桂林电子科技大学

序号：

课号：

**Android应用开发**  实验报告

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| 实验名称 | 实验十四 新闻列表3 | | | | | | | |  | 辅导员意见：  成绩 辅导员  签 名 |
| 院 系 | 计算机与信息安全学院 | | | 专业 | | 计算机科学与技术 | | |
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| 实验日期 | 2020 | 年 | 6 | | 月 | | 13 | 日 |
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| 1. **实验目的**   1. 掌握 okhttp ⽹络库进⾏同步、异步⽹络请求的⽅法；  2. 掌握 json 数据格式及 gson 库的使⽤⽅法；  3. 掌握第三⽅数据 API 接⼜申请及使⽤⽅法； |
| **二、实验内容**  1、注册天行数据账号获取 APIKEY：816e670f5ea1bda5a2341f69a9074fda  2、添加第三方库依赖分别为okhttp 库版本：3.10.0、gson 库版本：2.7、glide 库版本：4.7.1，在AndroidManifest中配置网络权限，代码示例14.1。简单起见，这里添加为 network\_security\_config.xml 声明 ，⽂件允许进⾏明⽂⽹络请求，代码示例14.2。  3、在activity\_main.xml中加入ListView控件，并实现item.xml文件实现具体布局情况，代码示例14.3。  4、根据天行数据api提供的属性创建 News 新闻类及 NewsAdapter 适配器，代码示例14.4。  5、创建 Constants 静态类。包含了需在项⽬中经常使⽤到的各类字符串常量或其他类型常量，如服务器地址、 API 接⼜名、 APIKEY等方便在整个项目中随时使用，代码示例14.6。  6、创建 BaseResponse 类。http的响应体格式如下：  HTTP响应体:  {  "code":200,  "msg":"success",  "newslist":[  {  "ctime":"2020-05-03 10:27:52",  "title":"【变妆记】你看起来好帅!五一致敬劳动者!",  "description":"这个五一劳动节让我们走近平凡的追光者姚红军今年40岁的姚红军江阴申港陈家村人曾经做过工人也试水做过生意最后都以失败告终...",  "picUrl":"http://mmbiz.qpic.cn/mmbiz\_jpg/Y4L1gPTU7THzTnARC0SAfsRhvCicWPSibURZGCoPDJVtkicfwS97qAaY6Gd9Y9Hia9A4cVxopq6VM2vRibd0wCCHNqw/0?wx\_fmt=jpeg",  "url":"https://weixin.sogou.com/link?url=dn9a\_-gY295K0Rci\_xozVXfdMkSQTLW6cwJThYulHEtVjXrGTiVgS5oDdATLF\_tkWw47SKn669LzutU8NzhwmFqXa8Fplpd9vkz4WL4dWtGUUWHsvMR\_hiPOESLkbQPtsMxfh-z2BVeh-21IxZj9D5v8woFD2ffg9T13HveNAPLH186IxfIF85Gdf17xe\_dkZ2fn8MM8uC4sbQGqil46LfUBCQ4xGRnHqQSFsFF2Nu9nnLrmNCCyUT\_7oaQZ1MXUVdXB6VGWszG54z\_tGSZTqA..&type=2&query=五一&token=7CEEAF1D14F6CD314642E2F3353BDD5B472B24BC5EAE3105"  },  {  "ctime":"2020-05-03 10:25:33",  "title":"青岛消费季活动不断,五一期间还有37万张惠民券可领",  "description":"为营造节日氛围,进一步拉动消费,加速市场回暖,青岛市在五一假期前增发了10万张“黄金周惠民券”,并组织全市商贸企业开展“...",  "picUrl":"http://mmbiz.qpic.cn/mmbiz\_jpg/erxsAWxSmfzicdARbM1KVOewCPzgHMXUspx0RbuR9ZIR0rRiccfj5HsIycMVn8NicOF6FSotUoJSJCXYntwvYOhIQ/0?wx\_fmt=jpeg",  "url":"https://weixin.sogou.com/link?url=dn9a\_-gY295K0Rci\_xozVXfdMkSQTLW6cwJThYulHEtVjXrGTiVgS5oDdATLF\_tkWw47SKn669LzutU8NzhwmFqXa8Fplpd9ezQIATfgB98KskkcD7rUCkgrCBETQHeGX2ApExYNMHsjnTmeAd8o193Xj5PeXJ16UK5dZowCjl5\_LpY5FH67Vx2nhThPRb94NuKLYieFfYqvM03Z0n6Ww2j8Fj3yxdlunO\_Fd5VlQTKfhvz48ps8rwpyVc7oPilZ\_\_-rxM7h8UuTJmCU1UgHwQ..&type=2&query=五一&token=7CEEAF1D14F6CD314642E2F3353BDD5B472B24BC5EAE3105"  },  {  "ctime":"2020-05-03 10:20:09",  "title":"五一自驾出行,高速路上的这几个错误行为千万不能有!",  "description":"今年“五一”假期延长至5天,随着国内疫情防控态势持续向好,各大旅游景区陆续“复位”迎客,群众自驾出游将会大幅增加,加之...",  "picUrl":"http://mmbiz.qpic.cn/sz\_mmbiz\_jpg/P9ficrEVSdibZibSLZbEjSVd4nnmwyQYmkjxhW7l3oCcbBv6fSiaWCWMCGsbQibiaeRQvHCm7BmrMJsyWpx9514eCGNA/0?wx\_fmt=jpeg",  "url":"https://weixin.sogou.com/link?url=dn9a\_-gY295K0Rci\_xozVXfdMkSQTLW6cwJThYulHEtVjXrGTiVgS5oDdATLF\_tkWw47SKn669LzutU8NzhwmFqXa8Fplpd90bW\_C6BM58Nz31jZWq\_J5Q5iXM\_qHWbgnVd2oMmNEzM0UZ4ouhHul0CIdpB\_SC5RRTBRdbkAw-UrAuXEUhYEHSUwUOpoJ2ULoHG6GFBu6csDz5-ZpZbrWOulO5fgfnfzQsKSb0cbGZux039YByaw0rm0tgIb6Fxlfbx2TQOBsK06Ebq8fk9diw..&type=2&query=五一&token=7CEEAF1D14F6CD314642E2F3353BDD5B472B24BC5EAE3105"  }  ]  }  定义int code、String msg、Tdata，对应响应体中的三个部分，以便与响应体的反序列化。代码示例14.7。  8、创建包含对于该API接口所需要的参数，如数量、是否翻页、检索关键词等信息的NewsRequest类，用于构造http的请求体。代码示例14.8。  9、修改 MainActivity.java。初始化布局文件，进⾏ ListView 视图控件绑定以及适配器绑定。之后调用okhttp 请求API数据，调用refreshData()请求数据，并自定义okhttp3.Callback进行接收数据后的处理工作，代码示例14.9。  10、创建 DetailActivity活动类，使用一个WebView用于显示网页信息。    图14.1新闻列表    **三、实验总结**  1、实验主要实现使用网络API 获取数据并用列表ListView显示。  2、  3、通过这次实验，有了使用API 的经验，了解了使用时的大致流程。 |
| **四、实验代码**  代码14.1: 依赖添加与权限申请   |  | | --- | | implementation 'com.squareup.okhttp3:okhttp:3.10.0' implementation 'com.google.code.gson:gson:2.8.5' implementation 'com.github.bumptech.glide:glide:4.6.1' //添加支持    <uses-permission android:name="android.permission.INTERNET" /> | |

