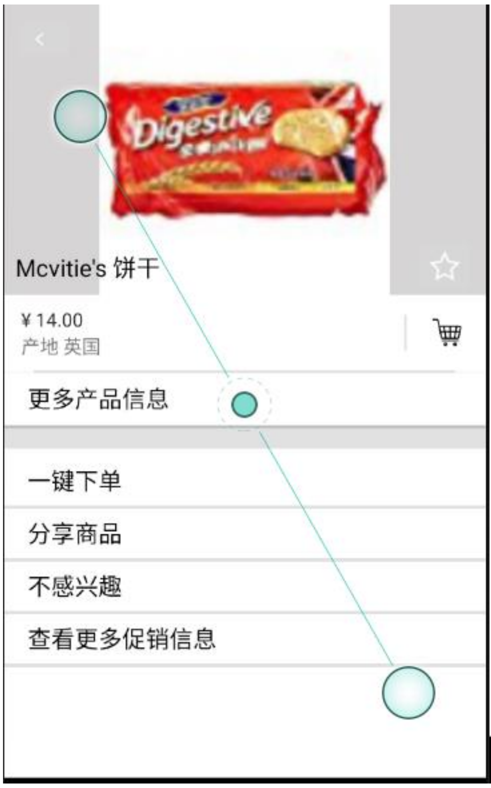
F Ferrero Rocher



7:56

* *购物车 价格

2. 点击 shop 列表中的元素切换到详情页面，长按删除元素



Mcvitie's 饼干

¥ 14.00
产地 英国

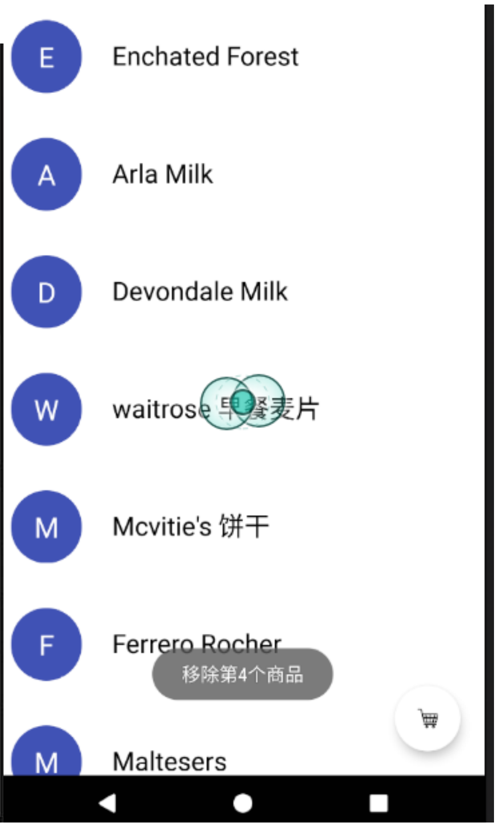
更多产品信息

一键下单

分享商品

不感兴趣

查看更多促销信息



E Enchated Forest

A Arla Milk

D Devondale Milk

W waitrose 早餐麦片

