Mobile Computing
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Indraprastha Institute of Information Technology Delhi
Lecture 33

Hello, welcome to the class, in this class and next few classes we will be developing a very long android program. And while developing that program we will learn about the concepts that we had seen in earlier videos. We will do this learning by programming and how to see how to use those concepts when we write a program. So in the coming program we will actually be using fragments, activities, intents, databases that is everything that we have learned so far.

The program example has been taken from bignerdranchguide.com and the program code is available on the website www.bignerdranchguide.com. However, I have tweaked the program a little bit so that you do not directly copy paste and run it. So if you want a similar program source, please go to the website and download the code, but watch the videos and develop the code yourself so that you can learn how to use those concepts yourself, so let us get started.

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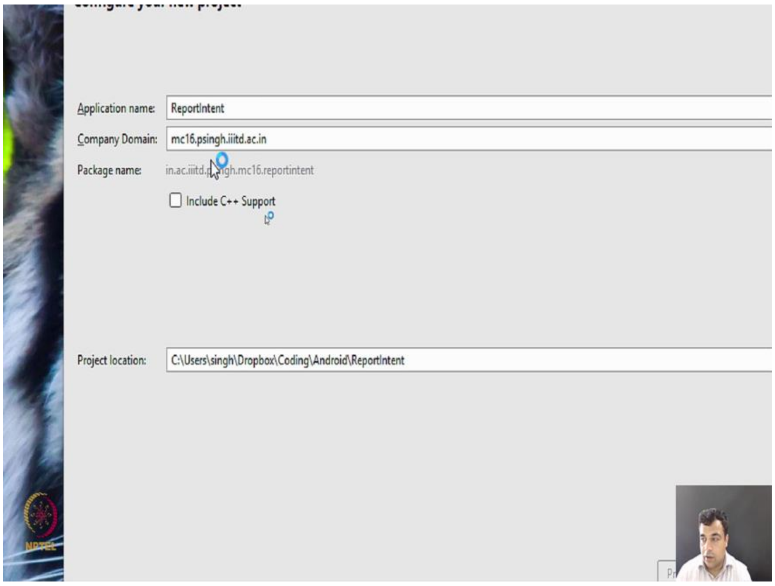

Application name: ReportIntent

Company Domain: mc16.psingh.iiitd.ac.in

Package name: in.ac.iiitd.psingh.mc16.reportintent

☐ Include C++ Support

Project location: C:\Users\singh\Dropbox\Coding\Android\ReportIntent

I will give this program the name ReportIntent. The original program from bignerdranchguide calls it prime intent but we are changing that, let us make it the program ReportIntent, those of you who cannot see so this I have given the domain name etc is already there, project location is given then I press next and as usual I am choosing API 23 I am only developing for phone and tablet, I am not choosing any option of TV, Android auto, or Glass, then I press next and android creates my project, let me, so as you can see currently the android is completing and now its creates. Okay.

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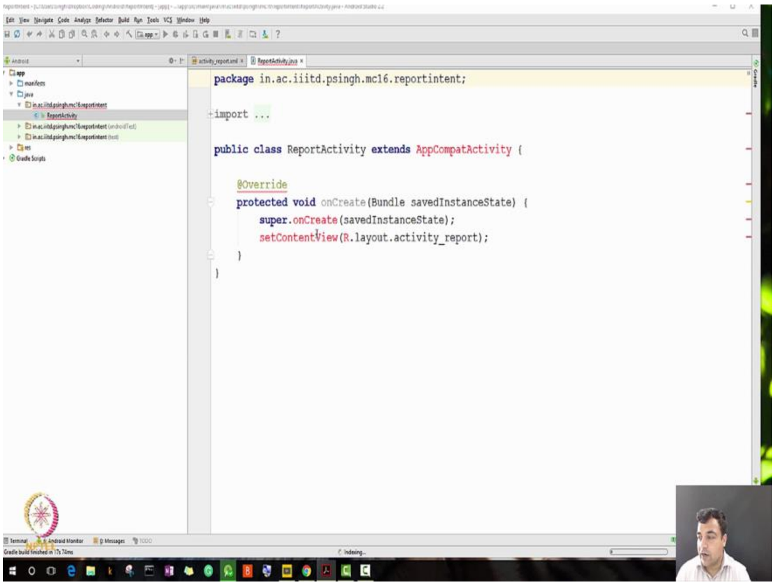

```java
package in.ac.iiitd.psingh.mc16.reportintent;

import ...

public class ReportActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_report);
    }
}
```

So many of you have seen this screen already, so we will start with empty activity and we will call this activity ReportActivity. So you can see that the layout name is automatically changed and now I do finish. So the name that I have given is ReportActivity let me just show it to you again, activity_report, now I click finish. My project is getting build by android and very soon we will get the editor, yes now the editor is up and the gradle system is been working and here it is, so the program has been created, ReportActivity, activity has been created, currently gradle build is running that is why we are seeing this errors but soon we will be fine.

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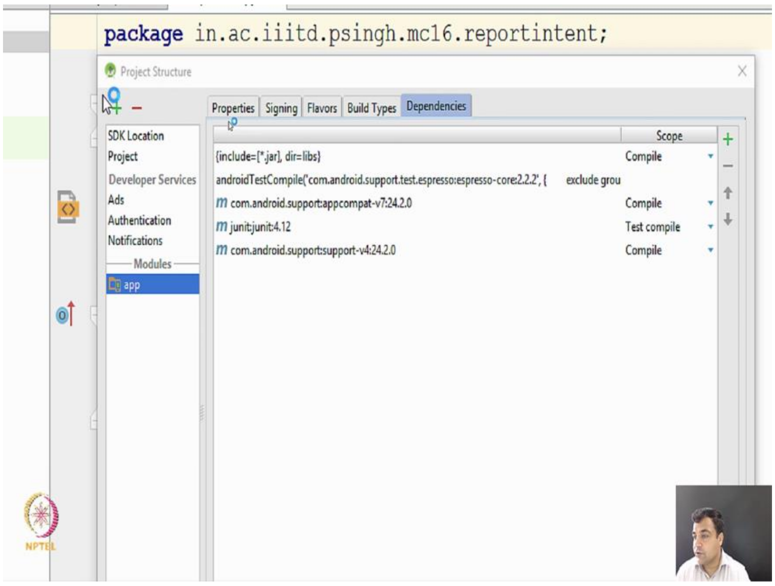

```java
package in.ac.iiitd.psingh.mc16.reportintent;
```

	Scope
{include=[*.jar], dir=libs}	Compile
androidTestCompile('com.android.support.test.espresso:espresso-core:2.2.2', { exclude grou	
m com.android.support:appcompat-v7:24.2.0	Compile
m junit:junit:4.12	Test compile
m com.android.support:support-v4:24.2.0	Compile

Okay, so now our basic program structure is there, so I had earlier told you that when we develop fragments we use the support library, I am going to now use the support libraries so that when we start developing fragment in this program we are using the support library and not the android OS version. So the way to do it is, to go to your program, go to your file, go settings sorry not settings but go to your file, go project structure, in the project structure go for app, in the app you will see dependencies on the right most tab, click on dependencies and now you will see a + sign so I do a + sign and now from the second library from the top which is the support-v4 library is what we need.

