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What is MultiDex in Android ?

When your app and the libraries it references exceed 65,536 methods, you encounter a build error that indicates your app has reached the limit of the Android build architecture.

 The number 65536 represents the total number of references that can be invoked by the code within a single Dalvik Executable (DEX) bytecode file. This page explains how to move past this limitation by enabling an app configuration known as multidex, which allows your app to build and read multiple DEX files.

About the 64K reference limit :

Android app (APK) files contain executable bytecode files in the form of [Dalvik](https://source.android.com/devices/tech/dalvik/) Executable (DEX) files, which contain the compiled code used to run your app. The Dalvik Executable specification limits the total number of methods that can be referenced within a single DEX file to 65,536—including Android framework methods, library methods, and methods in your own code. In the context of computer science, the term [Kilo, K](https://en.wikipedia.org/wiki/Kilo-), denotes 1024 (or 2^10). Because 65,536 is equal to 64 X 1024, this limit is referred to as the '64K reference limit'.

Multidex support for Android 5.0 and higher:

Android 5.0 (API level 21) and higher uses a runtime called ART which natively supports loading multiple DEX files from APK files. ART performs pre-compilation at app install time which scans for classes**N**.dex files and compiles them into a single .oat file for execution by the Android device. Therefore, if your minSdkVersion is 21 or higher multidex is enabled by default, and you do not need the multidex library.

E/SpannableStringBuilder: SPAN\_EXCLUSIVE\_EXCLUSIVE spans cannot have a zero length

Learnings from Suvichar project :

> Bottom Navigation Bar with Fragments (SuvicharActivity.java).

> Coding in Fragment file (QuotesFragment.java).

> Button click Visibility (GONE/VISIBLE) in QuotesAdapter.java

> In LikedAdapter.java, following things to refresh the LikedSuvicharList :

**LikedSuvicharList**.remove(position);  
notifyItemRemoved(position);  
notifyItemRangeChanged(position, **LikedSuvicharList**.size());

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How to print ArrayList in Logcat in Android ?

Make use of [toString()](http://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html#toString%28%29) method which is available for most common data structures:

Log.d("list", list.toString());

Above statement will give you the expected result if you declare your List/Collection using [Generic type](https://docs.oracle.com/javase/tutorial/java/generics/types.html) defined in Java. Such as String, Integer, Long etc. Cause, they all have implemented toString() method.

**Custome Generic Type:**

But if you declare the List using your own custom type then you will not get proper output by just calling list.toString(). You need to implement toString() method for your custom type to get expected output.

**For example:**

You have a model class named Dog as below

public class Dog{

String breed;

int ageC

String color;

}

You declared a List using Dog type

List<Dog> dogList = new ArrayList<Dog>();

Now, if you want to print this List in LogCat properly then you need to implement toString() method in Dog class.

public class Dog{

String breed;

int age

String color;

String toString(){

return "Breed : " + breed + "\nAge : " + age + "\nColor : " + color;

}

}

Now, you will get proper result if you call list.toString().

# [Compare all values of arraylist to a string](https://stackoverflow.com/questions/37899388/compare-all-values-of-arraylist-to-a-string)

ArrayList< String > abc = new ArrayList<>();

abc.add("hi");

abc.add("hello Yash");

abc.add("i am Yash");

String x = "Yash";

for(int i=0; i<abc.size(); i++)

{

if(abc.get(i).contains(x))

{

int index = i;

System.out.println(index);

}

}

If ArrayList is of Model class type, then we have to add this method in Model class.

20.5.21

To avoid ArrayList display multiple times on screen:

**public class** liked\_fragment **extends** Fragment {  
  
 DBAdapter **dbAdapter**;  
 Context **ctx**;  
 ArrayList<ModelLikedFragment> **LikedSuvicharList** = **new** ArrayList<ModelLikedFragment>();  
 RecyclerView **rec\_liked**;

@Override  
 **public** View onCreateView(LayoutInflater inflater, ViewGroup container,  
 Bundle savedInstanceState) {  
 View view = inflater.inflate(R.layout.***fragment\_liked\_fragment***, container, **false**);  
 init(view);  
 **LikedSuvicharList** = **new** ArrayList<ModelLikedFragment>(); *// To overcome this- when we click on liked fragment then back, again click then back,  
 // multiple LikedSuvicharList will be seen. To avoid this we should initialize the arraylist again as per above line.* GetLikedDataFromTable();  
 **return** view;  
 }

Learnt- How to see sqlite database tables in PC ? For this we need DB Browser. So it is downloaded.