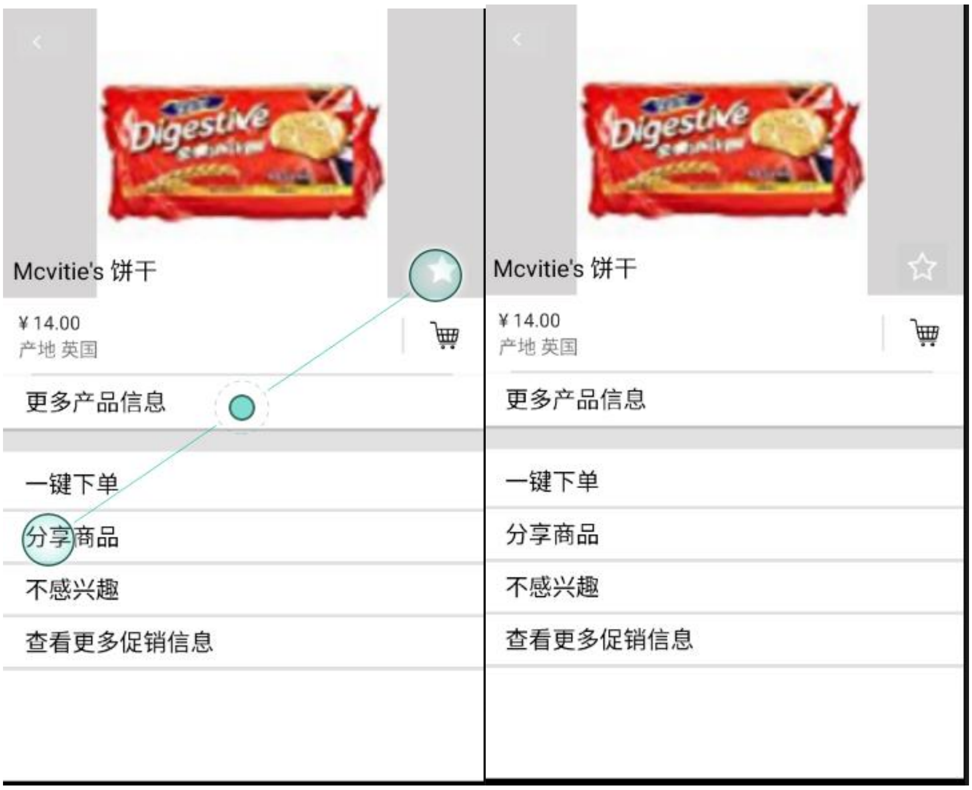
M Mcvitie's 饼干

F Ferrero Rocher

移除第4个商品

M Maltesers

3. 详情页面点击星星标记，再次点击恢复



Mcvitie's 饼干

¥ 14.00

产地 英国

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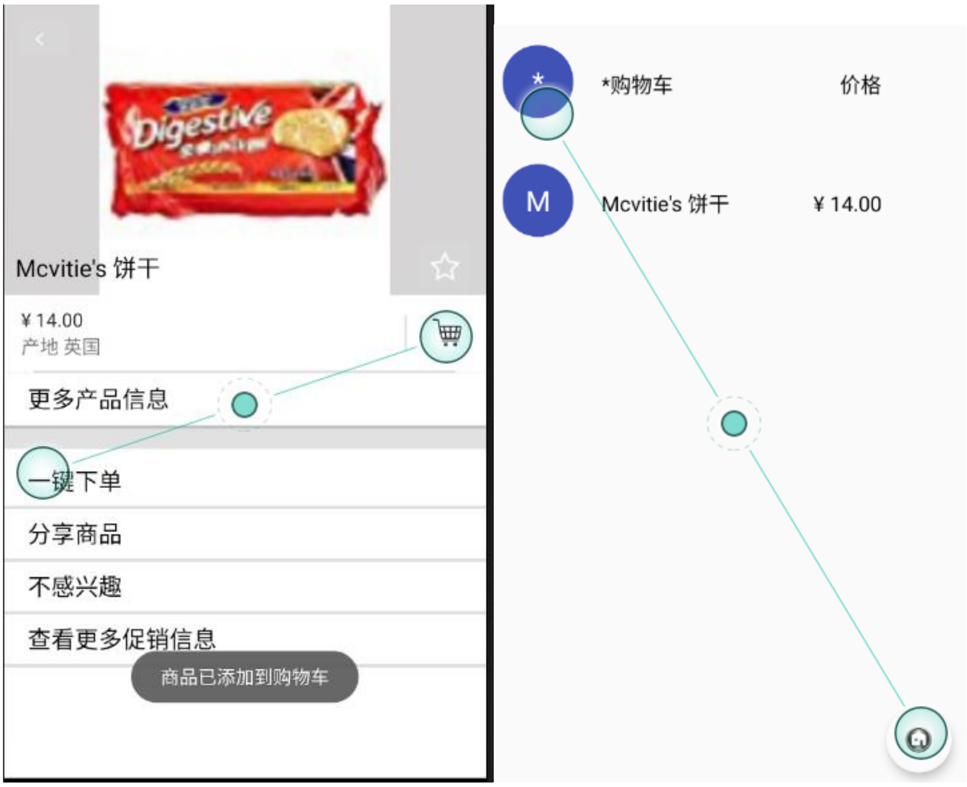
点击购物车图标加入购物车，点击左上角返回图标返回