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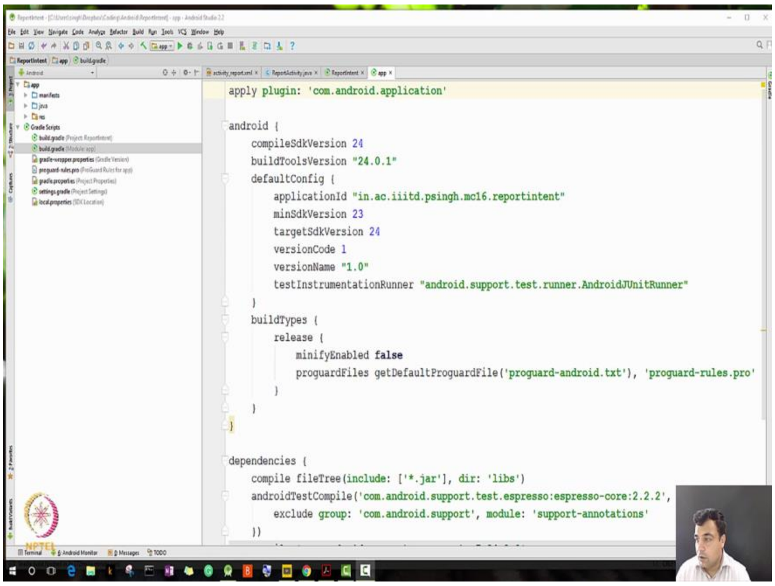

```
apply plugin: 'com.android.application'

android {
    compileSdkVersion 24
    buildToolsVersion "24.0.1"
    defaultConfig {
        applicationId "in.ac.iiitd.psingh.mc16.reportintent"
        minSdkVersion 23
        targetSdkVersion 24
        versionCode 1
        versionName "1.0"
        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
    }
    buildTypes {
        release {
            minifyEnabled false
            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
        }
    }
}

dependencies {
    compile fileTree(include: ['*.jar'], dir: 'libs')
    androidTestCompile('com.android.support.test.espresso:espresso-core:2.2.2',
        exclude group: 'com.android.support', module: 'support-annotations'
    })
```

So I select it and I press ok, now I can see that this has been added, let me magnify it for you, so yes I went into the project structure, went into the app, dependencies, used the + sign to add this particular library. Now this is added I press ok, and let us go back to normal mode. So now we are fine with the setup and if you want to check is, for example if I go to my build.gradle the module app you can see that the new library which I added is now here.

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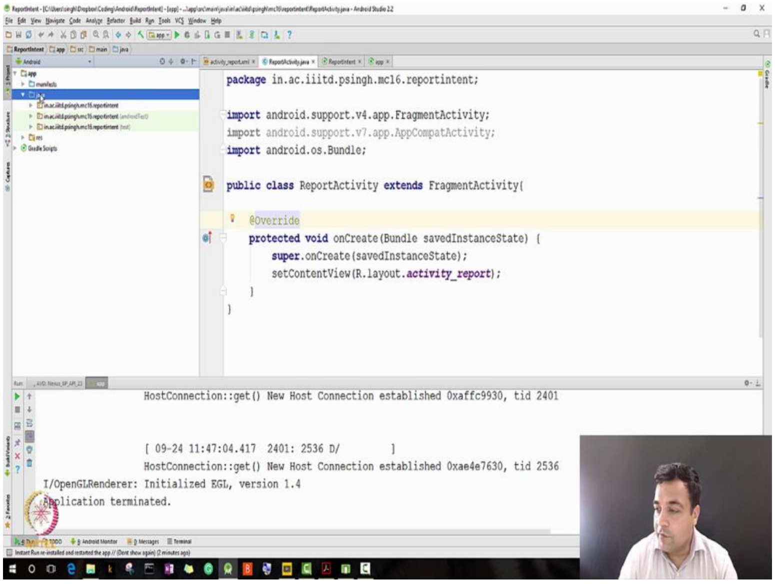

```
package in.ac.iiitd.psingh.mc16.reportintent;

import android.support.v4.app.FragmentActivity;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

public class ReportActivity extends FragmentActivity{

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_report);
    }
}
```

```
                  HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


                  [ 09-24 11:47:04.417  2401: 2536 D/         ]
                  HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

So we are all set, and we will now move forward to developing our program. Okay, now let us go back to our main file ReportActivity.java, the one thing that we want to create is that we would like to use fragments in this program, so I am going to change the code a little bit I will make it FragmentActivity, when I do FragmentActivity it gives me a choice, so I have to choose the support.v4, I choose it and you can see that a new import statement has been added to my program, this is correct because that is the important statement that I wanted. So everything is fine and I just save my program, so yes, so our basic application is ready, fragment activity I have created, later on we will see how to extend this program for the time being I am just going to add another file which I will call Report.java.

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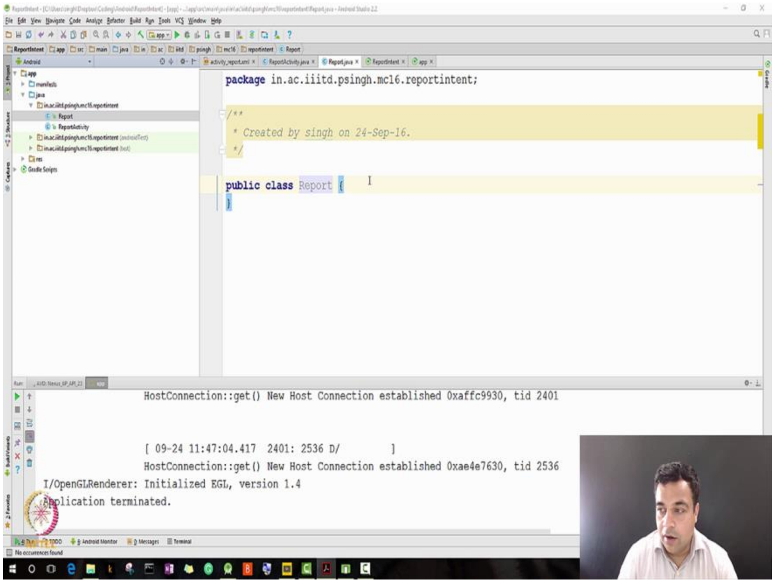

```
package in.ac.iiitd.psingh.mc16.reportintent;

/**
 * Created by singh on 24-Sep-16.
 */

public class Report {
}
```

```
                  HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


                  [ 09-24 11:47:04.417  2401: 2536 D/         ]
                  HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

So I right click, go to new, I do java class, I want to make in the main, press ok I give the name, I press ok. Okay so actually by mistake I have created outside the package, let me put it back into the package and now you see that we have got two files one is ReportActivity and the another is Report.java.

Let us make some content into the Report.java, so the program that we are trying to make is a list of reports and once a person clicks on a report then it sees the details about the report. Now this program uses several concepts, number 1 that if a program is being run on mobile phone, then the details will open on a different screen then what the reports were being displayed the report list was being displayed, but if the same program is running on a tablet or any other device which has a bigger screen size, then on the left side in around one third part of the screen the list is displayed and then in the rest of the screen the details.