Tried to learn, how to upload project on github without command line. To do this, Git software downloaded. But at the end, not able to upload project on github.

Date – 5.6.21

AdMob

* Search on google- admob in android.
* Make sure that your mobile & PC is connected with Internet.
* Then open following link :

<https://developers.google.com/admob/android/quick-start>

* Steps to be followed as per above link :

1. Add dependency.

**implementation 'com.google.android.gms:play-services-ads:20.1.0'**

1. Add AppID in AndroidManifest as shown.

We can use AdUnitId with ~ sign as AppID for testing purpose

Also add permissions for Internet & AccessNetworkState in Manifest.

1. Initialize the Mobile Ads SDK : (This step can be skipped).
2. Select an Ad format (Banner, Interstitial, Native, Rewarded etc.)
3. Banner Ad Integration Steps :
4. Insert AdView widget in layout xml file.

* Insert app:adSize and app:adUnitId attributes. On google, it is written as

ads:adSize and ads:adUnitId, but it is showing error in xml file.

* **Note:** The size of the container in which you place your ad must be at least as big as the banner. If your container has padding, that effectively decreases the size of your container. In the event that the container cannot fit the banner ad, the banner will not appear, and you will get this warning in the logs:

1. Load ad :

* As per given code.

## Do hardware acceleration for video ads in Manifest as per given code.

1. Interstitial Ad Integration Steps :

Refer following link :

<https://www.studytonight.com/post/how-to-add-admob-interstitial-ad-in-android-app>

Motivational Quotes

How to add image in button :

*android:drawableLeft="@drawable/imgupload"  
android:paddingHorizontal="80dp"*

How to give corner radius to ImageView :

<androidx.cardview.widget.CardView

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

app:cardCornerRadius="8dp"

android:layout\_margin="5dp"

android:elevation="10dp">

<ImageView

android:id="@+id/roundedImageView"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:src="@drawable/image"

android:background="@color/white"

android:scaleType="centerCrop"/>

</androidx.cardview.widget.CardView>

* Below parameter will set the default(standard) toolbarsize and also it will adjust the size according to device(e.g. mobile, tablet etc).

**android:layout\_height="?attr/actionBarSize"**

* Below parameter will set the size of widget as required, not more.

**android:adjustViewBounds="true"**

* Difference between below 2 attributes :
* Below parameter used when we want to show View(line) widget below tvTitle.

**android:layout\_alignBottom="@id/tvTitle"**

* Below parameter will not work, if the height of tvTitle is match parent.

**android:layout\_below="@id/tvTitle"**

How to change cursor color & width in edittext :

To change the color and width of the [EditText](https://www.11zon.com/android/android_edittext.php) cursor, you can create a drawable file and set it in android:textCursorDrawable.

<EditText

android:id="@+id/email"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginTop="10dp"

android:hint="@string/prompt\_email"

android:inputType="textEmailAddress"

android:textCursorDrawable="@drawable/cursor"

android:paddingStart="5dp"

android:singleLine="true"/>

Create a cursor.xml file in the drawable folder.

/cursor.xml

Copy

<?xml version="1.0" encoding="utf-8"?>

<shape xmlns:android="http://schemas.android.com/apk/res/android">

<size android:width="4dp"/>

<solid android:color="@android:color/holo\_orange\_light"/>

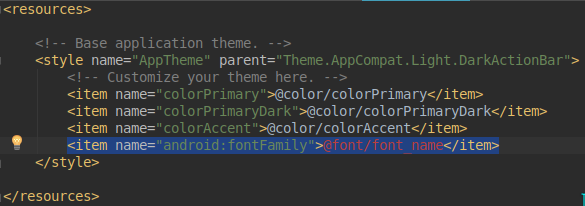
</shape>

How to change the Fonts of entire app :

* First search on android- fonts download for android.
* Download the ttf/otf file of fonts. Then follow the steps as below :

To change your app font follow the following steps:

1. Inside res directory create a new directory and name it font.
2. Insert your font .ttf/.otf inside the font folder, Make sure the font name is lower case letters and underscore only.
3. Inside res -> values -> styles.xml inside <resources> -> <style> add your font <item name="android:fontFamily">@font/font\_name</item>.

[](https://i.stack.imgur.com/TdlXJ.png)

Now all your app text should be in the font that you add.

