Mobile Computing

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Activity Logging

Lecture 16

Hello, last two classes we learned about activity life cycles and the call back methods that I called by the android system. When activity goes through different phases of its life cycle. In today's lecture we will see how to do logging. Logging has many uses. Number one that you can use it for debugging that is primary use of logging. Number two that you can use the logging to learn more about your program execution.

Today I will show you what is the logging facilities available in android and specifically I will show you how to use the logging techniques to know more about our activity life cycle that we studied in last two lectures. You may have already done some logging in your career.

For example, if you are a C programmer often we just type a print f statement and see whether our program reaches the point or not. This is a well need approach however this is not a recommended approach. Now the new programming languages such as JAVA provide some very good logging mechanisms.

Because when you use a print f statement, at the time of the delivery you will have to remove those statements. Similarly you do not know how to view those statements in a nice or cleaner way. While with logging mechanisms you can set the different log levels, you can remove the logs when you deploy, you can reinstate the logs when you are testing (())(2:17) and this functionality is very very important when you are debugging your application.

So today we will start looking at what logging we can do in android applications and as the course progresses we will advance our debugging techniques using logging and several other techniques. So let's start.

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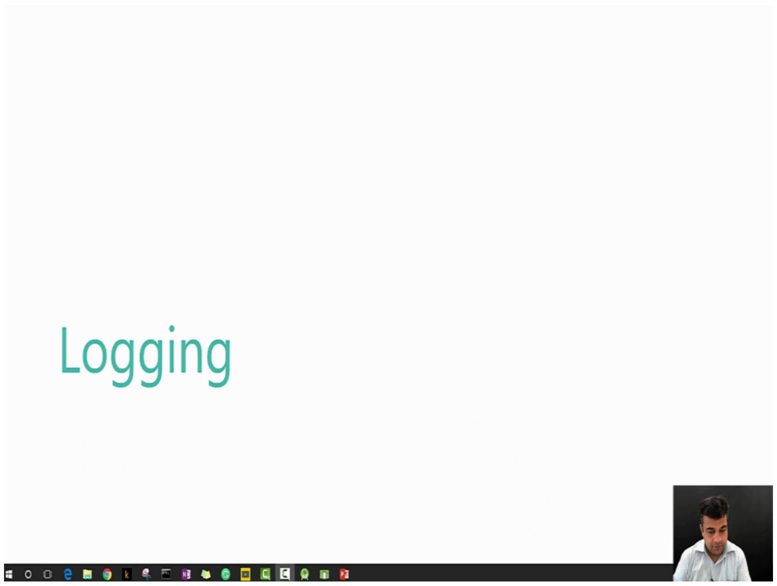
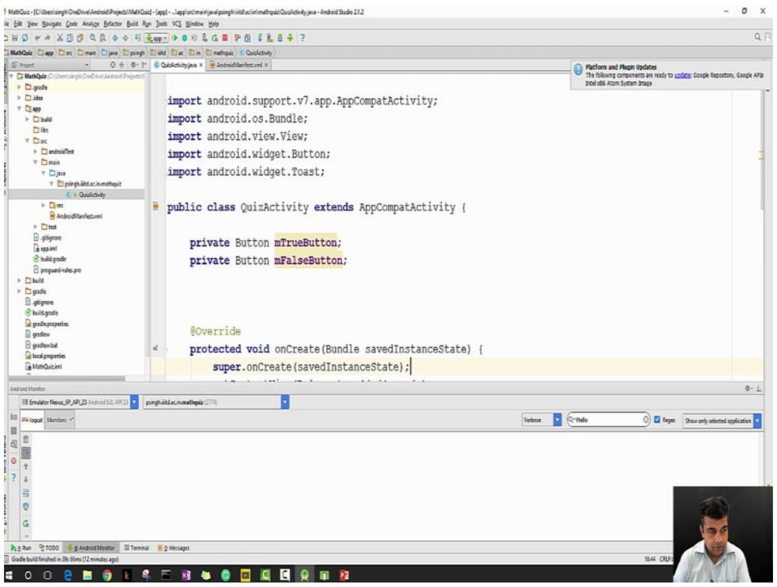


Logging



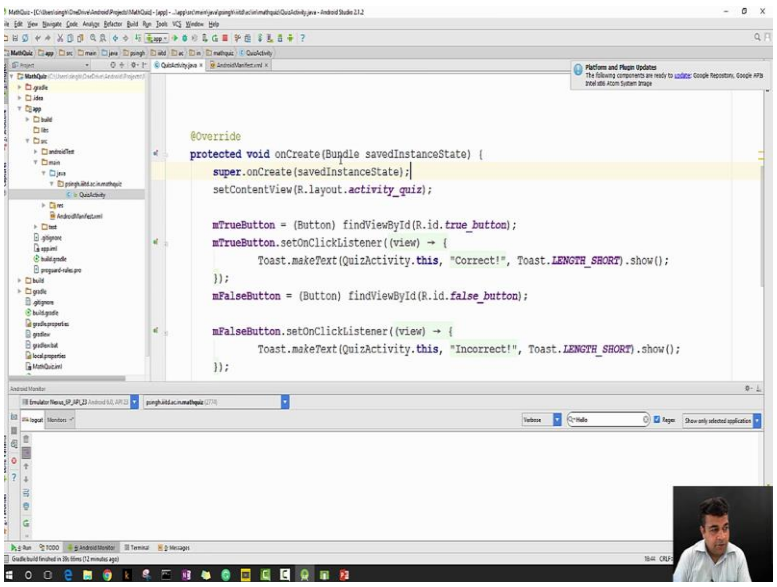
```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;



    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```



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

        mTrueButton = (Button) findViewById(R.id.true_button);
        mTrueButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Correct!", Toast.LENGTH_SHORT).show();
        });
        mFalseButton = (Button) findViewById(R.id.false_button);

        mFalseButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
        });
```

I will be using our simplified application. Now in order to do logging, we need to first see what android provides us. In order to start our logging you will have to first see what facilities are available in android. So in android we have something called android.util.logclass.

That sends log messages to a shared system given log. This log class has several methods for logging messages. However, we will use one simple method which has a signature of oblique static int D string tag as parameter and string messages parameter. The D here stands for debug and refers to the level of logs. There is not more to learn about log levels. But we will slowly learn it later. As first start program.

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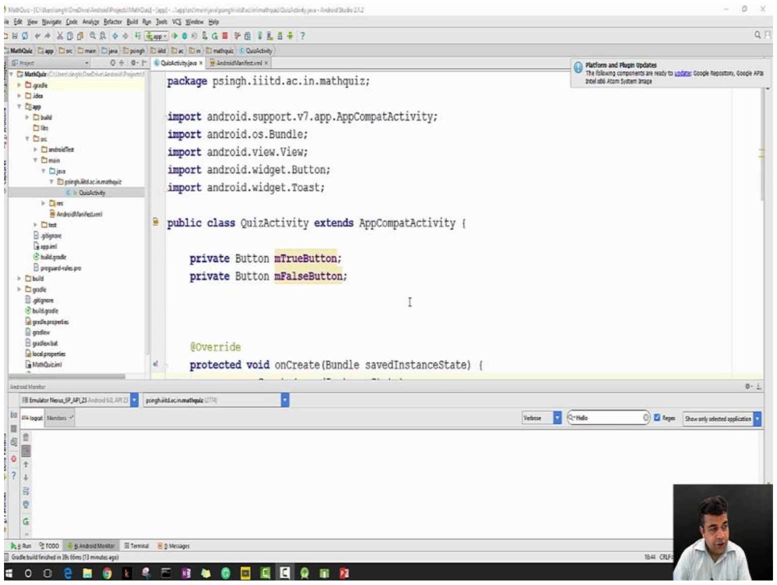


```
package psingh.iiitd.ac.in.mathquiz;

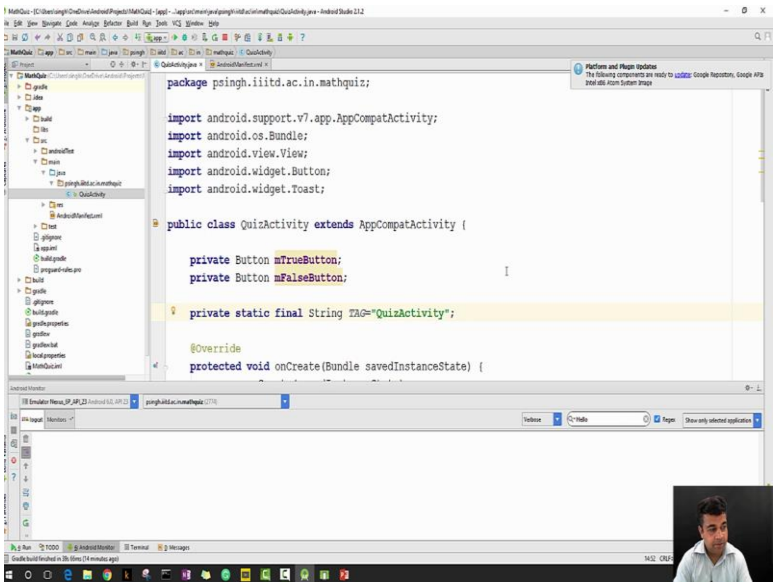
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;



    @Override
    protected void onCreate(Bundle savedInstanceState) {
```



```
package psingh.iiitd.ac.in.mathquiz;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

In order to first use the log facilities we need to define a tag constant. A tag constant is nothing but just a string constant that will identify your class. For example I will just add a tag constant here by writing private, static, final, string, tag now I will give it a value just nothing but same as the name of my class quiz activity that is it. I have defined the tag for my class so that all the (leg mess) so that all the log messages from this class are tagged by this name.

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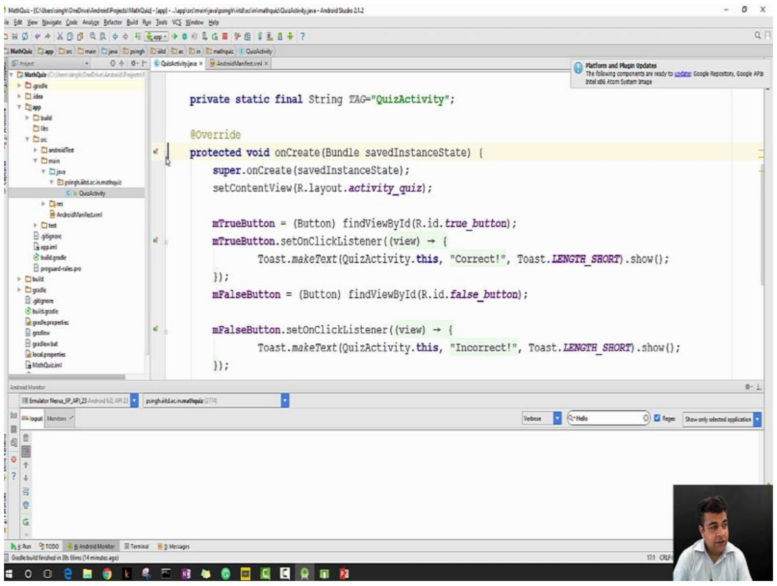
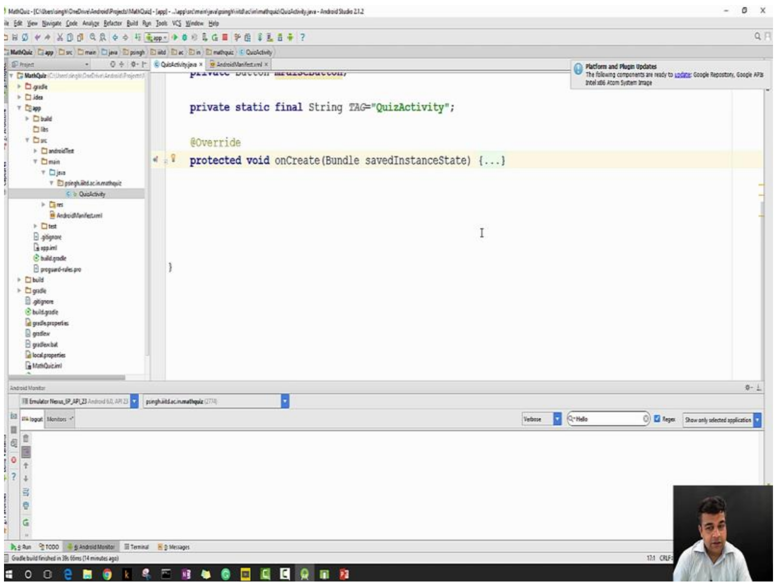


```
private static final String TAG="QuizActivity";

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

    mTrueButton = (Button) findViewById(R.id.true_button);
    mTrueButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Correct!", Toast.LENGTH_SHORT).show();
    });
    mFalseButton = (Button) findViewById(R.id.false_button);

    mFalseButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
    });
```



```
private static final String TAG="QuizActivity";

@Override
protected void onCreate(Bundle savedInstanceState) {...}


}
```

Now, in this program we are currently only see the on create method. That’s the only method that is being called. However as we just discussed there are many other methods are also being called such as, on start, on restart, on pause etc. But we are not seeing them here. Because we are not over written. So let us overwrite some of these methods and then start adding log messages to see when those methods are called.

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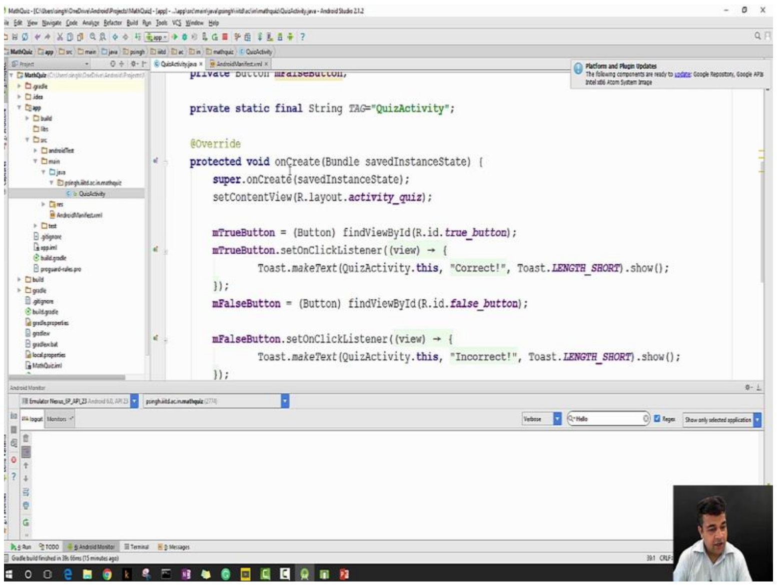

```
private Button mFalseButton;

private static final String TAG="QuizActivity";