The data of the reports will be stored using database, so by the time you finish this program you will have revised all the concept that have been taught to you so far and that is the purpose of this program and as I said if you want to download the code you can go to www.bignerdranchguide.com and you can download it from there because that is the example I am taking. But the best thing would be to develop it myself as I am developing by watching the video, so that you learn it yourself.

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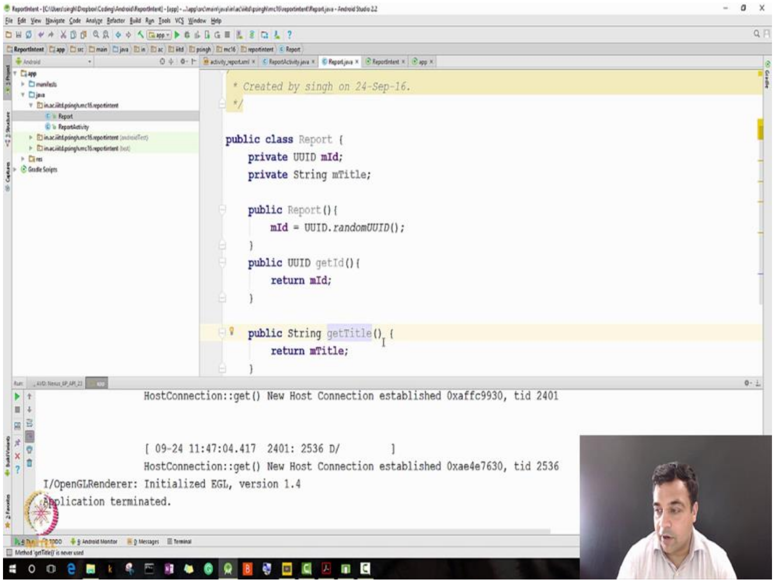

```
 * Created by singh on 24-Sep-16.
 */

public class Report {
    private UUID mId;
    private String mTitle;

    public Report(){
        mId = UUID.randomUUID();
    }
    public UUID getId(){
        return mId;
    }

    public String getTitle() {
        return mTitle;
    }
```

```
              HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


              [ 09-24 11:47:04.417  2401: 2536 D/         ]
              HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

Method 'getTitle()' is never used

Let us create the report class and we will put few things in the Report class, so I would like to have each of my report to have a unique id. So in java we already have something called UUID, I will use that and as you see that import has already been added I will call it mId, then I will have something like private String mTitle and then I will have a constructor created for it, so public Report my constructor does nothing but just assign mId = our unique id generated from UUID class, that is it, then I write some getters and setters, so public UUID getId and I do return mId and I also do a getter for the title, so public String getTitle and I do it mTitle, okay.

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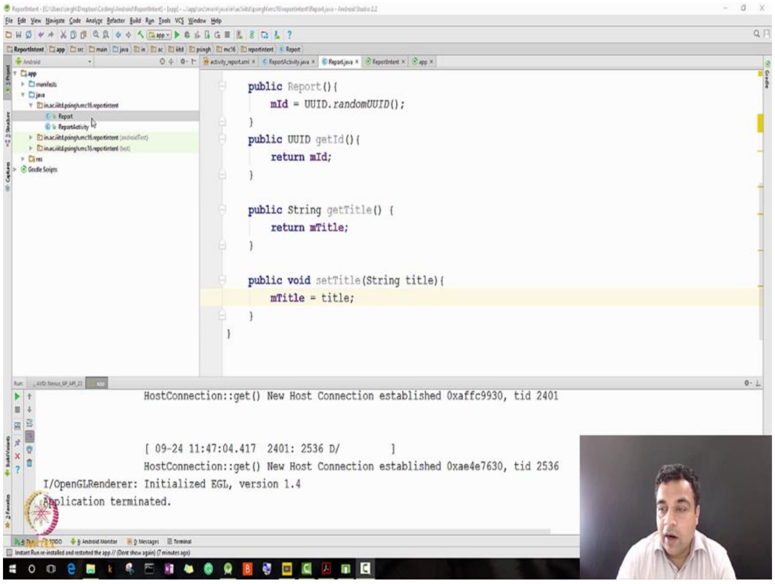

```
public Report(){
    mId = UUID.randomUUID();
}
public UUID getId(){
    return mId;
}

public String getTitle() {
    return mTitle;
}

public void setTitle(String title){
    mTitle = title;
}
}
```

```
            HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


            [ 09-24 11:47:04.417  2401: 2536 D/         ]
            HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

So this is fine and then I would also like to do a setter which says public void String title obviously the method name is set setTitle not nTitle and I do mTitle = title. So these are the two getter methods and one setter methods that I have used. Now last time when we were learning fragments I had told you that there are two ways to add a fragment, one is by code and another is (())(12:16). So in this program it was I said we will be using fragments so when list, when an item on the list is clicked, then a new fragment should open during the details.

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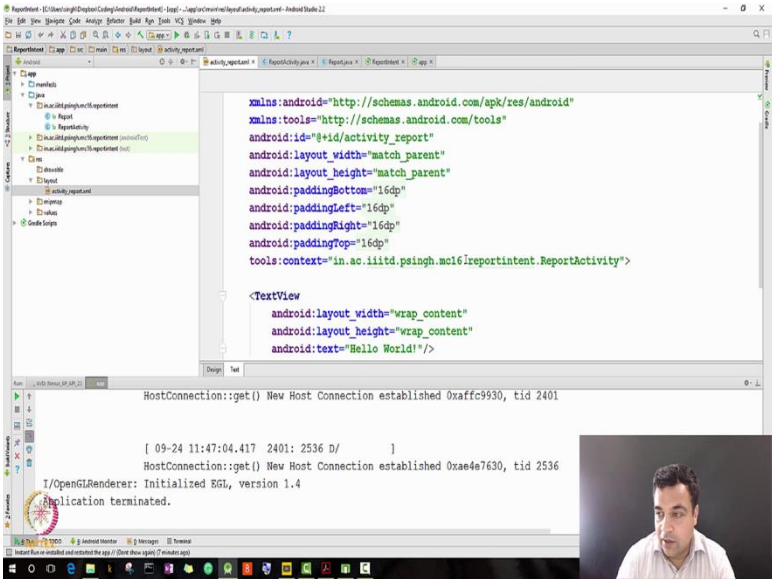

```
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/activity_report"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:paddingBottom="16dp"
android:paddingLeft="16dp"
android:paddingRight="16dp"
android:paddingTop="16dp"
tools:context="in.ac.iiitd.psingh.mc16.reportintent.ReportActivity">

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello World!"/>
```

```
                  HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


                  [ 09-24 11:47:04.417  2401: 2536 D/         ]
                  HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

So let us make a place for that fragment to appear and instead of writing the fragment in the code, we add that fragment folder in the xml, which basically requires me to go down to the layout, find out that activity_report.xml, as we can see here, go to it and change it so that we can create a fragment container. So I am going to remove all of it as you may know, first I start with removing the text view, then I change the relative layout to frame layout and I am fine with this field, maybe I would like to give it a different id because I am going to use it as a fragment container, I am going to give it an id of fragment_container.

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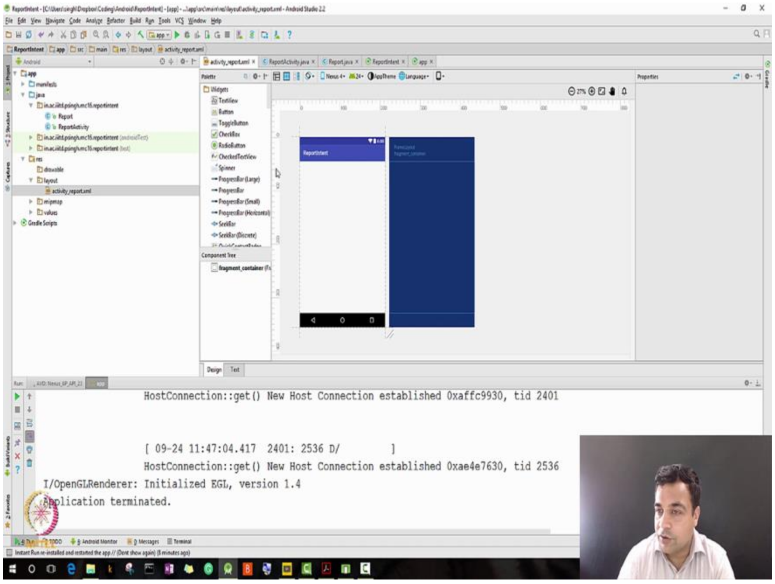