[Share](https://stackoverflow.com/a/54696464)

Follow

[edited Aug 8 '20 at 11:18](https://stackoverflow.com/posts/54696464/revisions)

Retrofit- GetWithParam Project

How to import library (or project) from github as module in android:

Method 1(Working) :

- Download library(or project) from Github.

- Open the folder of downloaded project and select main project folder from it, not sample project folder.

- Open project in which you want to import library from github. Open its folder in drive and copy above downloaded project folder in this folder.

- Open app level build.gradle file and copy like the following in dependencies, (from settings.gradle file of downloaded project folder, we can take the project name **':paginate'**  like below) e.g.

- implementation project(**':paginate'**)

- Open settings.gradle file and copy like the following e.g.

- include **':app'**,**':paginate'**

- Press sync now.

- If any error comes at bottom right corner during sync process, click on that error and do the required changes in the line indicated by error. Repeat this process for each error and solve it.

Method 2 (Not working properly) :

- Download library(or project) from Github.

- Open project in which you want to import library from github.

- Open File -> New -> Import Module.

- Select the downloaded library folder in Source Directory.

- Copy module name from screen(which will be needed after this step) and press finish.

- Open build.gradle(app level) of main project and type below line in dependencies at last :

Implementation project (‘paste module name here’) and press sync now.

- Open settings.gradle file and copy like the following e.g.

- include **':app'**,**':paginate'**

* Library(or project) module is imported in your project now.

<https://www.youtube.com/watch?v=WycabE8Qdxw>

<https://www.youtube.com/watch?v=4GdQIHJ_ZDw>

How solve following error : (Multipart.java) : - 30.7.21

Error - plugin with id 'kotlin-android' not found in android studio

Solution : I have imported module of DroidNinja library. This library is majority in Kotlin.

So when I tried to import module of this library, above error came.

To solve this error, open DroidNinja in new project by following steps :

File -> New -> Project from Version Control -> Paste the URL of library project which u have opened in github -> Clone.

* Then compare app level build.graddle files of your current project and project opened with library module and paste the following at top of build.graddle file of your current project.

apply **plugin**: **'kotlin-android'** apply **plugin**: **'kotlin-android-extensions'**

* Then compare project level build.graddle files of your current project and project opened with library module and paste the following in dependencies of build.graddle file of your current project.

classpath **"org.jetbrains.kotlin:kotlin-gradle-plugin:**$kotlin\_version**"**

* Then paste the following in buildscripts **{**

ext.kotlin\_version = **'1.4.10'**

* Then press sync now.

Motivational Quotes Project

How to get reference of parent activity in fragment: (Example from MotivationalQuotesFragment.java) :

CustomDrawerActivity activity;  
  
@Nullable  
@Override  
public View onCreateView(LayoutInflater inflater, @Nullable ViewGroup container, @Nullable Bundle savedInstanceState)

{  
 mBinding = DataBindingUtil.*inflate*(inflater, R.layout.*fragment\_motivationalquotes*, container, false);  
  
 mContext = getActivity();  
 activity = (CustomDrawerActivity) getActivity();  
  
 activity.ivLanguage.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 showlanguage(true);  
 }  
 });

return mBinding.getRoot();  
}

App Decompilation Project- 20.8.21

How to Decompile App :

* Open app in <https://apkpure.com/app> or <https://apkcombo.com/apk-downloader/>
* Download apk or xapk.
* If it is xapk then change its extension to .zip
* Then extract this zip.
* E.g. Select com.gkmaza.gujaratiquotes apk
* Then open <http://www.javadecompilers.com/apk> or

[APK Decompilers - Online Android APK Decompiler](https://www.apkdecompilers.com/)

* Select APK decompiler.
* Choose apk file
* Press upload and decompile.
* Save the zip & extract it to see the folders.

How to particular category in SQLite viewer software :

* SELECT \* FROM 'messages' where categoryId = 50

To see only status column :

* SELECT status FROM 'messages' where categoryId = 50

Quotes will not be directly pasted to excel. First copy it in notepad and then from notepad, copy it to excel.

CRM Data Project:

How to copy module from one project to another.:

* Open project and right click-open in- explorer.
* Then copy the library folder(ex. Filepicker) to another project where it was in previous project.
* Open app level build.gradle file and copy below from previous to this project

implementation project(**':filepicker'**)

* Open settings.graddle and copy the following from first to second project

Include **':filepicker'**

* Copy kotlin plugin at top from first to second project in app:build.graddle.
* Then add the classpath dependences as per errors from first to second project in project:build.gradle

Code to add the last inserted data in arraylist at last position in recycler view and automatic scroll the recycler view at last position :

CRMModel model = new CRMModel(name, mobile, imgpath, message);

crmList.add(crmList.size(), model);

adapter.notifyItemInserted(crmList.size());

adapter.notifyItemRangeChanged(crmList.size() - 1, crmList.size());

mBinding.recCrmdata.scrollToPosition(crmList.size() - 1);

Problem : Data shuffling in recycler view when we scroll the screen.