代码14.2: network\_security\_config.xml

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| <?xml version="1.0" encoding="utf-8"?>  <network-security-config >  <base-config cleartextTrafficPermitted="true" /> </network-security-config > |

代码14.3: item.xml

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| <?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"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent">   <RelativeLayout  app:layout\_constraintTop\_toTopOf="parent"  app:layout\_constraintBottom\_toBottomOf="parent"  android:layout\_width="match\_parent"  android:layout\_height="112dp">   <ImageView  android:id="@+id/iv\_image"  android:layout\_width="96dp"  android:layout\_height="64dp"  android:layout\_marginTop="8dp"  android:layout\_marginBottom="8dp"  android:layout\_alignParentBottom="true"  android:layout\_alignParentTop="true"  android:scaleType="centerCrop"  android:layout\_gravity="center"  />   <TextView  android:id="@+id/tv\_title"  style="@style/TextAppearance.AppCompat.Subhead"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_toEndOf="@id/iv\_image"  android:layout\_alignTop="@id/iv\_image"  android:layout\_alignParentEnd="true"  android:layout\_marginEnd="8dp"  android:layout\_marginStart="8dp"  android:textSize="16sp"  android:layout\_toRightOf="@id/iv\_image"  android:layout\_alignParentRight="true" />   <TextView  android:id="@+id/tv\_subtitle"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_alignStart="@id/tv\_title"  android:layout\_alignBottom="@id/iv\_image"  android:layout\_marginBottom="8dp"  android:layout\_marginTop="8dp"  android:textSize="12sp"  android:textColor="@android:color/secondary\_text\_dark"  style="@style/TextAppearance.AppCompat.Subhead"  android:layout\_alignLeft="@id/tv\_title" />   <TextView  android:id="@+id/tv\_publish\_time"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:textSize="12sp"  android:text="2019-07-11"  android:layout\_marginStart="8dp"  android:layout\_marginBottom="8dp"  android:textColor="@android:color/secondary\_text\_dark"  android:layout\_alignBaseline="@id/tv\_subtitle"  android:layout\_toEndOf="@id/tv\_subtitle"  android:layout\_alignBottom="@id/iv\_image"  android:layout\_marginLeft="8dp"  android:layout\_toRightOf="@id/tv\_subtitle" />   <ImageView  android:id="@+id/iv\_delete"  android:layout\_width="9dp"  android:layout\_height="11dp"  android:layout\_alignBottom="@id/iv\_image"  android:layout\_alignParentEnd="true"  android:layout\_alignParentRight="true"  android:layout\_marginEnd="15dp"  android:layout\_marginRight="15dp"  android:layout\_marginBottom="8dp"  android:clickable="true"  android:scaleType="centerCrop"  android:src="@drawable/ic\_close\_black\_24dp" />   <View  android:id="@+id/v\_divider"  android:layout\_alignParentStart="true"  android:layout\_alignParentEnd="true"  android:layout\_alignParentBottom="true"  android:background="#00000000"  android:layout\_width="wrap\_content"  android:layout\_height="1dp"  android:layout\_alignParentLeft="true"  android:layout\_alignParentRight="true" />  </RelativeLayout>  </androidx.constraintlayout.widget.ConstraintLayout> |