```
                  HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


                  [ 09-24 11:47:04.417  2401: 2536 D/         ]
                  HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

Then match_parent, match_parent is fine on the time being we can even remove these to just make it look very simple. Now if I go to the design, I see that this is not really changed anything so far, but very soon you will see the changes. So we have now created a fragment container, now in this container we can put any fragment because we are not giving name of any particular fragment. So this is more like an empty container for a fragment to come later on. Now, since I have created the container let me now add another layout file which defines my fragment, so I would add a new layout file and I will call this file as fragment_report, I press okay the fragment report opens it already has a linear layout which is fine that is what I wanted but I need to add something more to it.

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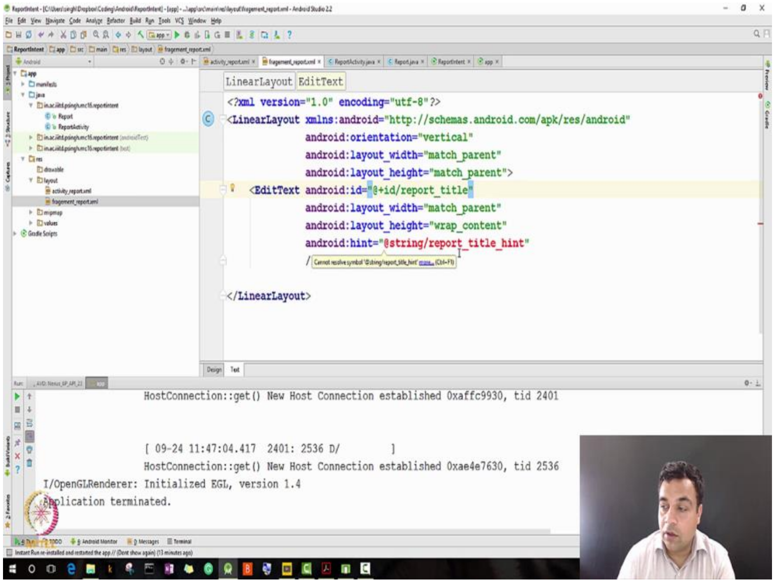

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
              android:orientation="vertical"
              android:layout_width="match_parent"
              android:layout_height="match_parent">
    <EditText android:id="@+id/report_title"
              android:layout_width="match_parent"
              android:layout_height="wrap_content"
              android:hint="@string/report_title_hint"
              /

</LinearLayout>
```

```
HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


[ 09-24 11:47:04.417  2401: 2536 D/         ]
HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

First line is okay, layout width, layout height is okay, orientation is okay. But what I would like to add is a text field here, which is editable text field in which I can write the detail of a, a brief detail of a report. So, EditText android first thing I am going to give it is Id I do @+Id /report_title because that is what this field will contain. I will then go to android, layout, width I will call it match_parent, I will then go to define android:layout height and I will call it just wrap_content and then I will give a hint which is nothing but @string/report_title_hint and then I close my EditText.

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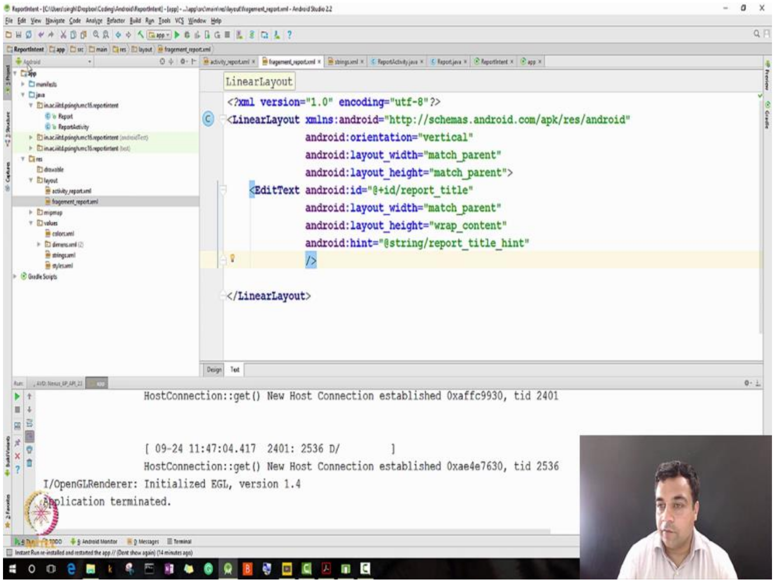

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
              android:orientation="vertical"
              android:layout_width="match_parent"
              android:layout_height="match_parent">
    <EditText android:id="@+id/report_title"
              android:layout_width="match_parent"
              android:layout_height="wrap_content"
              android:hint="@string/report_title_hint"
              />

</LinearLayout>
```

```
                    HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


                    [ 09-24 11:47:04.417  2401: 2536 D/         ]
                    HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

It is giving me a warning, let me check layout width, layout width sorry I have given the weight while I should have given the width, okay this is all good now my error is gone. I still have a small warning because I have not created a string resource corresponding to report title, so I need to create that string resource and that string resource as you already know we created in the value strings.xml, so I go I type report_title_hint and then I can say I can give any hint, for example I can say enter a title, this is fine and now if I go back my error should go.