Solution :

- Add following line in Constructor of Adapter :

setHasStableIds(true);

- Override following two methods :

@Override

public int getItemViewType(int position) {

return position;

}

@Override

public long getItemId(int position) {

return position;

}

- Add following line at biggining of onBindViewHolder() method :

holder.setIsRecyclable(false);

E-Commerce App Design

Recycler View related general points :

* Always set below attribute:

**android:overScrollMode="never"**

* In row\_layout file of adapter, always set height as wrap content in main layout. Otherwise gap between two items will be seen on screen.

How to open Fragment from any Activity by button click :

* First make an Intent on button click like below from activity to Main Activity which contains fragment:

Intent intent = **new** Intent(**mContext**, MainActivity.**class**);  
intent.putExtra(**"Product"**,**"Test"**);  
startActivity(intent);

* Then receive an intent at Main Activity as per below code and open Fragment which you want :

Bundle bundle = getIntent().getExtras();  
**if** (bundle != **null**) {  
 selectedCart();  
} **else** {  
 selectedHome();  
}

API calling in CRM WhatsappDataUpdate

How to select all words in “ “ together in different lines and convert it to capital letters:

* Press round button in mouse and select first character of all words in different lines between “ “.
* Then press ctrl+W, so all words will be selected.
* Then press ctrl+shift+U to convert it in capital letters.
* Introduction to Postman
* <https://learning.postman.com/docs/sending-requests/requests/>
* <https://www.softwaretestingmaterial.com/postman-tutorial/#h-building-blocks-of-postman>
* <https://www.softwaretestinghelp.com/api-testing-using-postman/>
* <https://www.guru99.com/postman-tutorial.html>
* API calling in CRM Whatsapp Data Update
* How to generete DTO :
* - Click generate -> DTO from JSON -> Paste theJSON response of API from postman -> Click Validate & Format -> Open Settings menu -> Select Single file with inner class -> Select Gson -> Uncheck @Expose -> Go To DTO generator menu -> Press Generate -> Delete abstract from Model class.
* How to open API collection in Postman:
* - Open My Workspace in postman.
* - Click Import and Select Json collection you want to open.
* - If there is a Login api in collection, click on it. Then enter the parameters in key value pair as mentioned in json file of collection.
* - Click Send. Copy api\_token from response received.
* - Click on Collection name on sidebar and paste the token in Variables. Press Save. Now all the api will give response.
* - Copy the api\_token each time, whenever you are login.
* How to Autofocus in edittext :

**mBinding**.**etName**.requestFocus();

* How to Autofocus in edittext with hidden keyboard in that activity :
* Add following line in <activity tag of that activity in android manifest.

**android:windowSoftInputMode="stateHidden"**

ERROR :

D/ERROR: Failed to invoke public com.oceanmtech.shagun.DashboardModule.Models.AddToCartModel() with no args

SOLUTION :

Remove abstract from Model class.

API calling in Shagun Enterprise

# API calling - Save to Wishlist of User

* Url used - <https://shagun-ent.eshopamb.com/api/v1>
* **Code changed in GeneralAPIClient.**
* Code changed in ProductDetailActivity.java to **pass the parameters in Json Raw data in Body**.

# Problem- In CartActivity, only last position of recycler view is doing + & - (quantity) of item. All other are not working for this.

Solution – Where ever you need position of item in onBindViewHolder(), take it directly like below;

**mBinding**.**tvProductName**.setText(**cartList**.get(position).**product**.**name**);

* Don’t store it in variable of Model class like below;
* GetLeadsModel.Data currentData = **dataList2**.get(position);

# Problem - Card View not showing in whole project.

Solution – do **android:hardwareAccelerated="true" in Manifest file.**

# How to send ArrayList from one activity to another :

Example:

ArrayList<String> myList = new ArrayList<String>();

Intent intent = **new** Intent(**mContext**, CartActivity.**class**);

intent.putExtra("mylist", myList);

In the other Activity:

ArrayList<String> myList = (ArrayList<String>) getIntent().getSerializableExtra("mylist");

# Always call onBackPressed() in ivBack instead of finish() and at end of Activity coding. If we call finish() then related data of that activity will be lost.