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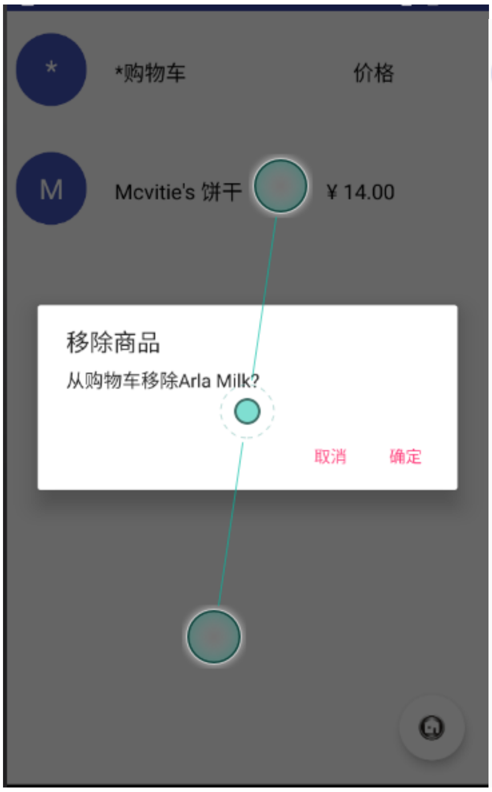
商品已添加到购物车

	*购物车	价格
M	Mcvitie's 饼干	¥ 14.00

4. 购物车中点击图标显示详情，长按询问是否删除，点击确定删除购物车中选择的物品

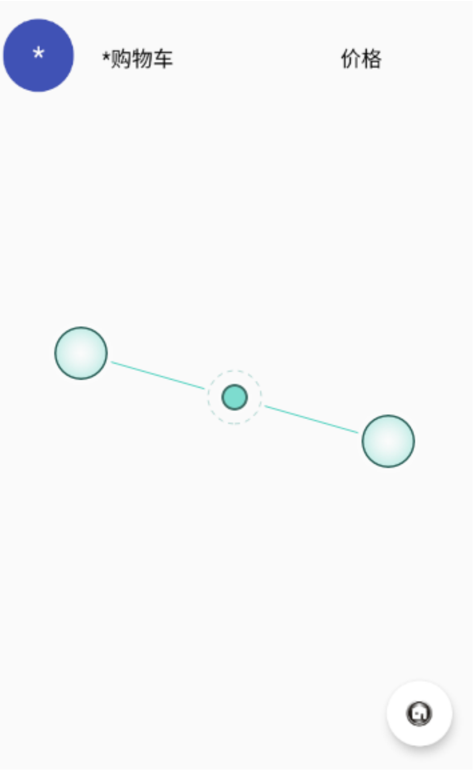


* *购物车 价格

M Mcvitie's 饼干 ¥ 14.00

移除商品

从购物车移除Arla Milk?



* *购物车 价格

五、 实验思考及感想

1. 安卓开发过程中有很多坑等我们去跳，需要多用搜索引擎多看文档
2. 遇到奇怪的问题不知道怎么解决时，可以重启试试
3. 本次作业难度较大，需要很大的耐心，但是对理解信息在页面间的传递、高级控件的使用等有很大的帮助
4. 最后的结果仍然存在跳出等 bug，需要进一步完善