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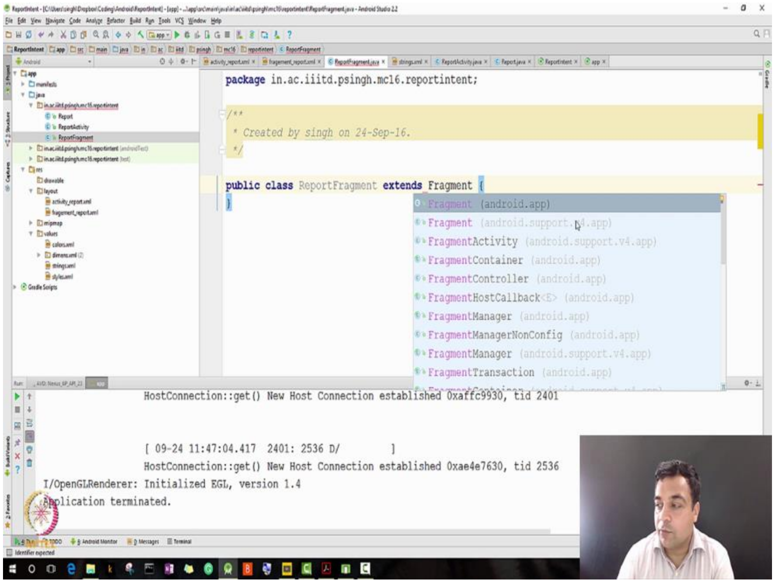

```
package in.ac.iiitd.psingh.mc16.reportintent;

/**
 * Created by singh on 24-Sep-16.
 */

public class ReportFragment extends Fragment {
}
```

```
Fragment (android.app)
Fragment (android.support.v4.app)
FragmentActivity (android.support.v4.app)
FragmentContainer (android.app)
FragmentController (android.app)
FragmentHostCallback<E> (android.app)
FragmentManager (android.app)
FragmentManagerNonConfig (android.app)
FragmentManager (android.support.v4.app)
FragmentTransaction (android.app)
```

```
                    HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


                    [ 09-24 11:47:04.417  2401: 2536 D/         ]
                    HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

Now let us move on and create another class here and we will call this class a report fragment, so as you may already guessed that I am adding some fragments to my program, I will again go I will choose java class and I will call it report ReportFragment, when at I got a basic java class, first step I will do a extends Fragment, now here there is something very important for me to note, when I do extends fragment the Google is giving me two options, one is fragment android app, and another is fragment android.Support.v4.app.

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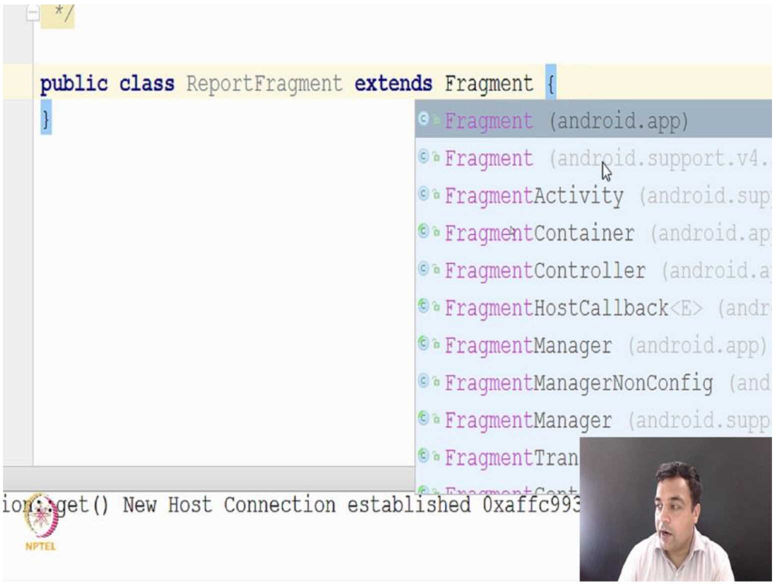

```
*/

public class ReportFragment extends Fragment {
}
```

Fragment (android.app)
Fragment (android.support.v4.
FragmentActivity (android.sup
FragmentContainer (android.ap
FragmentController (android.a
FragmentHostCallback<E> (andr
FragmentManager (android.app)
FragmentManagerNonConfig (and
FragmentManager (android.supp
FragmentTran

```
ion::get() New Host Connection established 0xaffc993
```

Let me magnify it to you further, so I go to fragment and Google gives me two options, android app and android.support.v4.app, I will choose the second one, because the second one belongs to the support library that we want to use. I do this and let me get out of magnifier, when I select the import statement reflects that now the library that has been imported is android.support.v4.app.fragment.

So this is a very important step you should do carefully, otherwise you may run into some compilation errors at the least, at the most you may be using version of fragments which you do not know, you wanted to use a library but you ended using (())(20:00). So you should be very clear what type of fragments you want to use and as I said it is always good to use the fragments from the source library support library. Now, this extends fragment and let us start, so we will first create a variable type report which we created earlier, I will call it mReport and then we will be overriding few functions.

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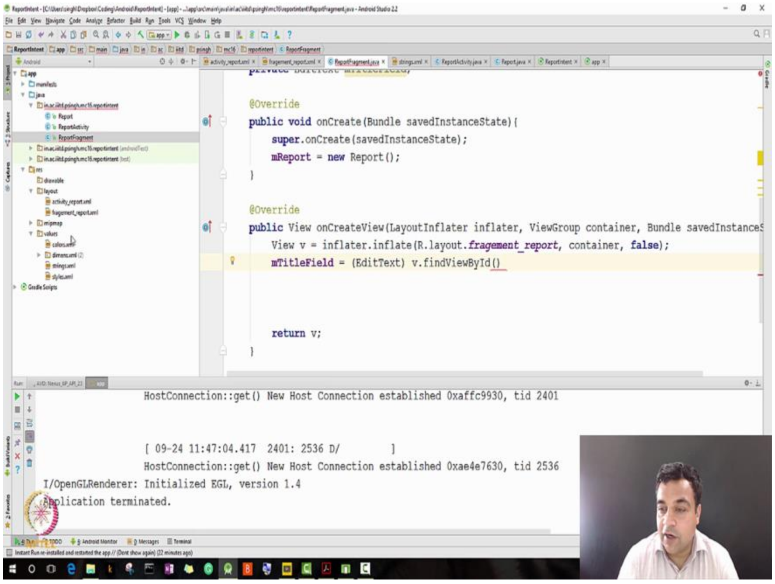

```
    @Override
    public void onCreate(Bundle savedInstanceState){
        super.onCreate(savedInstanceState);
        mReport = new Report();
    }

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceS
        View v = inflater.inflate(R.layout.fragement_report, container, false);
        mTitleField = (EditText) v.findViewById()



        return v;
    }
```

```
                HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


                [ 09-24 11:47:04.417  2401: 2536 D/         ]
                HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

So we will be overriding our onCreate onCreate bundle we will just use the standard name InstanceState and I will just do an Alt Enter, now inside this I would have to first thing I would have to do is to create a super creating the super method, and then the second thing I do is I instantiate my variable to new Report override / to onCreate view as you may have imagined because we are now dealing with fragments onCreate view and let me first say, let me first say Alt Enter and the onCreate view, we will have three parameters as we studied earlier layoutinflater comma view group container comma bundle savedInstanceState Alt Enter. Now we will have to create a view watch very carefully now what I do, so we will have to inflate a view. So which do we want to inflate? So we have got in our layout file we created something and that is what we would like to inflate.

So I say R.layout.fragment report container false, so we have studied all of that now we are just using it, return v, good so now our ReportFragment.java is ready, code is ready, ReportActivity is ready. Now the second thing that we are going to do is that once this fragment is inflated, we would like have the ability to edit the EditText, so in order to do that we will have to create a listener. Let us go back to our ReportFragment class and add a m, first we has not edited EditText field so I will just call private EditText = mTitleField and then I will go to mTitleField = EditText v.findViewById, findViewById as we have discussed earlier returns you the Id from the R.java class.