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

    mTrueButton = (Button) findViewById(R.id.true_button);
    mTrueButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Correct!", Toast.LENGTH_SHORT).show();
    });
    mFalseButton = (Button) findViewById(R.id.false_button);

    mFalseButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
    });
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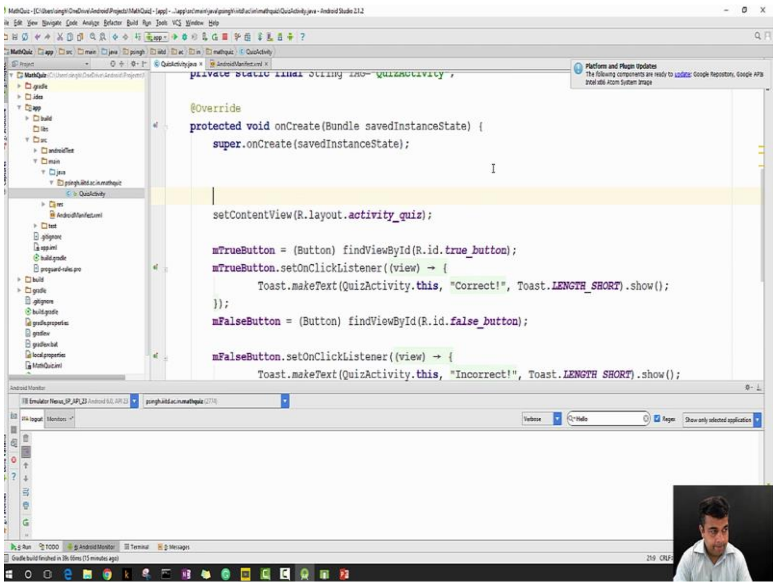

```
private static final String TAG="QuizActivity";

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);



    setContentView(R.layout.activity_quiz);

    mTrueButton = (Button) findViewById(R.id.true_button);
    mTrueButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Correct!", Toast.LENGTH_SHORT).show();
    });
    mFalseButton = (Button) findViewById(R.id.false_button);

    mFalseButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
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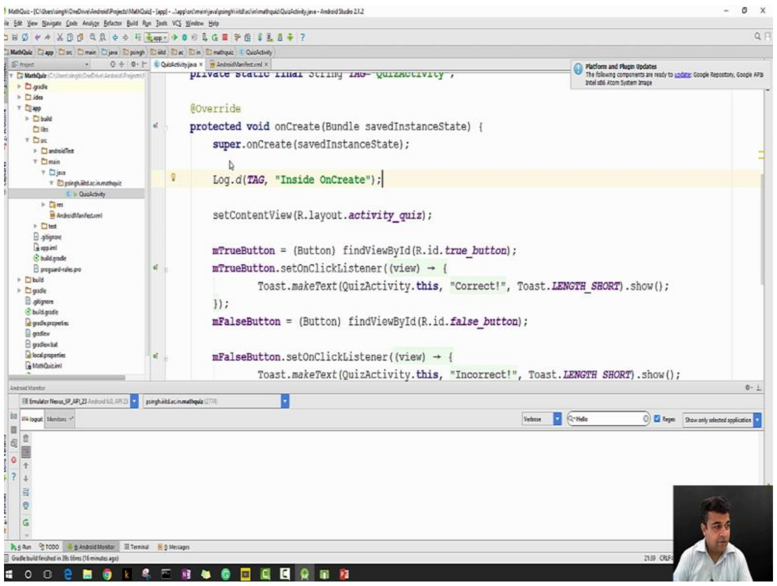

```
    private static final String TAG="QuizActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        Log.d(TAG, "Inside OnCreate");

        setContentView(R.layout.activity_quiz);

        mTrueButton = (Button) findViewById(R.id.true_button);
        mTrueButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Correct!", Toast.LENGTH_SHORT).show();
        });
        mFalseButton = (Button) findViewById(R.id.false_button);

        mFalseButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
```

So first let us add a log message into the on create itself. I will just tag it. The very beginning. The syntax to add a log messages log.d or dbug the first string tag and then any message that you want to display. I will say inside on create and that's it. The studio displays an error because I have not yet imported android.util.lan android.util.log if I press alt and enter it will import it by itself.

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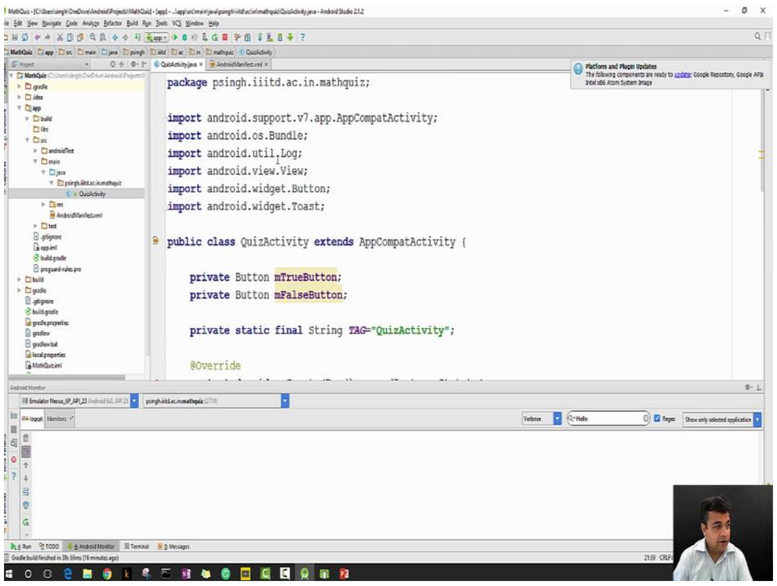


```
package psingh.iiitd.ac.in.mathquiz;

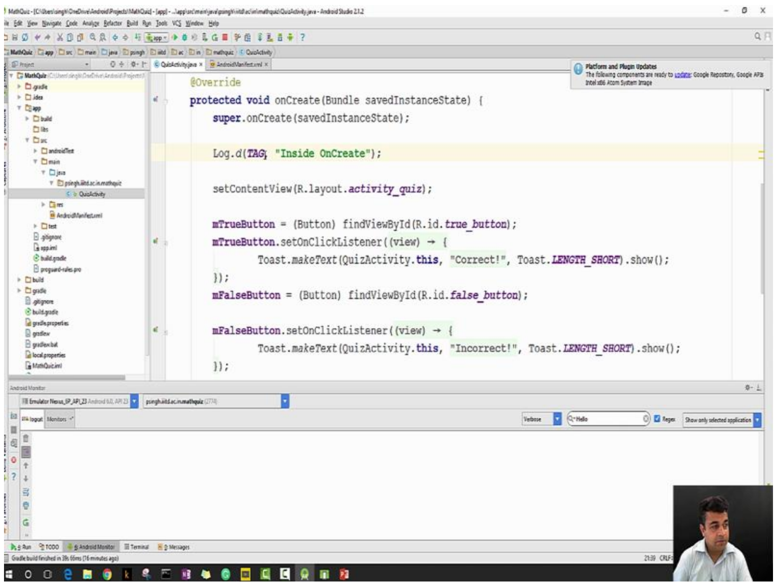
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity";

    @Override
```



```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);

    Log.d(TAG, "Inside OnCreate");

    setContentView(R.layout.activity_quiz);

    mTrueButton = (Button) findViewById(R.id.true_button);
    mTrueButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Correct!", Toast.LENGTH_SHORT).show();
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    mFalseButton = (Button) findViewById(R.id.false_button);

    mFalseButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
    });
```

Let’s go and check and you can see that android.util.log has been imported and my error is gone. Now let us just first run this program and see the effects of this message. In android studio you will see a window called log cat. This is the window where all the log messages are. Okay now we are running the application.

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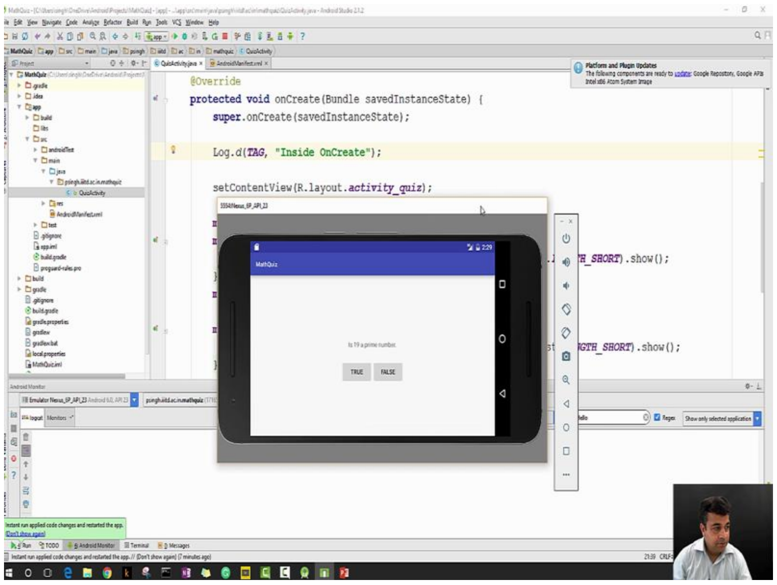

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);

    Log.d(TAG, "Inside OnCreate");

    setContentView(R.layout.activity_quiz);
```

Let’s see, And me give it some rotation.

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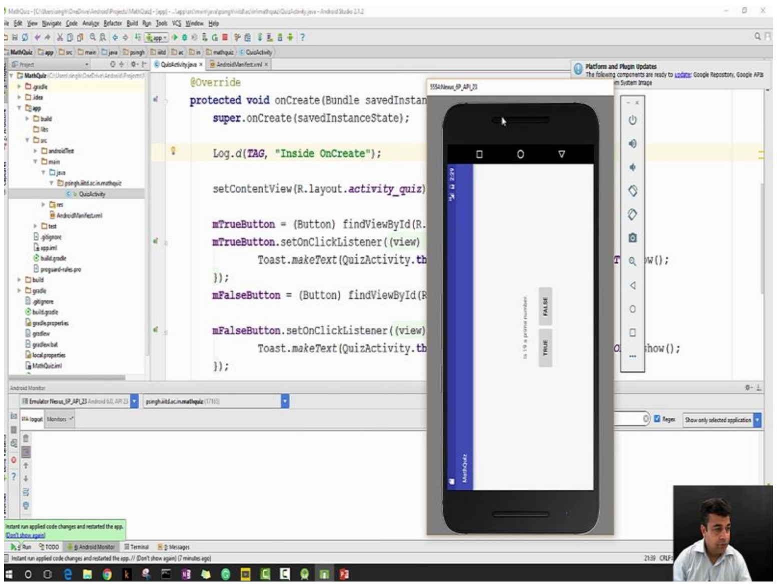

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@Override
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    Log.d(TAG, "Inside OnCreate");

    setContentView(R.layout.activity_quiz)

    mTrueButton = (Button) findViewById(R.
    mTrueButton.setOnClickListener((view)
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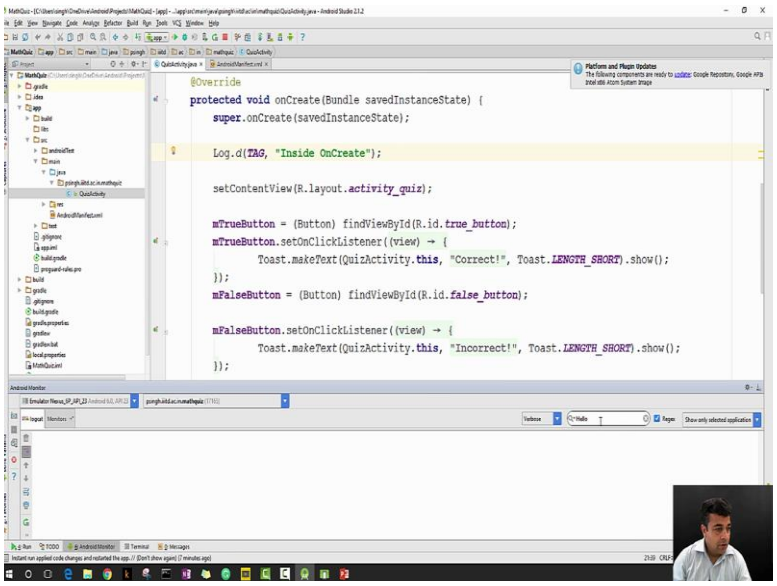
            Toast.makeText(QuizActivity.th                          show();
    });
```



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    super.onCreate(savedInstanceState);

    Log.d(TAG, "Inside OnCreate");

    setContentView(R.layout.activity_quiz);

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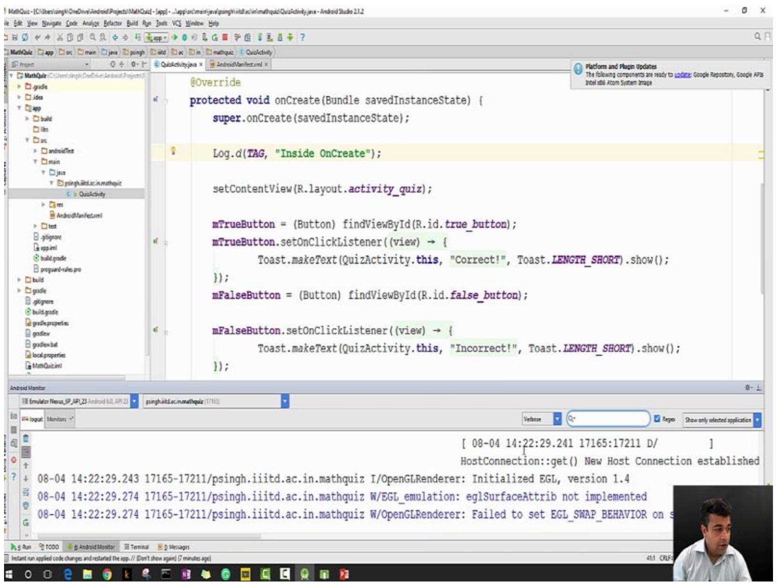

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    mFalseButton = (Button) findViewById(R.id.false_button);

    mFalseButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
    });
```

```
                                          [ 08-04 14:22:29.241 17165:17211 D/         ]
                                          HostConnection::get() New Host Connection established
08-04 14:22:29.243 17165-17211/psingh.iiitd.ac.in.mathquiz I/OpenGLRenderer: Initialized EGL, version 1.4
08-04 14:22:29.274 17165-17211/psingh.iiitd.ac.in.mathquiz W/EGL_emulation: eglSurfaceAttrib not implemented
08-04 14:22:29.274 17165-17211/psingh.iiitd.ac.in.mathquiz W/OpenGLRenderer: Failed to set EGL_SWAP_BEHAVIOR on s
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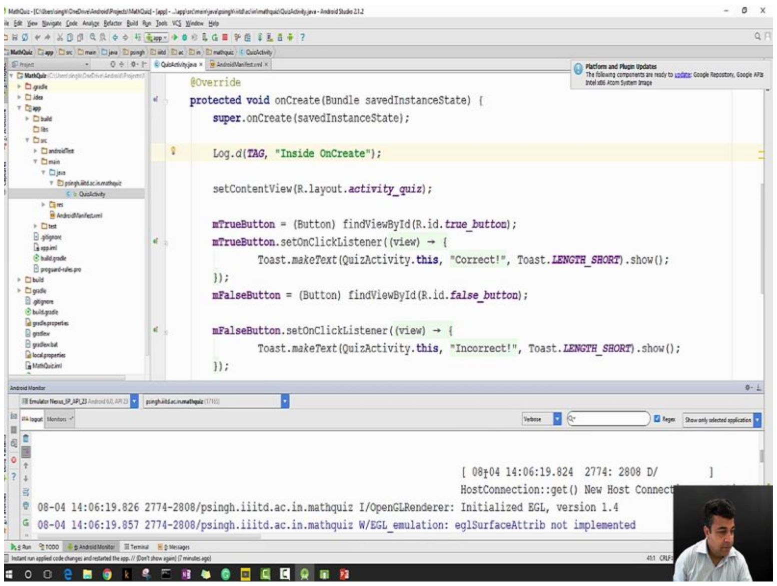

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    mFalseButton.setOnClickListener((view) → {
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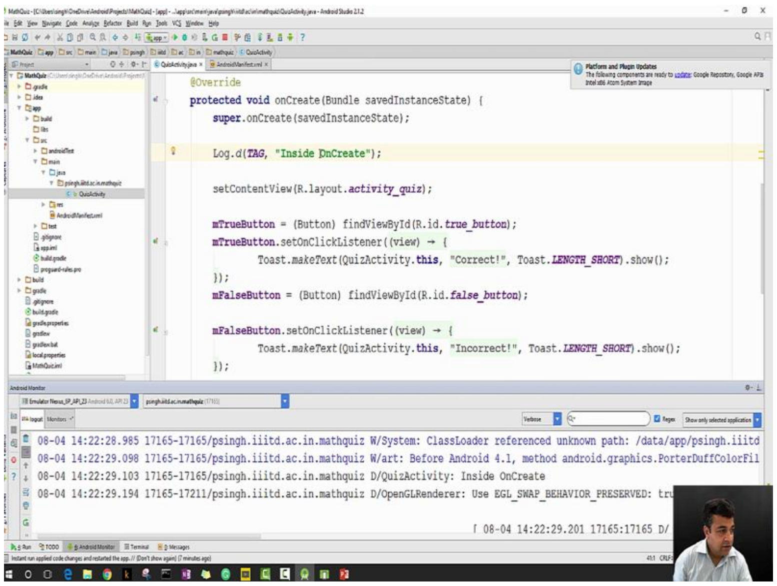
    });
```

```
                                        [ 08-04 14:06:19.824  2774: 2808 D/         ]
                                        HostConnection::get() New Host Connect
08-04 14:06:19.826 2774-2808/psingh.iiitd.ac.in.mathquiz I/OpenGLRenderer: Initialized EGL, version 1.4
08-04 14:06:19.857 2774-2808/psingh.iiitd.ac.in.mathquiz W/EGL_emulation: eglSurfaceAttrib not implemented
```