代码14.4: News 新闻类

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| public class News {   @SerializedName("ctime")  private String mPublishTime;   @SerializedName("title")  private String mTitle;   @SerializedName("description")  private String mSource;   @SerializedName("picUrl")  private String mPicUrl;   @SerializedName("url")  private String mContentUrl;   public String getTitle() {  return mTitle;  }   public void setTitle(String mTitle) {  this.mTitle = mTitle;  }   public String getSource() {  return mSource;  }   public void setSource(String mSource) {  this.mSource = mSource;  }   public String getPicUrl() {  return mPicUrl;  }   public void setPicUrl(String mPicUrl) {  this.mPicUrl = mPicUrl;  }   public String getContentUrl() {  return mContentUrl;  }   public void setContentUrl(String mContentUrl) {  this.mContentUrl = mContentUrl;  }   public Integer getId() {  return mId;  }   public String getDate() {  return mPublishTime;  }     @Expose(serialize = false , deserialize = false)  private Integer mId;    public News() {  }  } |

代码14.5: NewsAdapter 适配器

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| public class NewsAdapter extends ArrayAdapter<News> {   private List<News> mNewsData;  private Context mContext;  private int resourceId;   public NewsAdapter(Context context ,  int resourceId , List<News> data) {  super(context , resourceId , data);  this.mContext = context;  this.mNewsData = data;  this.resourceId = resourceId;  }   @Override  public View getView(int position ,  View convertView , ViewGroup parent) {  News news = getItem(position);  View view ;   final ViewHolder vh;   if (convertView == null) {  view = LayoutInflater.from(getContext())  .inflate(resourceId , parent , false);   vh = new ViewHolder();  vh.tvTitle = view.findViewById(R.id.tv\_title);  vh.tvSource = view.findViewById(R.id.tv\_subtitle);  vh.ivImage = view.findViewById(R.id.iv\_image);  vh.ivDelete = view.findViewById(R.id.iv\_delete);  vh.tvPublishTime = view.findViewById(R.id.tv\_publish\_time);   view.setTag(vh);  } else {  view = convertView;  vh = (ViewHolder) view.getTag();  }   vh.tvTitle.setText(news.getTitle());  vh.tvSource.setText(news.getSource());  vh.ivDelete.setTag(position);  vh.tvPublishTime.setText(news.getDate());   Glide.with(mContext).load(news.getPicUrl())  .into(vh.ivImage);   return view;  }   class ViewHolder {  TextView tvTitle;  TextView tvSource;  ImageView ivImage;  TextView tvPublishTime;   ImageView ivDelete;  } } |

代码14.6: Constants 静态类

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| public final class Constants {  private Constants() {  }   public static final int NEWS\_NUM = 20;  public static String SERVER\_URL = "http://api.tianapi.com/";  public static String ALL\_NEWS\_PATH = "allnews/";  public static String GENERAL\_NEWS\_PATH = "generalnews/";   public static String API\_KEY = "8ce8bf8f1d4041d33dd01157438fa1ca";   public static String ALL\_NEWS\_URL = SERVER\_URL + ALL\_NEWS\_PATH;  public static String GENERAL\_NEWS\_URL = SERVER\_URL + GENERAL\_NEWS\_PATH;   public static int NEWS\_COL5 = 5;  public static int NEWS\_COL7 = 7;  public static int NEWS\_COL8 = 8;  public static int NEWS\_COL10 = 10;  public static int NEWS\_COL11 = 11;   public static String NEWS\_DETAIL\_URL\_KEY = "news\_detail\_url\_key"; } |