# Best way to call API from adapter is using Interface (Recyclerview item click using Interface) : (Done in WishlistFragment & WishlistAdapter)

"is it a good practice to perform this under adapter??" - The theory says no because the adapter + viewholder only must be show the data and set the listeners, that´s all (UI module).

<https://www.youtube.com/watch?v=AkiltTv0CjA&list=RDCMUCr0y1P0-zH2o3cFJyBSfAKg&start_radio=1>

**Steps :**

- First create an Interface of any name and make a method definition of any name and pass the position of item in Interface like below:

**public interface** RecyclerViewOnClickInterface {  
  
 **void** onItemClick(**int** position);  
}

- Now implement the created Interface in Activity or Fragment and implement it’s methods and make API calling in this method as below :

**public class** WishlistFragment **extends** Fragment **implements** RecyclerViewOnClickInterface {

**public void** onItemClick(**int** position) {

make API calling here.

}

}

- In Adapter, make Interface variable and add it in constructor like below:

RowWishlistBinding **mBinding**;  
ArrayList<GetWishlistModel.Data> **wishList**;  
Context **mContext**;  
**private** RecyclerViewOnClickInterface **recyclerViewOnClickInterface**;

**public** WishlistAdapter(ArrayList<GetWishlistModel.Data> wishList, Context mContext, RecyclerViewOnClickInterface recyclerViewOnClickInterface) {  
 **this**.**wishList** = wishList;  
 **this**.**mContext** = mContext;  
 **this**.**recyclerViewOnClickInterface** = recyclerViewOnClickInterface;  
}

- Now in Avtivity or Fragment, pass the interface object in below line :

**mAdapter** = **new** WishlistAdapter(data, getActivity(), **this**);

- In Adapter, write the below code in ItemViewHolder class :

mBinding.**ivDelete**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **recyclerViewOnClickInterface**.onItemClick(getAdapterPosition());  
 }  
});

- In Activity or Fragment, write the following code in response code of API :

**wishList**.remove(position);  
**mAdapter**.notifyItemRemoved(position);  
**mAdapter**.notifyItemRangeRemoved(position,**wishList**.size());

# When we go to second activity with Intent and return to first activity, some data is not showing :

Solution : (PlaceOrderActivity2.java & OrderAcceptedActivity.java)

- Make Intent from first activity using startActivityForResult() as below:

**mBinding**.**tvProceedToCheckout**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 Intent i = **new** Intent(**mContext**, OrderAcceptedActivity.**class**);  
 i.putExtra(**"CartTotal"**, **mBinding**.**tvCartTotalPrice**.getText().toString());  
 i.putExtra(**"Total"**, **mBinding**.**tvTotalPrice**.getText().toString());  
 i.putExtra(**"Address"**, **mBinding**.**tvAddress**.getText().toString());  
 i.putExtra(**"City"**, **mBinding**.**tvCity**.getText().toString());  
 i.putExtra(**"PostalCode"**, **mBinding**.**tvPostalCode**.getText().toString());  
 i.putExtra(**"Country"**, **mBinding**.**tvCountry**.getText().toString());  
 i.putExtra(**"Phone"**, **mBinding**.**tvPhone**.getText().toString());  
 startActivityForResult(i,101);  
 }  
});

- Make Intent from second activity using setResult() as below:

**mBinding**.**tvOrderDetail**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 Intent i2 = **new** Intent();  
 setResult(***RESULT\_OK***,i2);  
 finish();  
 }  
});

- Override onActivityResult() in first activity (we can left it blank also) as below:

@Override  
**protected void** onActivityResult(**int** requestCode, **int** resultCode, @Nullable Intent data) {  
 **super**.onActivityResult(requestCode, resultCode, data);  
  
}

So data in first activity will retain as it is.

# How to pass [{"name":"P30"}] as parameter in API calling:(ProductDetailActivity.java):

- First create Model Class and generate DTO from [{"name":"P30"}].

- Then make object of Model Class and do the coding as per below:

<https://stackoverflow.com/questions/5571092/convert-object-to-json-in-android>

**nameModel**.**name** = **"P30"**;  
Gson gson = **new** Gson();  
**jsonVariant2** = gson.toJson(**nameModel**);  
**jsonVariant** = **"["**+**jsonVariant2**+**"]"**;  
getPriceVariant(**product\_id**, **jsonVariant**); (method call).