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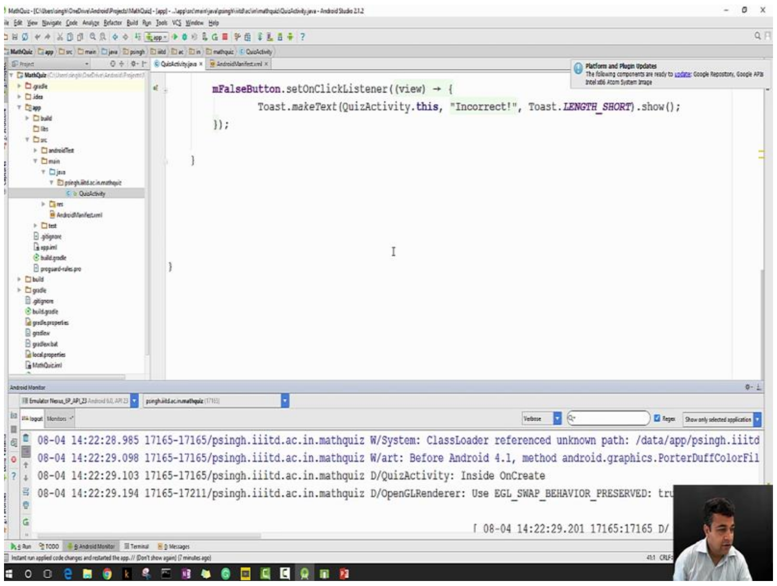
    mFalseButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
    });
```

```
08-04 14:22:28.985 17165-17165/psingh.iiitd.ac.in.mathquiz W/System: ClassLoader referenced unknown path: /data/app/psingh.iiitd
08-04 14:22:29.098 17165-17165/psingh.iiitd.ac.in.mathquiz W/art: Before Android 4.1, method android.graphics.PorterDuffColorFil
08-04 14:22:29.103 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:22:29.194 17165-17211/psingh.iiitd.ac.in.mathquiz D/OpenGLRenderer: Use EGL_SWAP_BEHAVIOR_PRESERVED: tru

                                          [ 08-04 14:22:29.201 17165:17165 D/
```



```java
    mFalseButton.setOnClickListener((view) → {
            Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
    });

  }

}
```

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08-04 14:22:29.098 17165-17165/psingh.iiitd.ac.in.mathquiz W/art: Before Android 4.1, method android.graphics.PorterDuffColorFil
08-04 14:22:29.103 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:22:29.194 17165-17211/psingh.iiitd.ac.in.mathquiz D/OpenGLRenderer: Use EGL_SWAP_BEHAVIOR_PRESERVED: tru

                                          [ 08-04 14:22:29.201 17165:17165 D/
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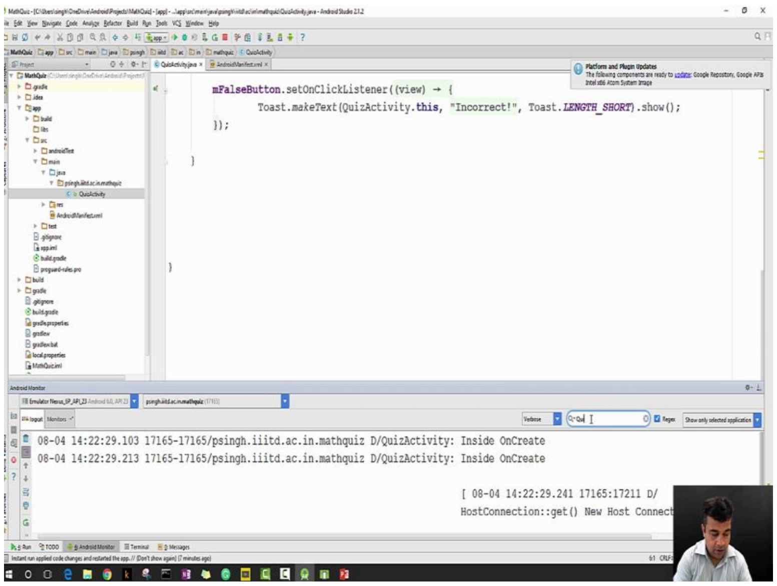


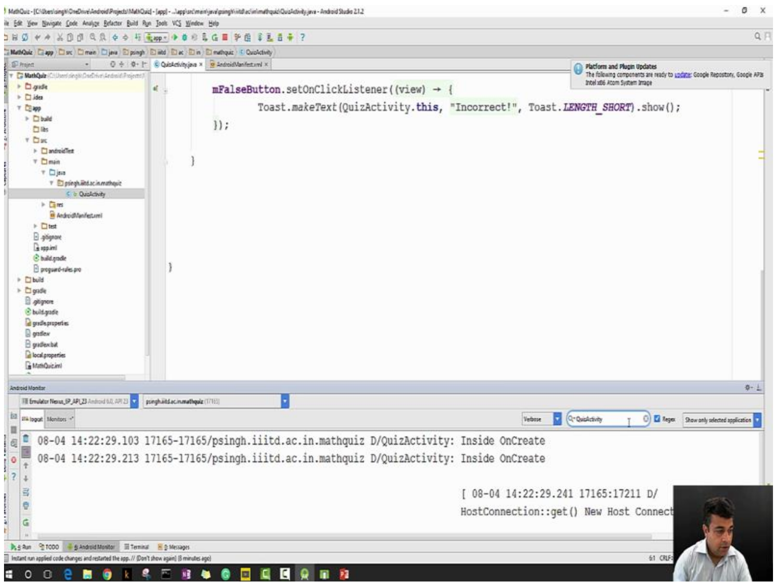
```
mFalseButton.setOnClickListener((view) → {
        Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
});

    }

}
```

```
08-04 14:22:29.103 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:22:29.213 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate

                                                          [ 08-04 14:22:29.241 17165:17211 D/
                                                          HostConnection::get() New Host Connect
```



```
mFalseButton.setOnClickListener((view) → {
        Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
});

    }

}
```

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08-04 14:22:29.103 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:22:29.213 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate

                                                          [ 08-04 14:22:29.241 17165:17211 D/
                                                          HostConnection::get() New Host Connect
```

Uhhh so this is my log cat window. There are lots of messages here. I want to filter the messages which is start with let’s say our tag quiz activity. I will type quiz activity and as you can see uhhh sorry I made a spelling mistake. As you can see it has already been called twice.

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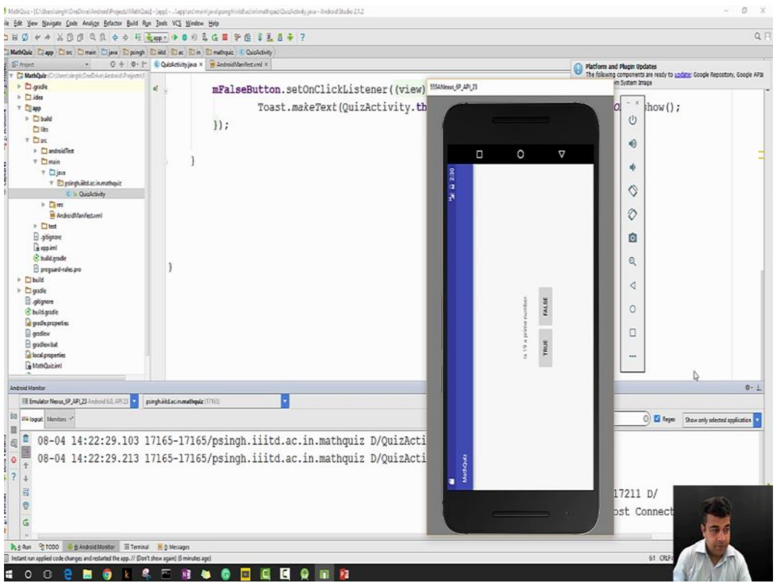

```
mFalseButton.setOnClickListener((view)
    Toast.makeText(QuizActivity.th                    show();
});

    }

}
```

```
08-04 14:22:29.103 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActi
08-04 14:22:29.213 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActi
                                                                        17211 D/
                                                                        ost Connect
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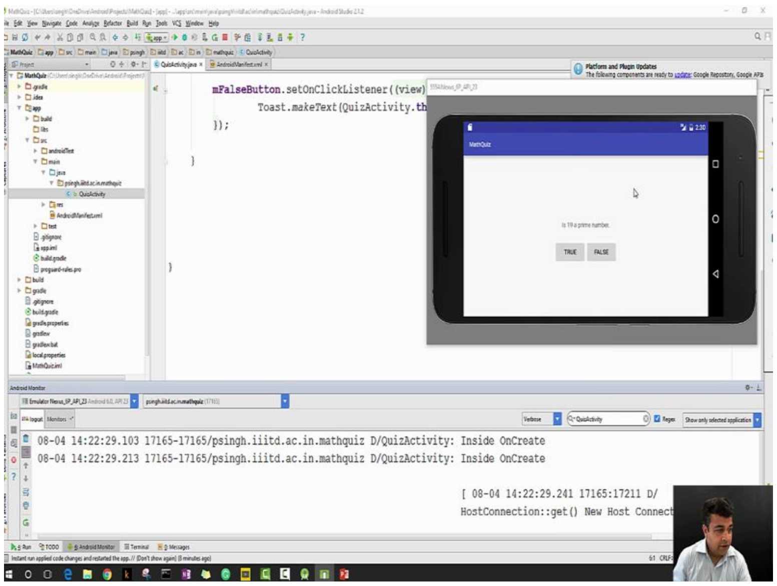

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    }

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08-04 14:22:29.213 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate

                                                        [ 08-04 14:22:29.241 17165:17211 D/
                                                        HostConnection::get() New Host Connect
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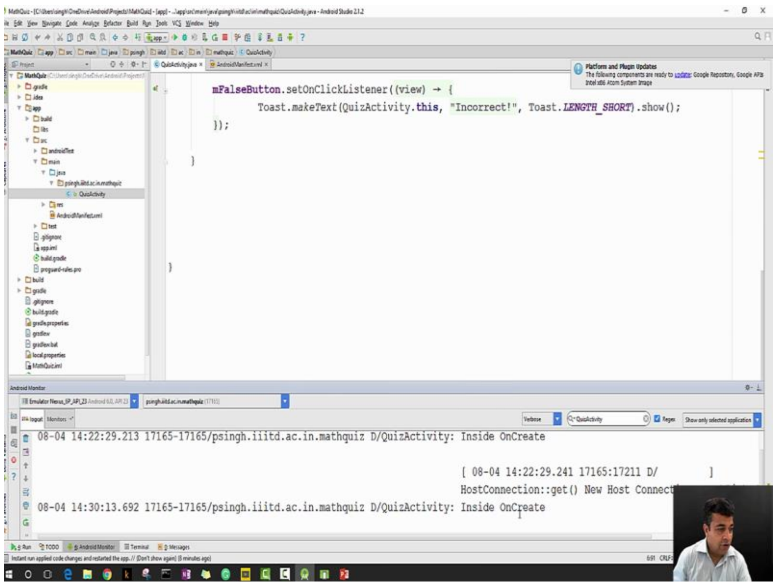

```
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    Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
});

    }

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08-04 14:22:29.213 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate

                                                        [ 08-04 14:22:29.241 17165:17211 D/          ]
                                                        HostConnection::get() New Host Connect
08-04 14:30:13.692 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
```
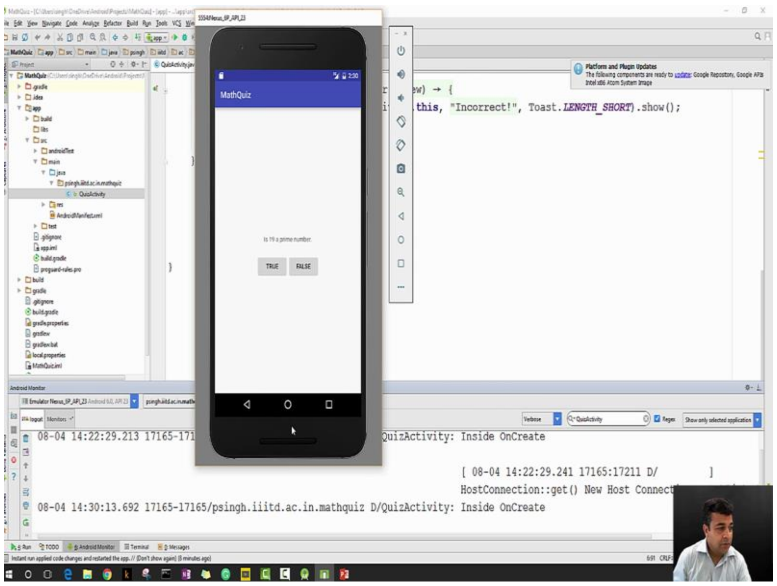
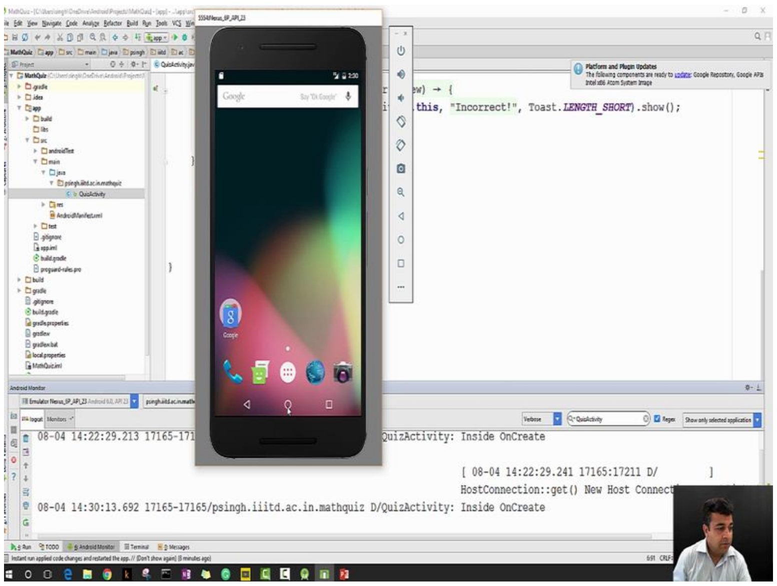



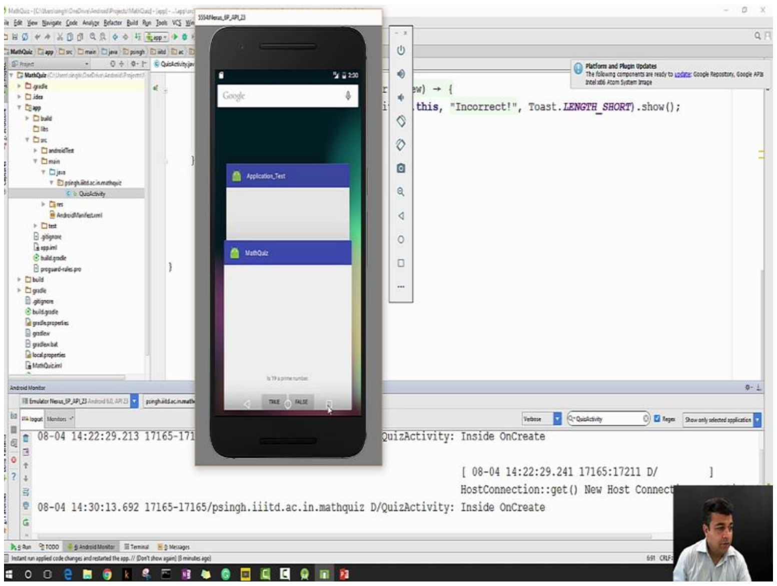
```
ew) → {
i  this, "Incorrect!", Toast.LENGTH_SHORT).show();
```

```
08-04 14:22:29.213 17165-171        QuizActivity: Inside OnCreate

                                        [ 08-04 14:22:29.241 17165:17211 D/         ]
                                        HostConnection::get() New Host Connect
08-04 14:30:13.692 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
```



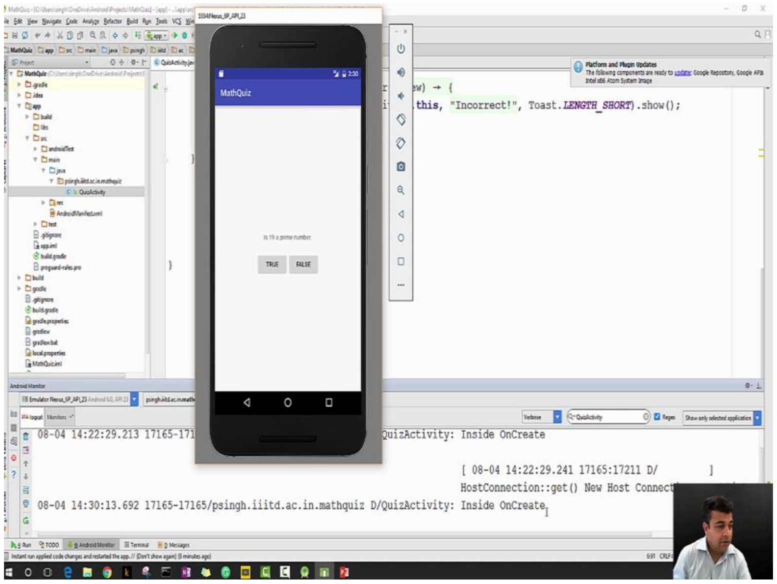
```
ew) → {
i  this, "Incorrect!", Toast.LENGTH_SHORT).show();
```

```
08-04 14:22:29.213 17165-171        QuizActivity: Inside OnCreate

                                        [ 08-04 14:22:29.241 17165:17211 D/         ]
                                        HostConnection::get() New Host Connect
08-04 14:30:13.692 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
```



```
ew) → {
i  this, "Incorrect!", Toast.LENGTH_SHORT).show();
```

```
08-04 14:22:29.213 17165-171        QuizActivity: Inside OnCreate

                                        [ 08-04 14:22:29.241 17165:17211 D/         ]
                                        HostConnection::get() New Host Connect
08-04 14:30:13.692 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
```

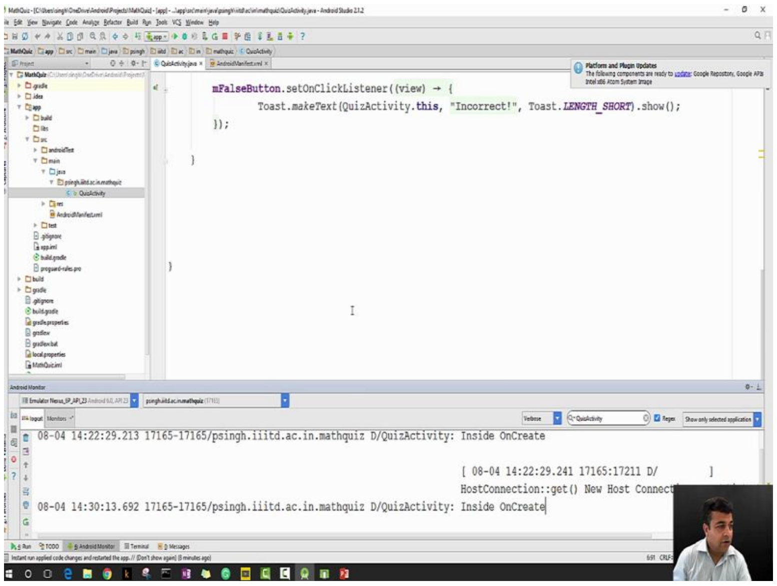


```
                                 ew) → {
                                 this, "Incorrect!", Toast.LENGTH_SHORT).show();
```

```
08-04 14:22:29.213 17165-171                              QuizActivity: Inside OnCreate
                                                          [ 08-04 14:22:29.241 17165:17211 D/         ]
                                                          HostConnection::get() New Host Connect
08-04 14:30:13.692 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
```

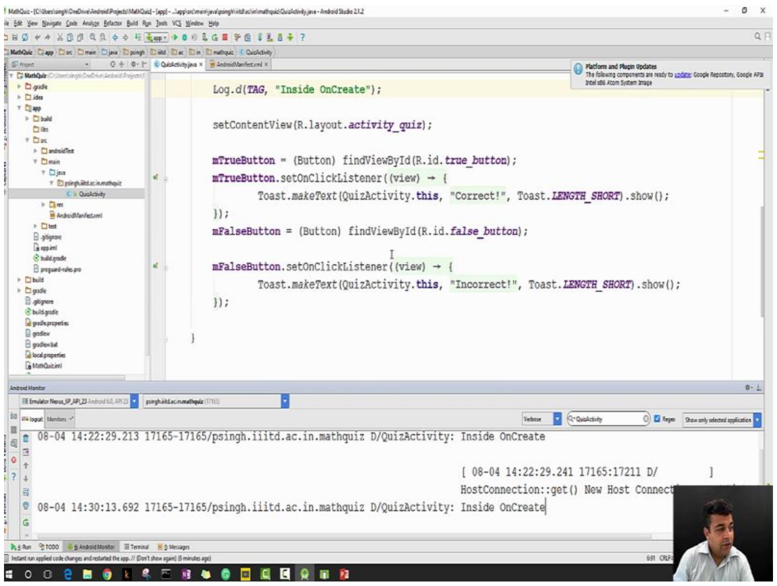
Let's try to rotate and see what happens. uhhh okay yes it got called again. So now I know what is happening. When I am interacting with my application. Let's say press the home button then I go to active applications. Then I come back again.

(Refer Slide Time: 8:12)



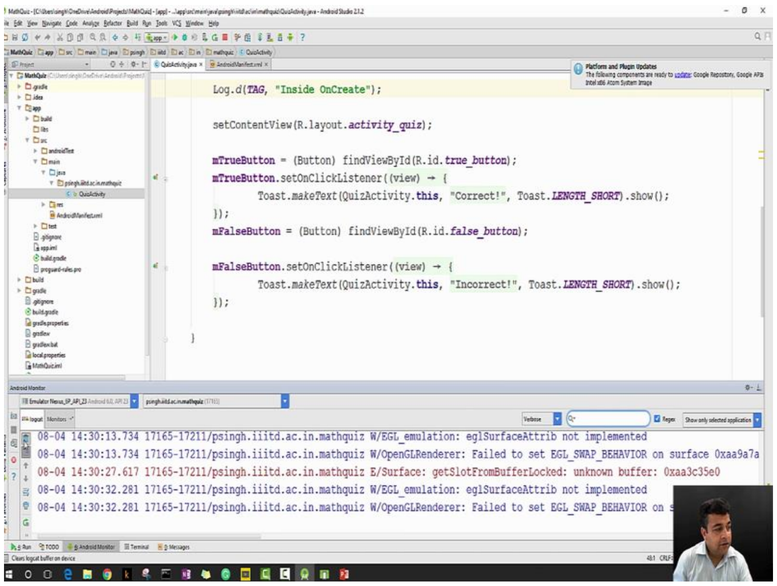
```
        mFalseButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
        });

    }

}
```

```
08-04 14:22:29.213 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
                                                          [ 08-04 14:22:29.241 17165:17211 D/         ]
                                                          HostConnection::get() New Host Connect
08-04 14:30:13.692 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
```



```
        Log.d(TAG, "Inside OnCreate");

        setContentView(R.layout.activity_quiz);

        mTrueButton = (Button) findViewById(R.id.true_button);
        mTrueButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Correct!", Toast.LENGTH_SHORT).show();
        });
        mFalseButton = (Button) findViewById(R.id.false_button);

        mFalseButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
        });

    }
```

```
08-04 14:22:29.213 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate

                                                                           [ 08-04 14:22:29.241 17165:17211 D/         ]
                                                                           HostConnection::get() New Host Connect
08-04 14:30:13.692 17165-17165/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
```

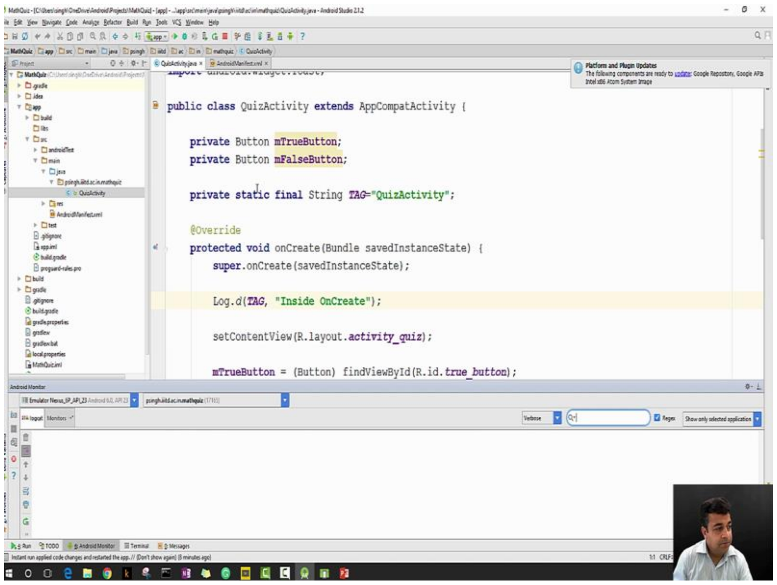


```
        Log.d(TAG, "Inside OnCreate");

        setContentView(R.layout.activity_quiz);

        mTrueButton = (Button) findViewById(R.id.true_button);
        mTrueButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Correct!", Toast.LENGTH_SHORT).show();
        });
        mFalseButton = (Button) findViewById(R.id.false_button);

        mFalseButton.setOnClickListener((view) → {
                Toast.makeText(QuizActivity.this, "Incorrect!", Toast.LENGTH_SHORT).show();
        });