代码14.7: BaseResponse.class

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| public class BaseResponse <T> {  private int code;  private String msg;   public final static int RESPONSE\_SUCCESS = 0;   @SerializedName("newslist")  private T data;   public BaseResponse() {  }   public int getCode() {  return code;  }   public void setCode(int code) {  this.code = code;  }   public String getMsg() {  return msg;  }   public void setMsg(String msg) {  this.msg = msg;  }   public T getData() {  return data;  }   public void setData(T data) {  this.data = data;  } } |

代码14.8: NewsRequest.class

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| public class NewsRequest {  public int getNum() {  return num;  }   public void setNum(int num) {  this.num = num;  }   public int getCol() {  return col;  }   public void setCol(int col) {  this.col = col;  }   public int getPage() {  return page;  }   public void setPage(int page) {  this.page = page;  }   public int getRand() {  return rand;  }   public void setRand(int rand) {  this.rand = rand;  }   public String getKeyword() {  return keyword;  }   public void setKeyword(String keyword) {  this.keyword = keyword;  }   @Override  public String toString() {  String retValue;   retValue = "?" + "&key=" + Constants.API\_KEY  + "&num=" + num + "&col=" + col;  if (page != -1) {  retValue += "&page=" + page;  }  return retValue;  }   private int num;  private int col;  private int page = -1;  private int rand;  private String keyword; } |

代码14.9: MainActivity

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| public class MainActivity extends AppCompatActivity {   private ListView lvNewsList;  private List<News> newsData;   private NewsAdapter adapter;   private int page = 1;  private int mCurrentColIndex = 0;   private int[] mCols = new int[]{Constants.NEWS\_COL5 ,  Constants.NEWS\_COL7 , Constants.NEWS\_COL8 ,  Constants.NEWS\_COL10 , Constants.NEWS\_COL11};   private okhttp3.Callback callback = new okhttp3.Callback() {  @Override  public void onFailure(Call call, IOException e) {  Log.e("TAG", "Failed to connect server!");  e.printStackTrace();  }   @Override  public void onResponse(Call call, Response response)  throws IOException {  if (response.isSuccessful()) {  final String body = response.body().string();   System.out.println(body);   runOnUiThread(new Runnable() {  @Override  public void run() {  Gson gson = new Gson();  Type jsonType =  new TypeToken<BaseResponse<List<News>>>() {  }.getType();  BaseResponse<List<News>> newsListResponse =  gson.fromJson(body, jsonType);  for (News news : newsListResponse.getData()) {  adapter.add(news);  System.out.println(news.getContentUrl());  }   adapter.notifyDataSetChanged();  }  });  } else {  }  }  };   @Override  protected void onCreate(Bundle savedInstanceState) {  super.onCreate(savedInstanceState);  setContentView(R.layout.activity\_main);   initView();  initData();    }   private void initView() {  lvNewsList = findViewById(R.id.lv\_news\_list);   lvNewsList.setOnItemClickListener(  new AdapterView.OnItemClickListener() {  @Override  public void onItemClick(AdapterView <?> adapterView ,  View view, int i, long l) {   Intent intent = new Intent(MainActivity.this ,  DetailActivity.class);   News news = adapter.getItem(i);  intent.putExtra(Constants.NEWS\_DETAIL\_URL\_KEY ,  news.getContentUrl());   startActivity(intent);  }  });   }   private void initData() {  newsData = new ArrayList<>();  adapter = new NewsAdapter(MainActivity.this ,  R.layout.list\_item , newsData);  lvNewsList.setAdapter(adapter);   refreshData(1);  }   private void refreshData(final int page) {   new Thread(new Runnable() {  @Override  public void run() {  NewsRequest requestObj = new NewsRequest();   requestObj.setCol(mCols[mCurrentColIndex]);  requestObj.setNum(Constants.NEWS\_NUM);  requestObj.setPage(page);  String urlParams = requestObj.toString();   Request request = new Request.Builder()  .url(Constants.GENERAL\_NEWS\_URL + urlParams)  .get().build();  try {  OkHttpClient client = new OkHttpClient();  client.newCall(request).enqueue(callback);  } catch (NetworkOnMainThreadException ex) {   ex.printStackTrace();  }  }  }).start();  }   } |