So if you want to look at the R.java class, you can type on your android studio R.java and it will open, but my advice is do not touch it because if you modify anything in R.java your program most likely will stop compiling and you will have to spend a lot amount of time to rectify there. So we have already studied this function we are just bringing the id of the EditText field so EditText field we are bringing the integer id of it, so findViewById where the title is the report_title, so this is the report title, so what I am saying is just give return me the integer, that corresponds to this particular view object.

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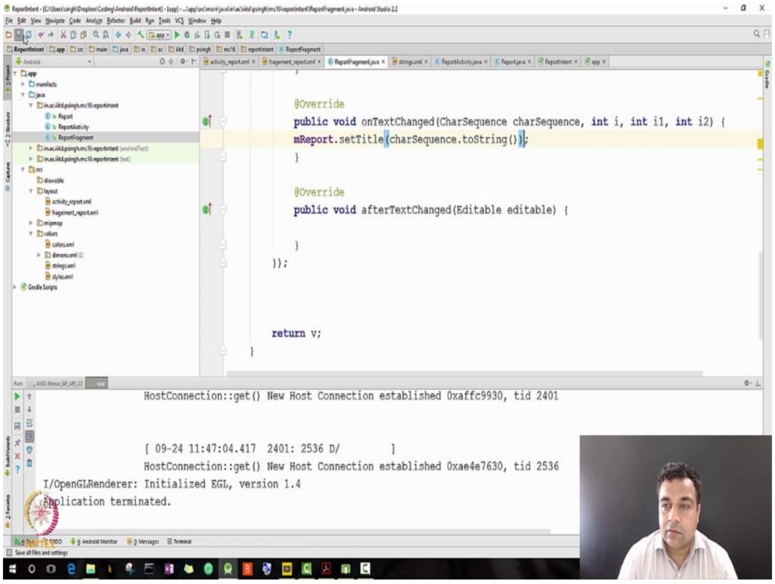

```
            @Override
            public void onTextChanged(CharSequence charSequence, int i, int i1, int i2) {
            mReport.setTitle(charSequence.toString());
            }

            @Override
            public void afterTextChanged(Editable editable) {

            }
        });



        return v;
    }
```

```
                  HostConnection::get() New Host Connection established 0xaffc9930, tid 2401


                  [ 09-24 11:47:04.417  2401: 2536 D/         ]
                  HostConnection::get() New Host Connection established 0xae4e7630, tid 2536
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

And the second thing I want to do is to add a listener, so this is something called addTextChangeListener in which we will see if we have added any new text and as you see that android already fills in a lot of text for me, so new TextWatcher and it overrides a method called beforeTextChanged on text change and after text change, beforeTextChanged takes some parameters which we leave onTextChanged is where we are going to make some changes.

So we will say you know we will just say that mReport.setTitle we had put a setter = charSequence.toString, so this is our, we have only modified for the time being onTextChanged, so when we the idea is when we put this text we want to set the value of this field. So that is it, now we have done a lot of work so let us just run our program, so as usual I am using the emulator with API 23, recently in last week you may have seen Nougat getting released and installed on your device. So maybe in the next program we will use the emulator with the android app.

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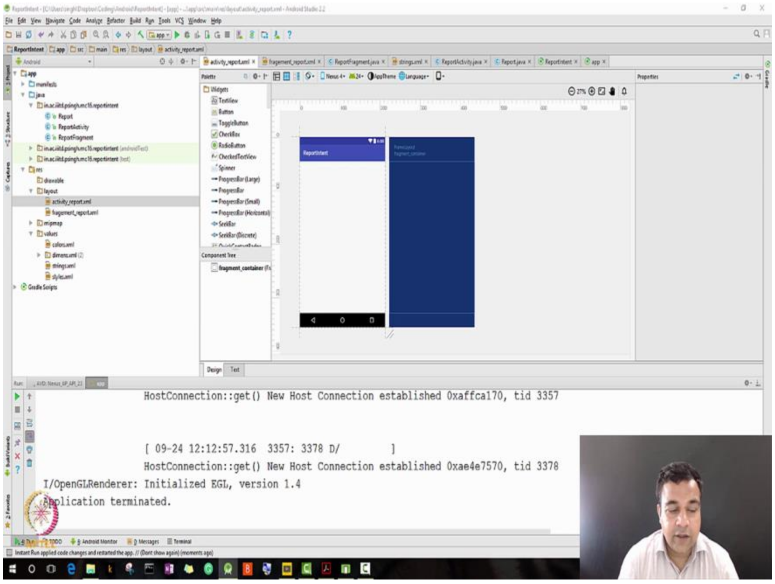
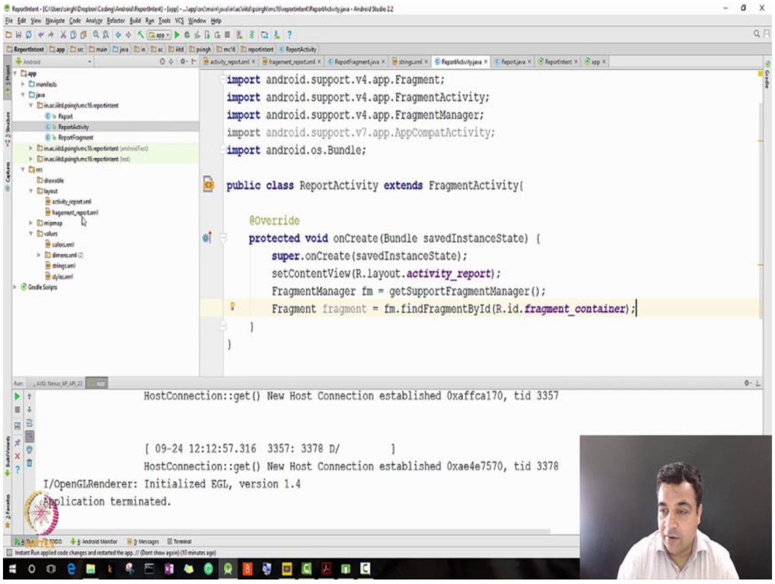


```
                HostConnection::get() New Host Connection established 0xaffca170, tid 3357


                [ 09-24 12:12:57.316  3357: 3378 D/         ]
                HostConnection::get() New Host Connection established 0xae4e7570, tid 3378
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

So this gets initialized there is really nothing much that is happening here, but our program overall is running. So you go to layout files you can see there is nothing happening here, there is nothing happening here okay, that is all alright, now let us do some more work. We had learned the use of fragment manager, now are going to use it. So I have gone through the ReportActivity class our main class which was our ReportActivity class and I am going to use a fragment manager, manager fm = getSupportFragmentmanager. How are we going to use MragmentManager is what we will see very shortly.