    }
```

```
08-04 14:30:13.734 17165-17211/psingh.iiitd.ac.in.mathquiz W/EGL_emulation: eglSurfaceAttrib not implemented
08-04 14:30:13.734 17165-17211/psingh.iiitd.ac.in.mathquiz W/OpenGLRenderer: Failed to set EGL_SWAP_BEHAVIOR on surface 0xaa9a7a
08-04 14:30:27.617 17165-17211/psingh.iiitd.ac.in.mathquiz E/Surface: getSlotFromBufferLocked: unknown buffer: 0xaa3c35e0
08-04 14:30:32.281 17165-17211/psingh.iiitd.ac.in.mathquiz W/EGL_emulation: eglSurfaceAttrib not implemented
08-04 14:30:32.281 17165-17211/psingh.iiitd.ac.in.mathquiz W/OpenGLRenderer: Failed to set EGL_SWAP_BEHAVIOR on s
```

I think I can see another on Create call. So that's how you can see the log messages. In your logcat window by setting a filter. If you don't set a filter then everything comes up and here is a small button which clears your current window.

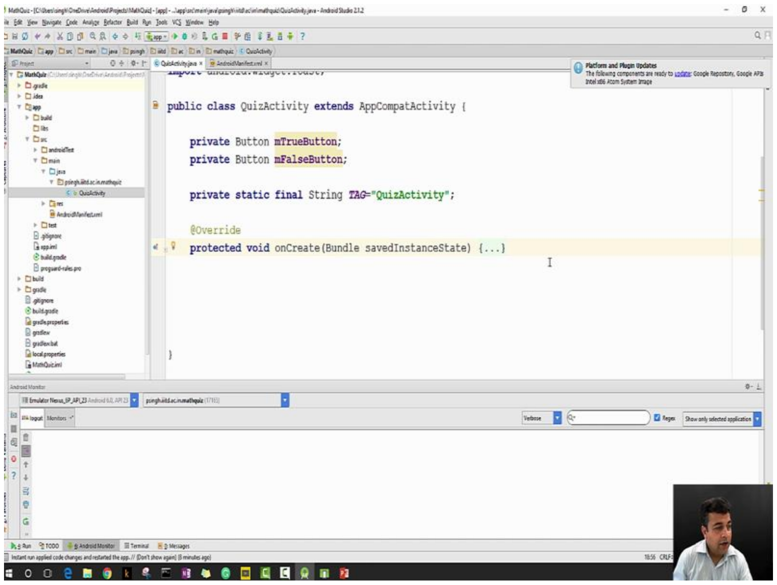
(Refer Slide Time: 8:29)



Platform and Plugin Updates
The following components are ready to update: Google Repository, Google APIs Intel x86 Atom System Image

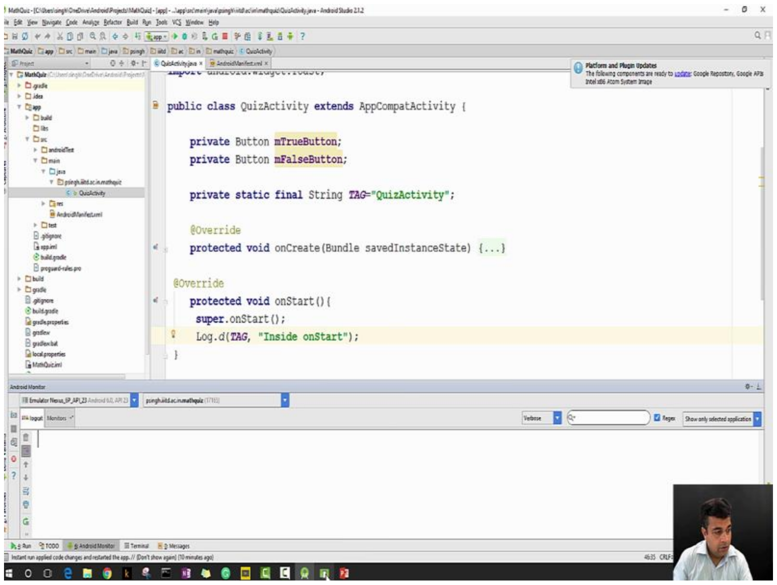
```
public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        Log.d(TAG, "Inside OnCreate");

        setContentView(R.layout.activity_quiz);

        mTrueButton = (Button) findViewById(R.id.true_button);
```

Instant run applied code changes and restarted the app.// (Don't show again) (8 minutes ago)



Platform and Plugin Updates
The following components are ready to update: Google Repository, Google APIs Intel x86 Atom System Image

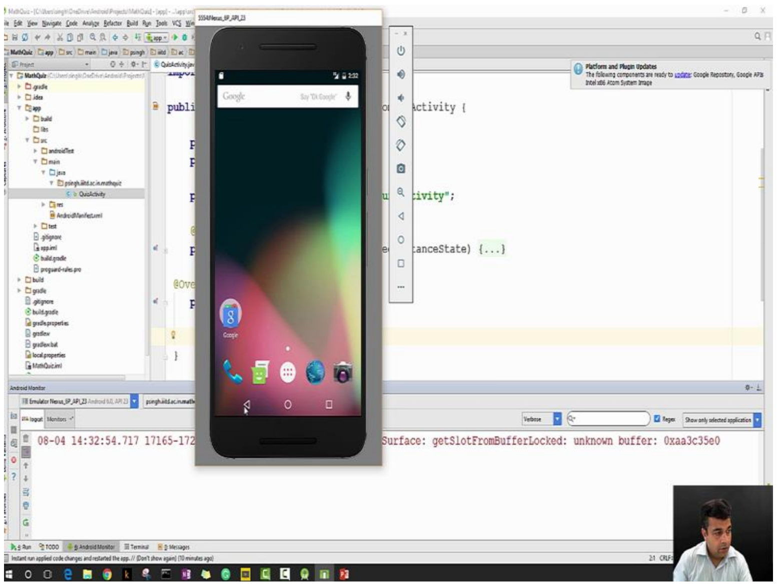
```
public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState) {...}





}
```



Platform and Plugin Updates
The following components are ready to update: Google Repository, Google APIs Intel x86 Atom System Image

```
public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState) {...}

  @Override
    protected void onStart(){
     super.onStart();
     Log.d(TAG, "Inside onStart");
  }
```

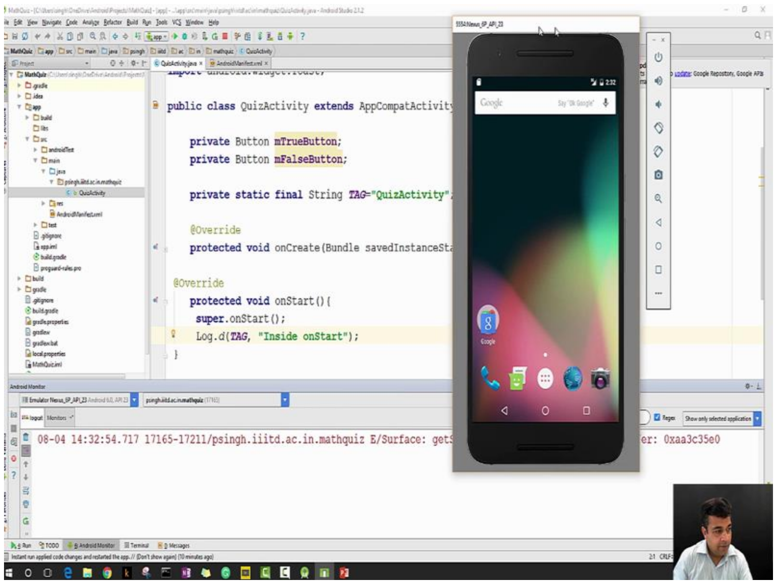
Instant run applied code changes and restarted the app.// (Don't show again) (10 minutes ago)



```
08-04 14:32:54.717 17165-172
Surface: getSlotFromBufferLocked: unknown buffer: 0xaa3c35e0
```

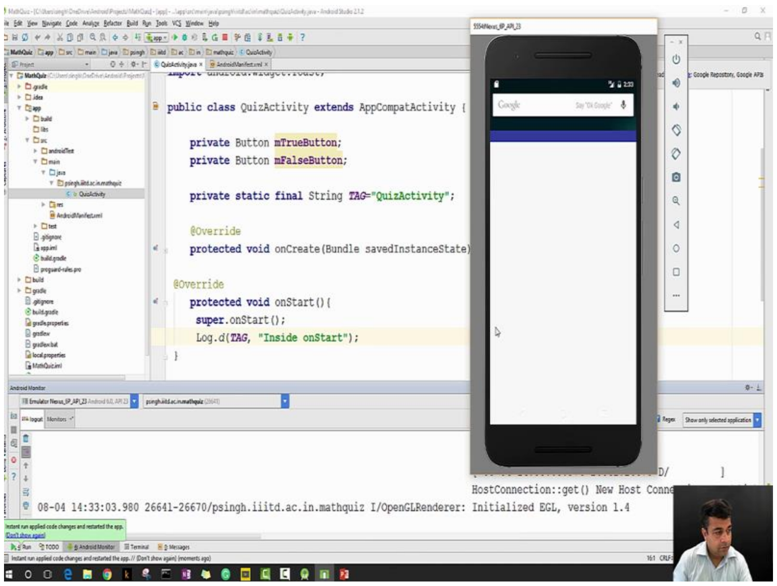
Fine. So this is what we did in the on Create method. Now let's move on and try to overwrite all the other methods which are related to the lifecycle of an activity. We will start with on Start at override protected void on Start. Uhhh. Let me call the super method. Whenever you override, your first line should be the call to super method. My error is gone now I can add my log.

(Refer Slide Time: 10:33)



```
public class QuizActivity extends AppCompatActivity

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity"

    @Override
    protected void onCreate(Bundle savedInstanceSta

  @Override
    protected void onStart(){
     super.onStart();
     Log.d(TAG, "Inside onStart");
  }
```

```
08-04 14:32:54.717 17165-17211/psingh.iiitd.ac.in.mathquiz E/Surface: get
er: 0xaa3c35e0
```

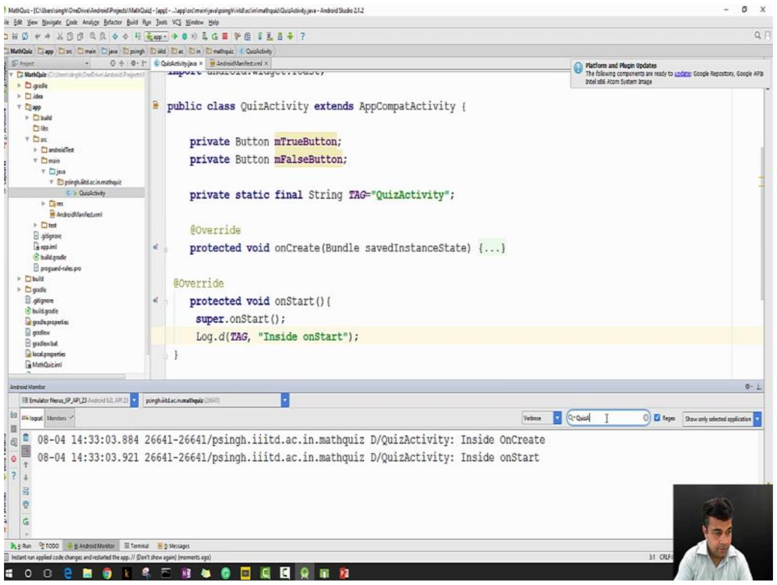


MathQuiz - [C:\Users\singh\OneDrive\Android\Projects\MathQuiz] - [app] - ...\app\src\main\java\psingh\iiitd\ac\in\mathquiz\QuizActivity.java - Android Studio 2.1.2

```java
public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState)

  @Override
    protected void onStart(){
     super.onStart();
     Log.d(TAG, "Inside onStart");
  }
```

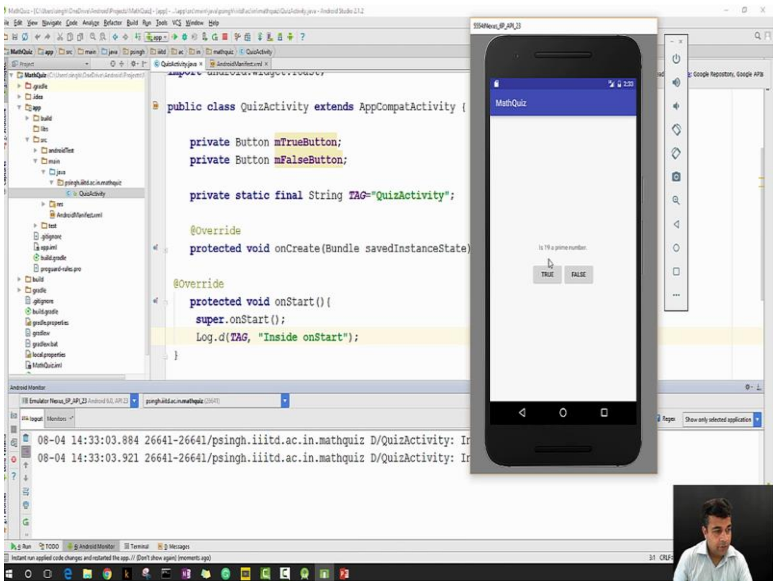
```
HostConnection::get() New Host Conne
08-04 14:33:03.980 26641-26670/psingh.iiitd.ac.in.mathquiz I/OpenGLRenderer: Initialized EGL, version 1.4
```

Instant run applied code changes and restarted the app. // (Don't show again) (moments ago)



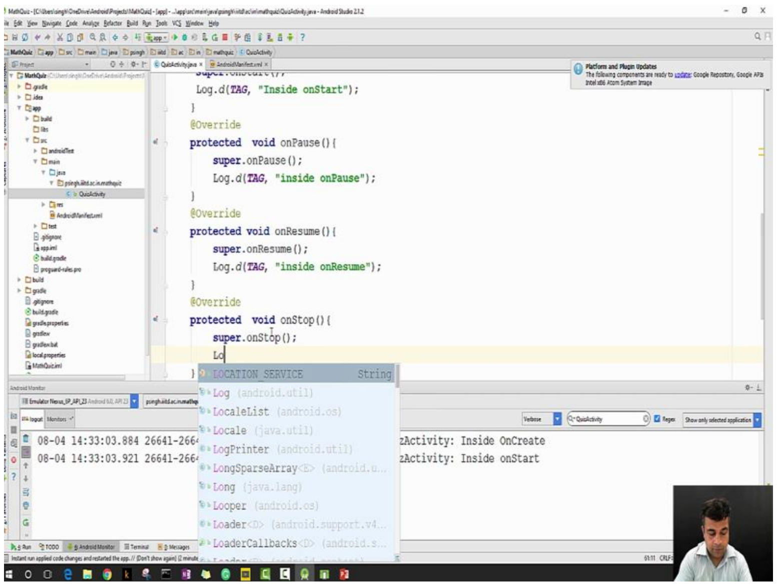
```java
public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState) {...}

  @Override
    protected void onStart(){
     super.onStart();
     Log.d(TAG, "Inside onStart");
  }
```

```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
```



```java
public class QuizActivity extends AppCompatActivity {

    private Button mTrueButton;
    private Button mFalseButton;

    private static final String TAG="QuizActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState)

  @Override
    protected void onStart(){
     super.onStart();
     Log.d(TAG, "Inside onStart");
  }
```

```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: In
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: In
```



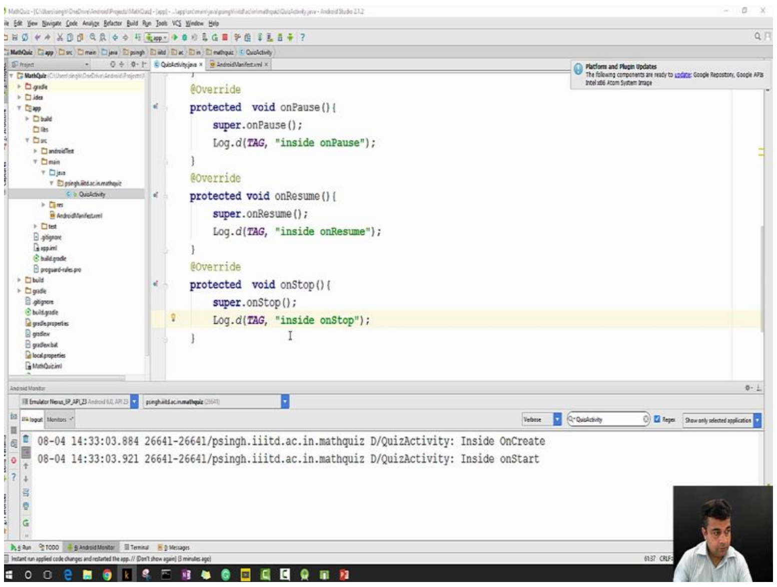
```
        Log.d(TAG, "Inside onStart");
    }
    @Override
    protected  void onPause(){
        super.onPause();
        Log.d(TAG, "inside onPause");
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Lo
    }
```

```
LOCATION_SERVICE                    String
Log (android.util)
LocaleList (android.os)
Locale (java.util)
LogPrinter (android.util)
LongSparseArray<E> (android.u...
Long (java.lang)
Looper (android.os)
Loader<D> (android.support.v4...
LoaderCallbacks<D> (android.s...
```

```
08-04 14:33:03.884 26641-2664                zActivity: Inside OnCreate
08-04 14:33:03.921 26641-2664                zActivity: Inside onStart
```

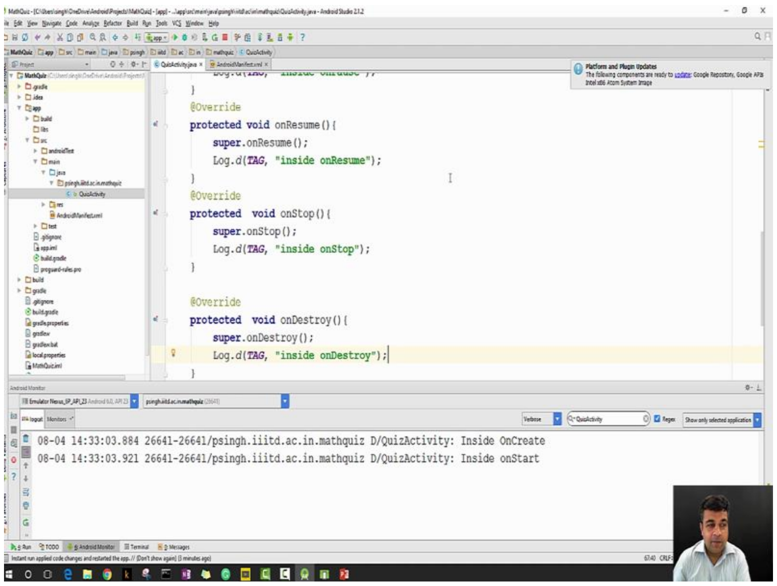
Let’s start our application again. First start filter. As you can see on Start has been called, application is up. Now first we will add all the methods then you will see its behaviour as being practical.

(Refer Slide Time: 13:15)



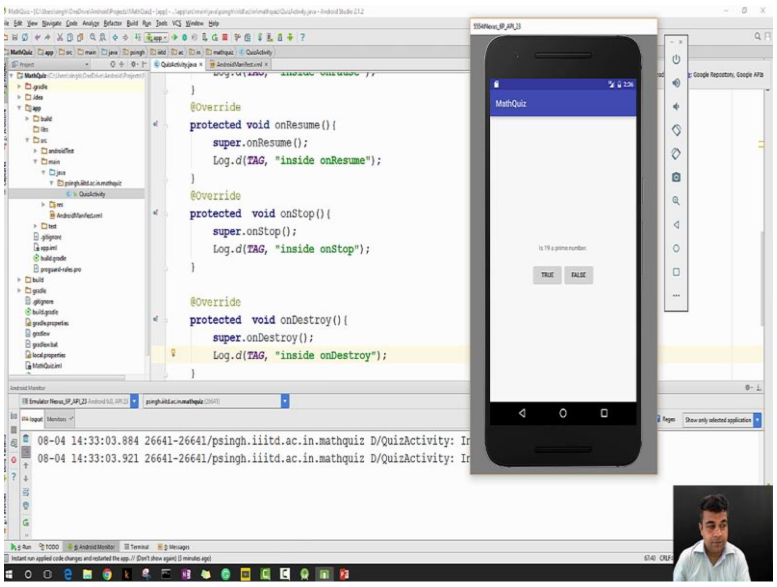
```
    @Override
    protected  void onPause(){
        super.onPause();
        Log.d(TAG, "inside onPause");
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }
```

```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
```



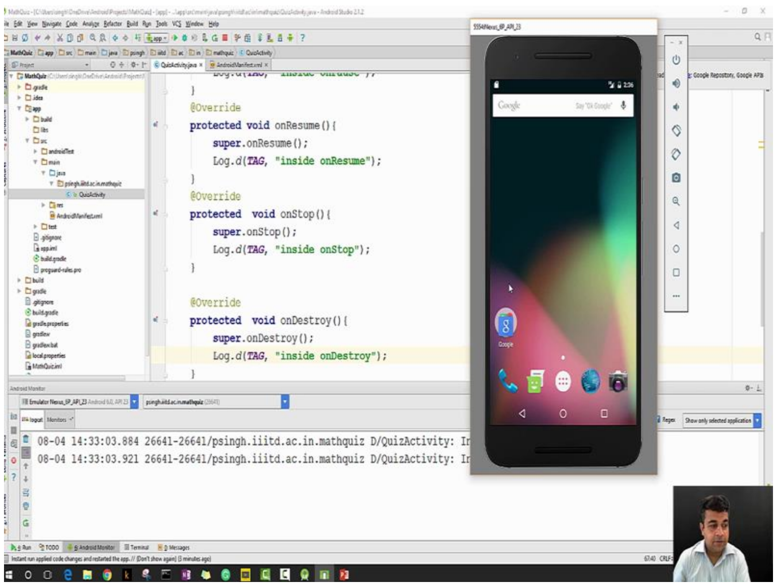
```java
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
    protected  void onDestroy(){
        super.onDestroy();
        Log.d(TAG, "inside onDestroy");
    }
```

```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
```



```java
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
    protected  void onDestroy(){
        super.onDestroy();
        Log.d(TAG, "inside onDestroy");
    }
```

```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: In
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: In
```



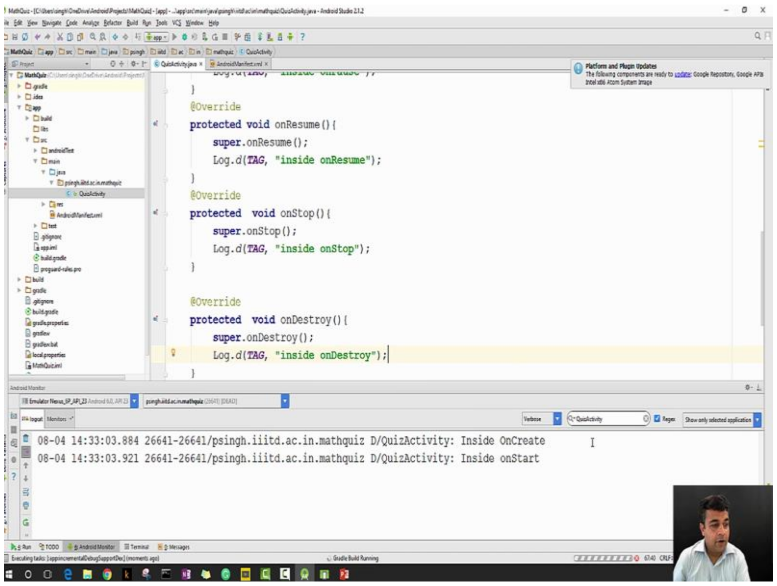
```java
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
    protected  void onDestroy(){
        super.onDestroy();
        Log.d(TAG, "inside onDestroy");
    }
```

```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: In
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: In
```

At override. Protected void on Pause super on Pause log.d tag inside on pause. At override protected void on resume super.on resume log.d tag inside on resume. At override protected void onstop super onstop finally at override. Protected void on destroy super on destroy tag side on destroy.

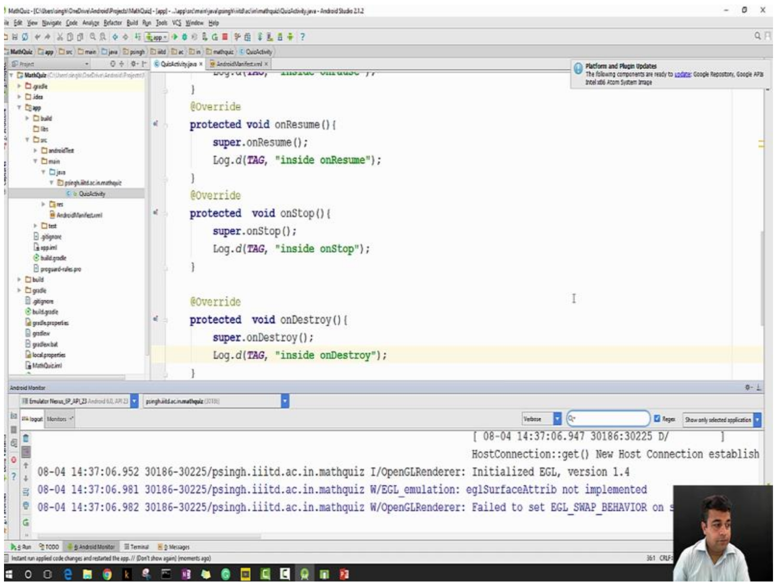
Fine now our application is ready with all the necessary log messages to trace the movement of our activity life as it goes through different states. Let us run our application and see the execution. First I will kill it.

(Refer Slide Time: 14:37)



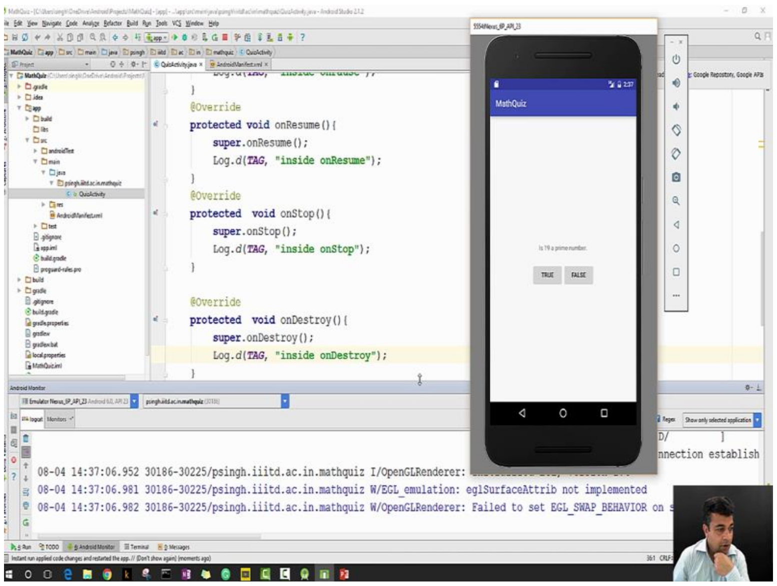
```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
    protected  void onDestroy(){
        super.onDestroy();
        Log.d(TAG, "inside onDestroy");
    }
```

```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
```



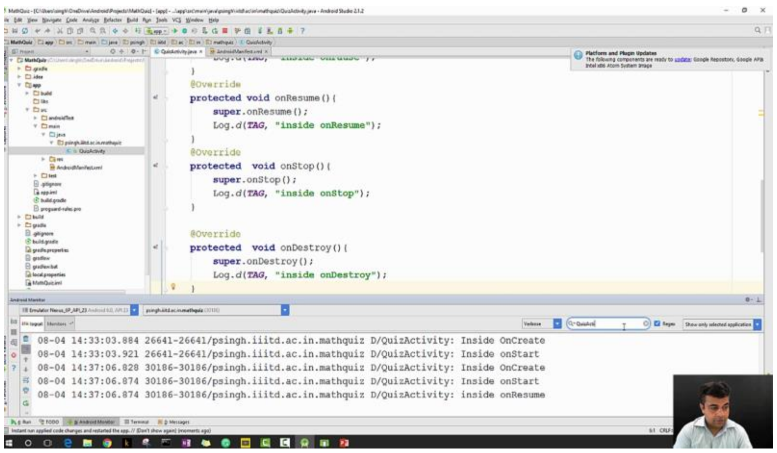
```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
    protected  void onDestroy(){
        super.onDestroy();
        Log.d(TAG, "inside onDestroy");
    }
```

```
                                                                              [ 08-04 14:37:06.947 30186:30225 D/         ]
                                                                              HostConnection::get() New Host Connection establish
08-04 14:37:06.952 30186-30225/psingh.iiitd.ac.in.mathquiz I/OpenGLRenderer: Initialized EGL, version 1.4
08-04 14:37:06.981 30186-30225/psingh.iiitd.ac.in.mathquiz W/EGL_emulation: eglSurfaceAttrib not implemented
08-04 14:37:06.982 30186-30225/psingh.iiitd.ac.in.mathquiz W/OpenGLRenderer: Failed to set EGL_SWAP_BEHAVIOR on s
```



```
}
@Override
protected void onResume(){
    super.onResume();
    Log.d(TAG, "inside onResume");
}
@Override
protected  void onStop(){
    super.onStop();
    Log.d(TAG, "inside onStop");
}

@Override
protected  void onDestroy(){
    super.onDestroy();
    Log.d(TAG, "inside onDestroy");
}
```

```
08-04 14:37:06.952 30186-30225/psingh.iiitd.ac.in.mathquiz I/OpenGLRenderer:
08-04 14:37:06.981 30186-30225/psingh.iiitd.ac.in.mathquiz W/EGL_emulation: eglSurfaceAttrib not implemented
08-04 14:37:06.982 30186-30225/psingh.iiitd.ac.in.mathquiz W/OpenGLRenderer: Failed to set EGL_SWAP_BEHAVIOR on s
```

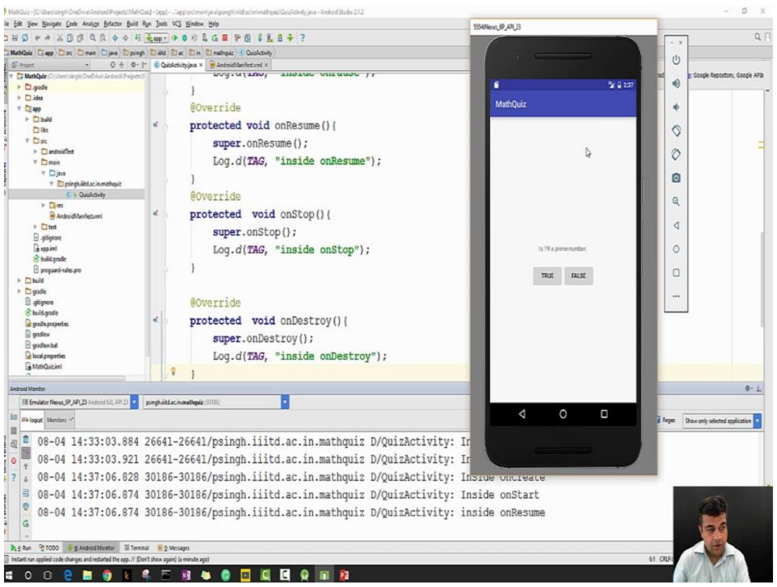


```
}
@Override
protected void onResume(){
    super.onResume();
    Log.d(TAG, "inside onResume");
}
@Override
protected  void onStop(){
    super.onStop();
    Log.d(TAG, "inside onStop");
}

@Override
protected  void onDestroy(){
    super.onDestroy();
    Log.d(TAG, "inside onDestroy");
}
```

```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:37:06.828 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:37:06.874 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:37:06.874 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```

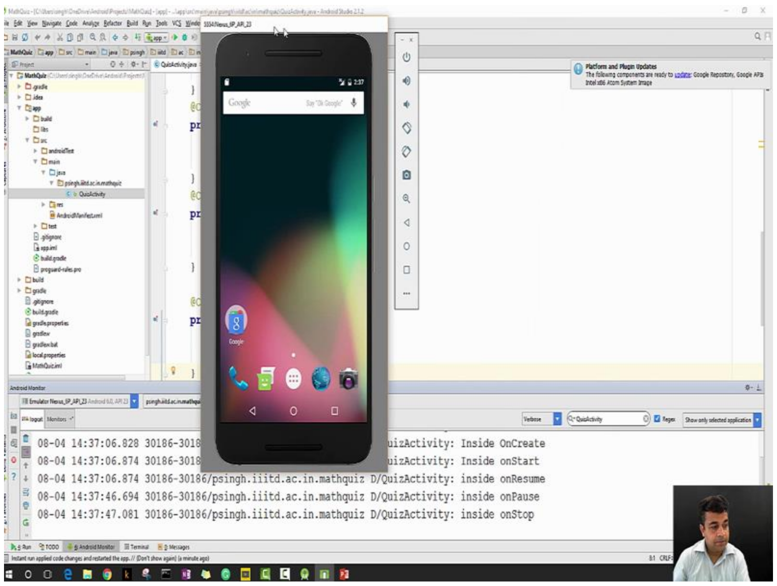
Compile and run. Quick run. Application is up. Let me set the filter. As you can see my application is created, started and then resumed.