(Refer Slide Time: 29:27)

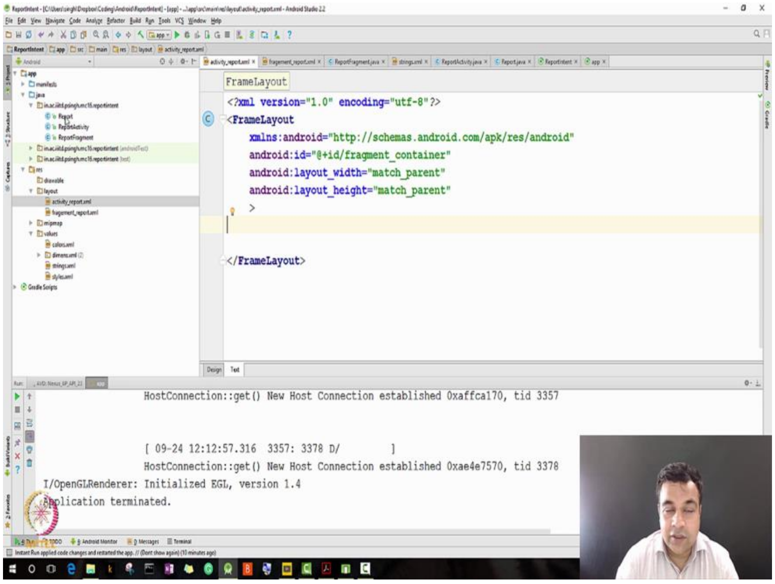


```java
import android.support.v4.app.Fragment;
import android.support.v4.app.FragmentActivity;
import android.support.v4.app.FragmentManager;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

public class ReportActivity extends FragmentActivity{

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_report);
        FragmentManager fm = getSupportFragmentManager();
        Fragment fragment = fm.findFragmentById(R.id.fragment_container);
    }
}
```

```
                HostConnection::get() New Host Connection established 0xaffca170, tid 3357


                [ 09-24 12:12:57.316  3357: 3378 D/         ]
                HostConnection::get() New Host Connection established 0xae4e7570, tid 3378
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

Uhh now the first thing to watch is that we got a method called getSupportFragmentManager, this support is coming from the support library that we are using, we were not using support library but the android OS version, then we would have got method only called getFragmentManager. Now let us move forward and write some code, so the first thing that I am going to do is, to do Fragment, again I have made sure that I am using this Fragment fragment = my fragment manager.the same method similar method findFragmentById, now which id do we give here? So we are using a method called findFragmentById and what is interesting now is, we will see which id we give. So, first let me write the code and then I will explain you the logic, we have as such got 2 ids here, one is the id of the report and the one is the id of fragment_container.

(Refer Slide Time: 31:13)

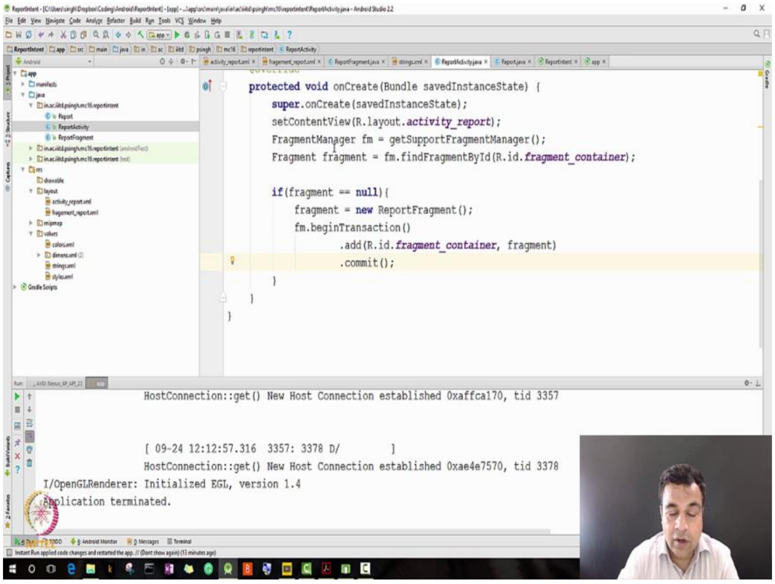


```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/fragment_container"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    >


</FrameLayout>
```

```
HostConnection::get() New Host Connection established 0xaffca170, tid 3357


[ 09-24 12:12:57.316  3357: 3378 D/         ]
HostConnection::get() New Host Connection established 0xae4e7570, tid 3378
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

So I am giving the id of the fragment_container which I defined here, now you may be wondering that why did I give the id of the fragment_container. So this is a very common practice to give the id of the container in which the fragment is to be brought in and from the container the new (())(31:24). So we are doing the same thing here, we are giving the id of fragment_container, now what I want to check is that is this fragment, is this fragment which is present in this fragment container if it is null or not.

(Refer Slide Time: 31:52)



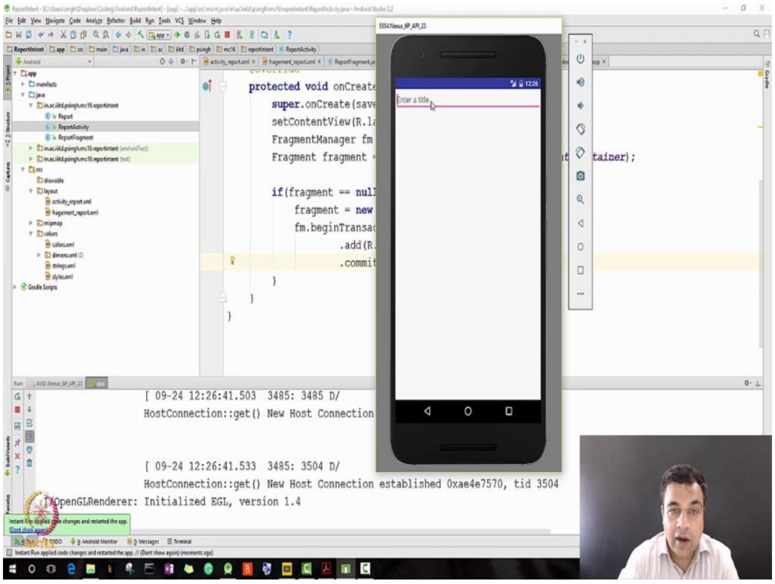
```
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_report);
        FragmentManager fm = getSupportFragmentManager();
        Fragment fragment = fm.findFragmentById(R.id.fragment_container);

        if(fragment == null){
            fragment = new ReportFragment();
            fm.beginTransaction()
                    .add(R.id.fragment_container, fragment)
                    .commit();
        }
    }
}
```

```
                HostConnection::get() New Host Connection established 0xaffca170, tid 3357


                [ 09-24 12:12:57.316  3357: 3378 D/         ]
                HostConnection::get() New Host Connection established 0xae4e7570, tid 3378
I/OpenGLRenderer: Initialized EGL, version 1.4
Application terminated.
```

Now this is another line which you may wonder why do I need to add because we are just starting the program, but as you see that fragment just like activities goes through multiple life cycles for the very first execution of the program, this is not really needed, but if we are interacting with our phone for example if we press back button or if we press home button or if we get a call, then our fragments may go in different may go in different life cycles states and that is why when we use the program, it is important for us to know whether we are starting with the a fragment which is already there, or whether we are starting from here. So we check if fragment is = null, in this case we which is our first case, we will actually create our fragments, so we will say new ReportFragment, here is our ReportFragment which was there which is nothing but using the during the layout of the fragment report, so new report fragment and then I do the transactions which we learned earlier.