(Refer Slide Time: 15:17)

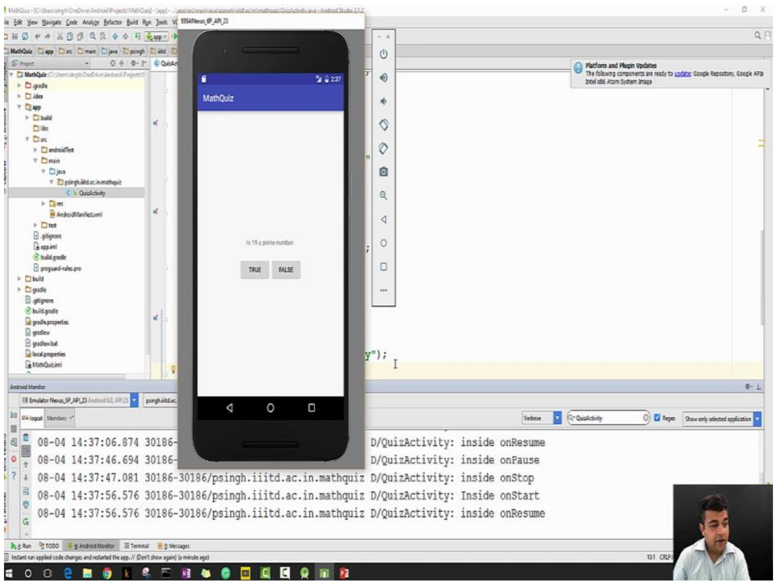


```
}
@Override
protected void onResume(){
    super.onResume();
    Log.d(TAG, "inside onResume");
}
@Override
protected  void onStop(){
    super.onStop();
    Log.d(TAG, "inside onStop");
}

@Override
protected  void onDestroy(){
    super.onDestroy();
    Log.d(TAG, "inside onDestroy");
}
```

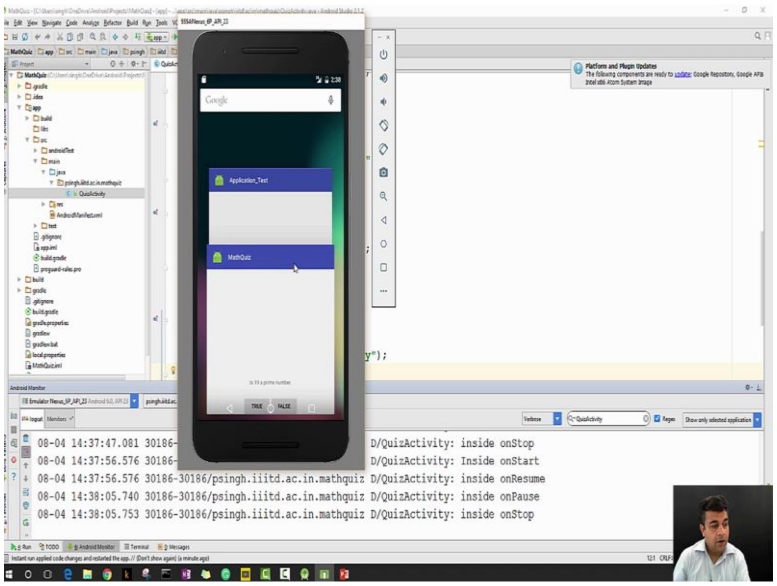
```
08-04 14:33:03.884 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: In
08-04 14:33:03.921 26641-26641/psingh.iiitd.ac.in.mathquiz D/QuizActivity: In
08-04 14:37:06.828 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:37:06.874 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:37:06.874 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



```
08-04 14:37:06.828 30186-3018                                          uizActivity: Inside OnCreate
08-04 14:37:06.874 30186-3018                                          uizActivity: Inside onStart
08-04 14:37:06.874 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
08-04 14:37:46.694 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onPause
08-04 14:37:47.081 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
```



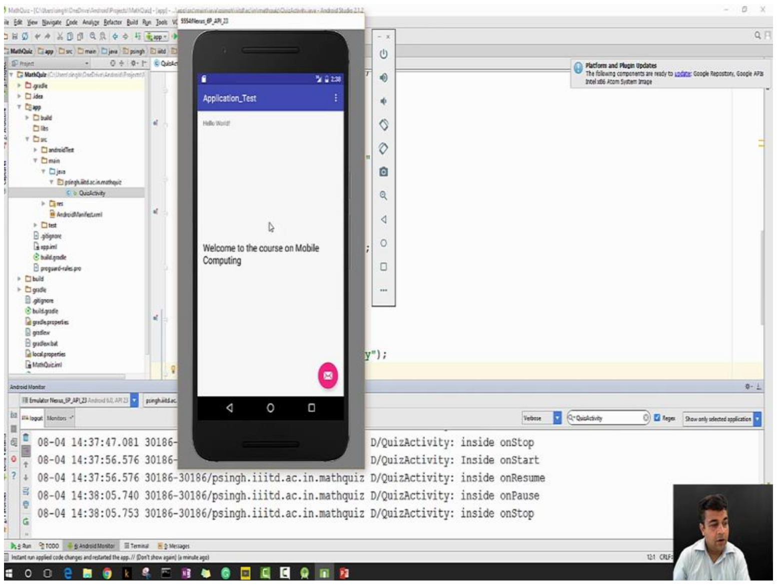
```
08-04 14:37:06.874 30186-                                D/QuizActivity: inside onResume
08-04 14:37:46.694 30186-                                D/QuizActivity: inside onPause
08-04 14:37:47.081 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:37:56.576 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:37:56.576 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



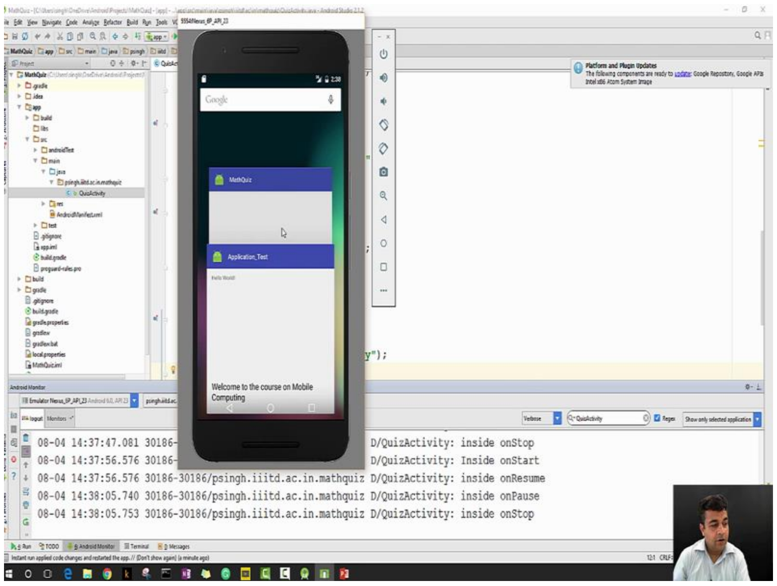
```
08-04 14:37:47.081 30186-                                D/QuizActivity: inside onStop
08-04 14:37:56.576 30186-                                D/QuizActivity: Inside onStart
08-04 14:37:56.576 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
08-04 14:38:05.740 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onPause
08-04 14:38:05.753 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
```

Can interact with it. If I go to home button then it is paused and then stopped. If I go back again and restart again then from stopped went to on start and it went to on resume.

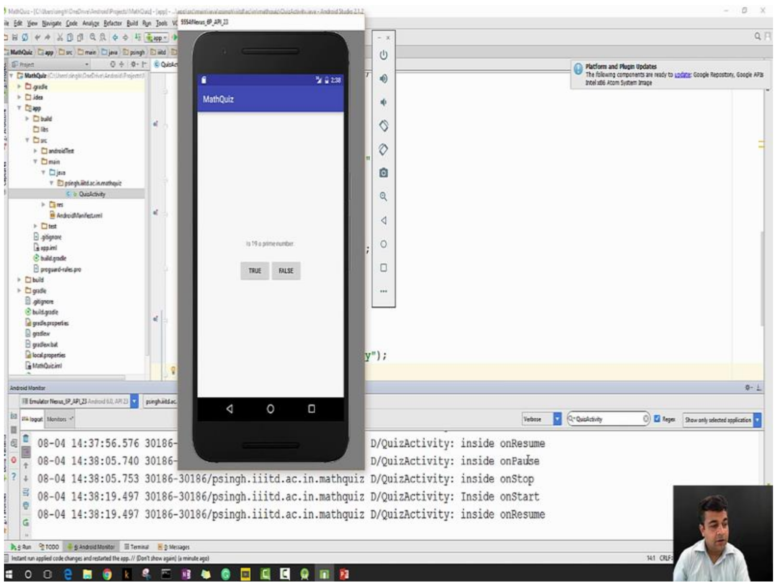
(Refer Slide Time: 15:46)


Application_Test
Hello World!
Welcome to the course on Mobile Computing
Platform and Plugin Updates
Verbose
QuizActivity
Regex
Show only selected application

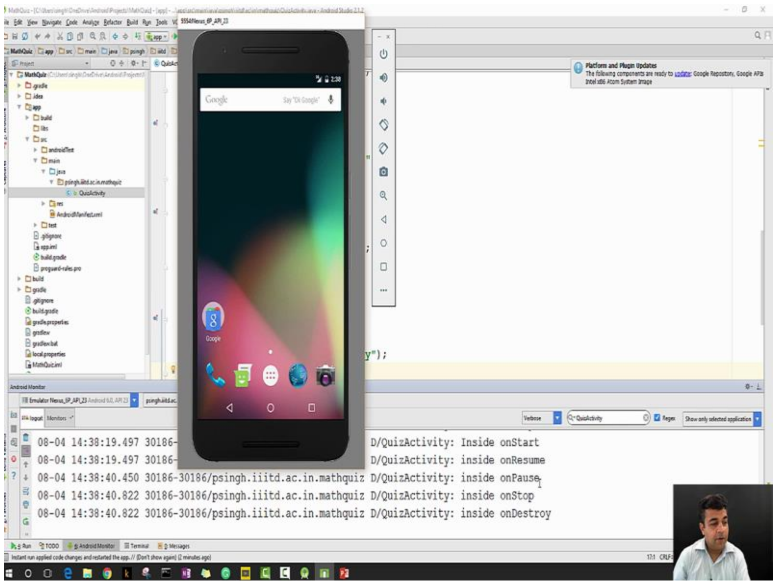
```
08-04 14:37:47.081 30186-                                  D/QuizActivity: inside onStop
08-04 14:37:56.576 30186-                                  D/QuizActivity: Inside onStart
08-04 14:37:56.576 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
08-04 14:38:05.740 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onPause
08-04 14:38:05.753 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
```


Google
MathQuiz
Application_Test
Hello World!
Welcome to the course on Mobile Computing
Platform and Plugin Updates
Verbose
QuizActivity
Regex
Show only selected application

```
08-04 14:37:47.081 30186-                                  D/QuizActivity: inside onStop
08-04 14:37:56.576 30186-                                  D/QuizActivity: Inside onStart
08-04 14:37:56.576 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
08-04 14:38:05.740 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onPause
08-04 14:38:05.753 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
```