So I am going to add this fragment, so I write the command beginTransaction and then I do an add R.id.fragment_container, in the container I am using this fragment and then I do a commit. Now, let us look at the code again, first thing we want see is that if the fragment is already there or not for that you need to define fragment id and we give the id of the container and there is nothing in the container, then we know that the fragment is not there and the value will be set to null. This will happen for the very first time, but that very first time we create our fragment and then we add that fragment into the container using the transaction methods, now this sort of completes our code. So last time when we had run our code there was nothing on the screen, now let us run our code and let us see what happens this time.

(Refer Slide Time: 34:20)



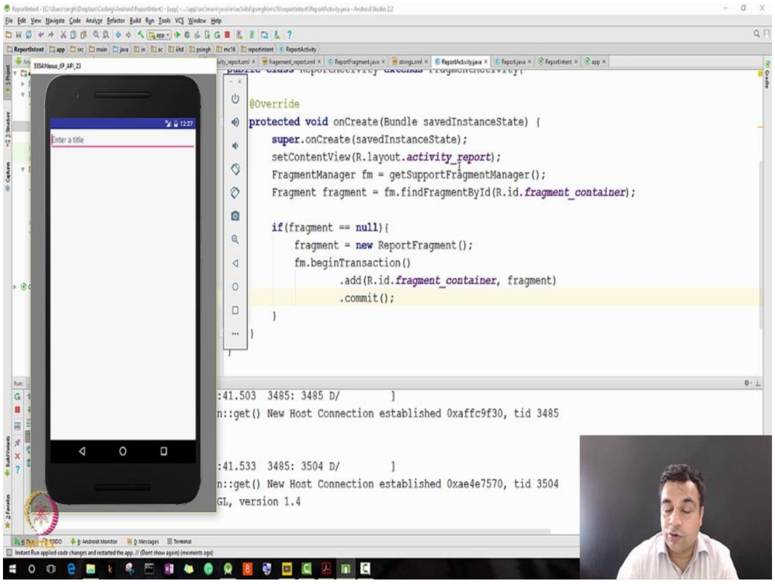
```
    protected void onCreate
        super.onCreate(save
        setContentView(R.la
        FragmentManager fm
        Fragment fragment =                                  tainer);

        if(fragment == null
            fragment = new
            fm.beginTransac
                    .add(R.
                    .commit
        }
    }
}
```

```
[ 09-24 12:26:41.503  3485: 3485 D/
HostConnection::get() New Host Connection

[ 09-24 12:26:41.533  3485: 3504 D/
HostConnection::get() New Host Connection established 0xae4e7570, tid 3504
I/OpenGLRenderer: Initialized EGL, version 1.4
```

Enter a title
Instant Run applied code changes and restarted the app.
Instant Run applied code changes and restarted the app. // (Don't show again) (moments ago)

So, let us check, okay so this time we have got our EditText method here, because what happened in the program is that let us go back, let us see the ReportActivity, so ReportActivity lets you what is happening let us see our report program together.

(Refer Slide Time: 34:40)



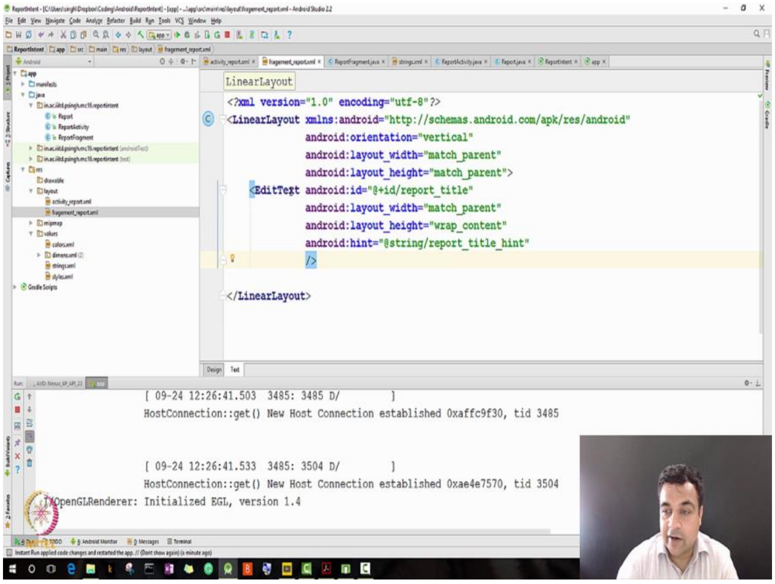
```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_report);
    FragmentManager fm = getSupportFragmentManager();
    Fragment fragment = fm.findFragmentById(R.id.fragment_container);

    if(fragment == null){
        fragment = new ReportFragment();
        fm.beginTransaction()
                .add(R.id.fragment_container, fragment)
                .commit();
    }
}
```

```
:41.503  3485: 3485 D/         ]
n::get() New Host Connection established 0xaffc9f30, tid 3485

:41.533  3485: 3504 D/         ]
n::get() New Host Connection established 0xae4e7570, tid 3504
GL, version 1.4
```

So you see that report.activity first sets the layout to the activity_report and activity_report has a very small layout like this, this is what we were saying earlier. After that, what we do is we start a fragment manager and we add a fragment to it, and that particular fragment is using the layout of fragment report, how is it using the layout of the fragment report? Because we have created the fragment using the new ReportFragment and if we go into the new

ReportFragment then in the onCreateView of newReportFragment we have given the layout of fragment_report.

(Refer Slide Time: 35:26)



```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
              android:orientation="vertical"
              android:layout_width="match_parent"
              android:layout_height="match_parent">
    <EditText android:id="@+id/report_title"
              android:layout_width="match_parent"
              android:layout_height="wrap_content"
              android:hint="@string/report_title_hint"
              />

</LinearLayout>
```

```
[ 09-24 12:26:41.503  3485: 3485 D/         ]
HostConnection::get() New Host Connection established 0xaffc9f30, tid 3485


[ 09-24 12:26:41.533  3485: 3504 D/         ]
HostConnection::get() New Host Connection established 0xae4e7570, tid 3504
/OpenGLRenderer: Initialized EGL, version 1.4
```

And this is our fragment_report xml which has an EditText, so if I comeback, so basically in my activity class I have added a fragment which is using the fragment layout and that is the layout that I see here.

So that is makes a very basic, but complete program from the scratch of using a fragment through the codes, so this is the code that is bringing that fragment in and the xml we only define the container. So now let us discuss some other things related to the fragment specially why do we use support library and not the android (())(36:05)? So the major user reason of using support library fragments are that simply that you can upgrade the version of the support library in your application and ship a new version of your app at any time, so you need not to depend for the OS update.

and also that the new release of the support library come out multiple times a year, so it is also the more updated version of Android. Another reason which we told earlier that support library also supports even the older devices then another version of the Android. So these are some major reasons why we use support library fragments, and whenever you use fragments please make sure that you use these support library fragments because this is also recommended by Google and android developers. Thank you, this is good lecture containing everything that you need to create a fragment. We will continue in the next lecture building on the same program but adding some more functionalities Thank you.