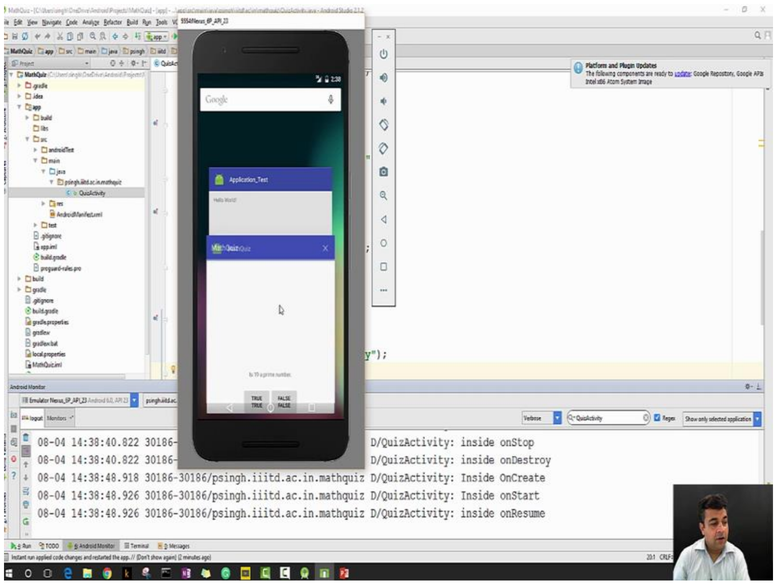
```
08-04 14:37:56.576 30186-                                       D/QuizActivity: inside onResume
08-04 14:38:05.740 30186-                                       D/QuizActivity: inside onPause
08-04 14:38:05.753 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:38:19.497 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:38:19.497 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



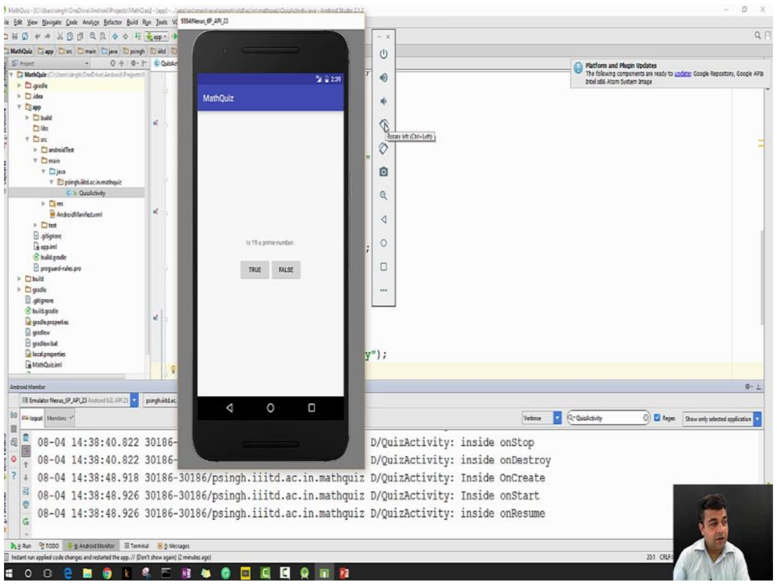
```
08-04 14:38:19.497 30186-                                       D/QuizActivity: Inside onStart
08-04 14:38:19.497 30186-                                       D/QuizActivity: inside onResume
08-04 14:38:40.450 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onPause
08-04 14:38:40.822 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:38:40.822 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onDestroy
```

On resume went to on pause and on stop when I started on the application. Let me bring it back. It again comes to on Start and on Resume. Let me now press the back button and see what happens. Oops when I press the back button on destroy is called.

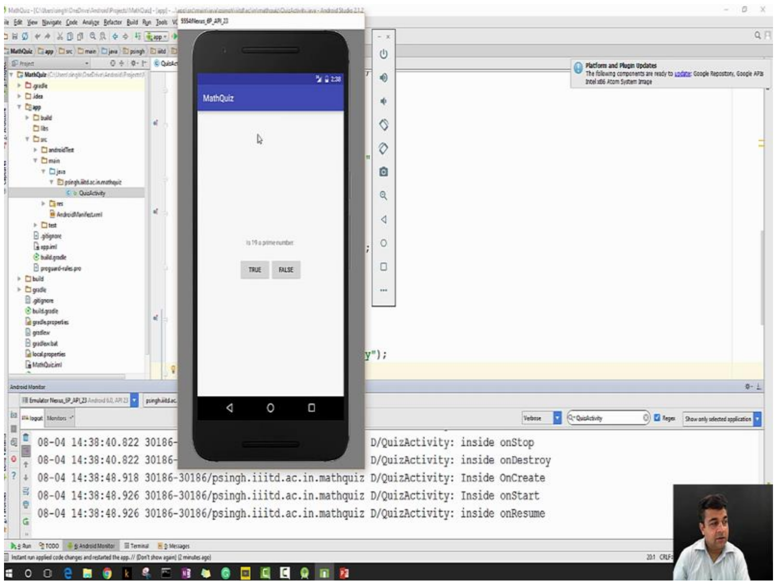
(Refer Slide Time: 16:24)



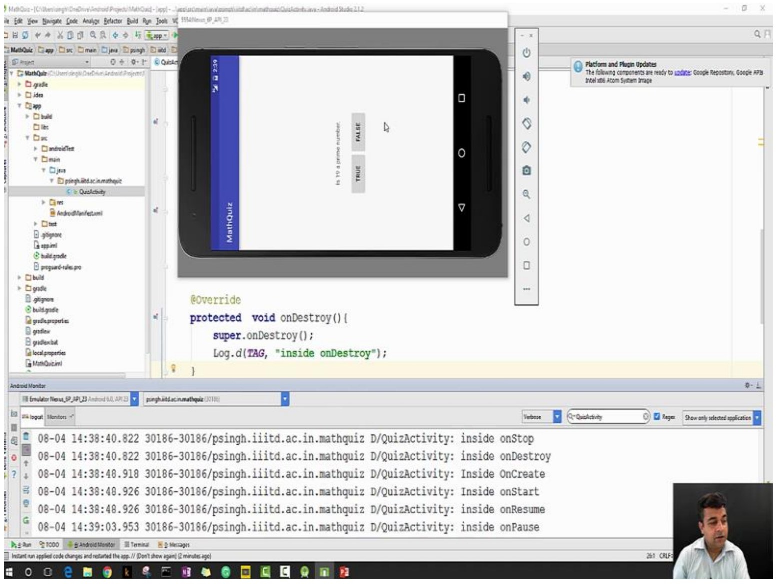
```
08-04 14:38:40.822 30186-                                         D/QuizActivity: inside onStop
08-04 14:38:40.822 30186-                                         D/QuizActivity: inside onDestroy
08-04 14:38:48.918 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:38:48.926 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:38:48.926 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



```
08-04 14:38:40.822 30186-                                         D/QuizActivity: inside onStop
08-04 14:38:40.822 30186-                                         D/QuizActivity: inside onDestroy
08-04 14:38:48.918 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:38:48.926 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:38:48.926 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



```
08-04 14:38:40.822 30186-                                         D/QuizActivity: inside onStop
08-04 14:38:40.822 30186-                                         D/QuizActivity: inside onDestroy
08-04 14:38:48.918 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:38:48.926 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:38:48.926 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```

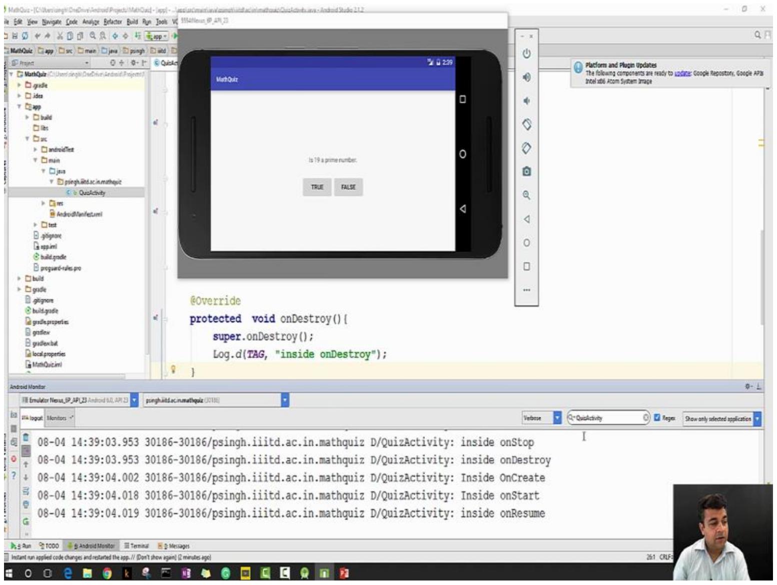


```
@Override
protected void onDestroy() {
    super.onDestroy();
    Log.d(TAG, "inside onDestroy");
}
```

```
08-04 14:38:40.822 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:38:40.822 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onDestroy
08-04 14:38:48.918 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:38:48.926 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:38:48.926 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
08-04 14:39:03.953 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onPause
```

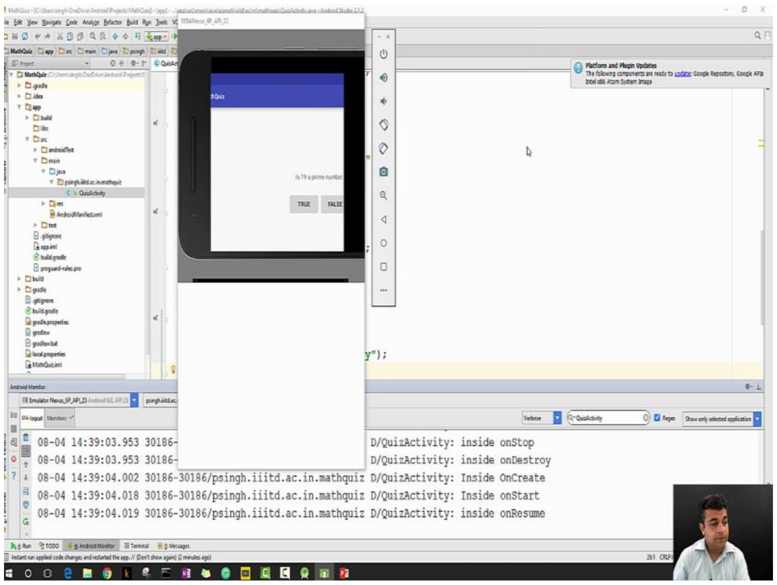
And when I press my recent app button again the app is created started and resumed. Let me press a rotate button so that it rotates.

(Refer Slide Time: 16:41)



```
@Override
protected void onDestroy() {
    super.onDestroy();
    Log.d(TAG, "inside onDestroy");
}
```

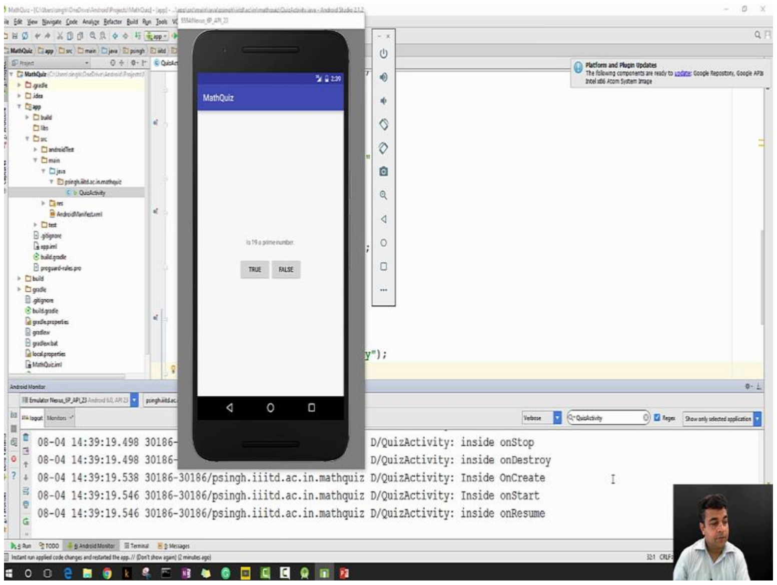
```
08-04 14:39:03.953 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:39:03.953 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onDestroy
08-04 14:39:04.002 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:39:04.018 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:39:04.019 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



```
08-04 14:39:03.953 30186-                                     D/QuizActivity: inside onStop
08-04 14:39:03.953 30186-                                     D/QuizActivity: inside onDestroy
08-04 14:39:04.002 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:39:04.018 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:39:04.019 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```

Now you see when I rotating first get destroyed then created started and resumed one more time.

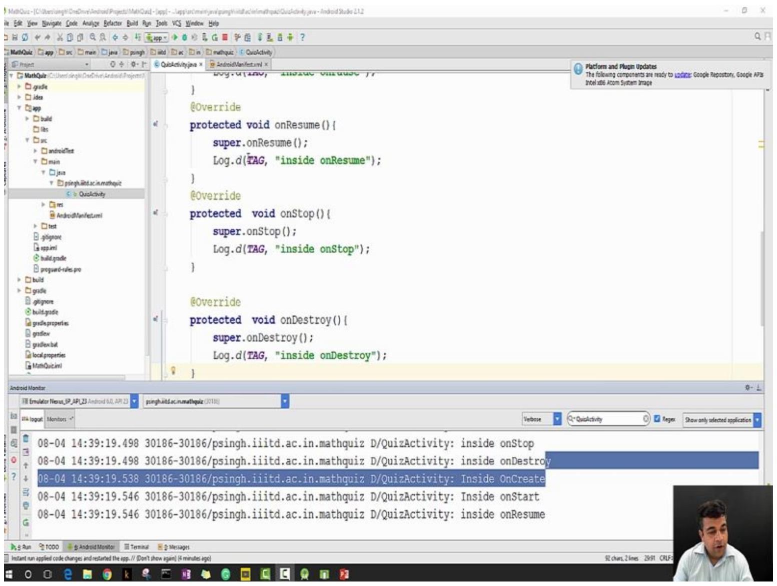
(Refer Slide Time: 16:59)



```
08-04 14:39:19.498 30186-                                     D/QuizActivity: inside onStop
08-04 14:39:19.498 30186-                                     D/QuizActivity: inside onDestroy
08-04 14:39:19.538 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```

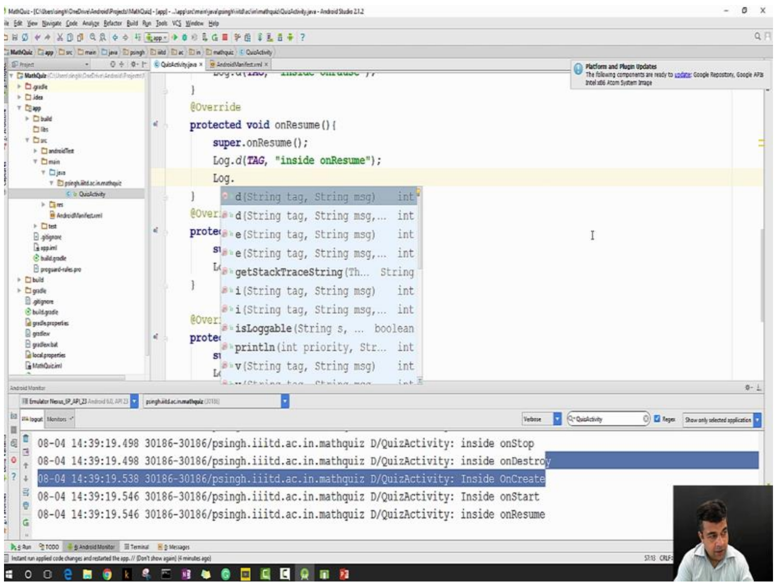
Again destroyed, created, started, resumed. So in this lecture you could see that how using logs we can very easily follow through our activity’s lifecycle.

(Refer Slide Time: 17:16)



```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
    protected  void onDestroy(){
        super.onDestroy();
        Log.d(TAG, "inside onDestroy");
    }
```

```
08-04 14:39:19.498 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:39:19.498 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onDestroy
08-04 14:39:19.538 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.
```

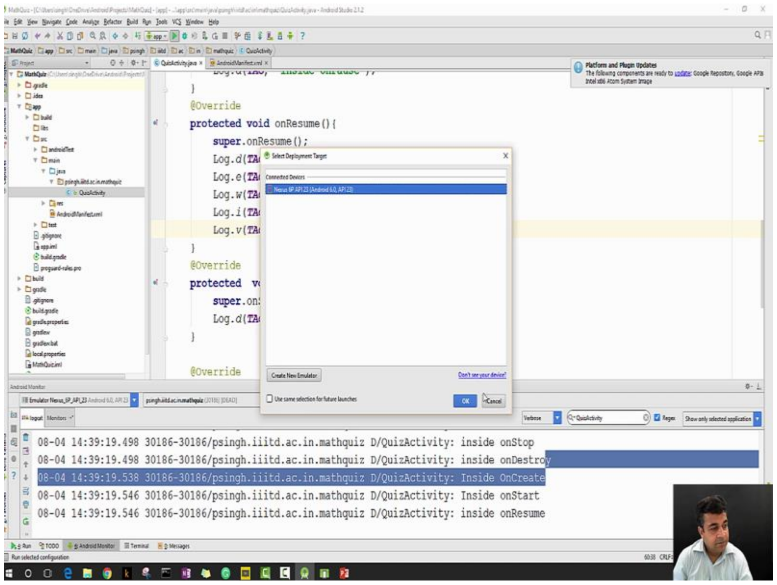
```
d(String tag, String msg)            int
d(String tag, String msg,...         int
e(String tag, String msg)            int
e(String tag, String msg,...         int
getStackTraceString(Th...            String
i(String tag, String msg)            int
i(String tag, String msg,...         int
isLoggable(String s, ...             boolean
println(int priority, Str...         int
v(String tag, String msg)            int
```

```
08-04 14:39:19.498 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:39:19.498 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onDestroy
08-04 14:39:19.538 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```

Now, so far (using) we were using only the .d version. Now let's try to use some other methods.There various others available. Let's say log e tag e called. I will only show it within the resume. log.w tag, w called. log.i tag, i called log.v tag, verbose called. The D stands for debug. The e stands for error. The w stands for warning. The I stand for info. And the v stands for verbose. You should use a v tag while you are developing.

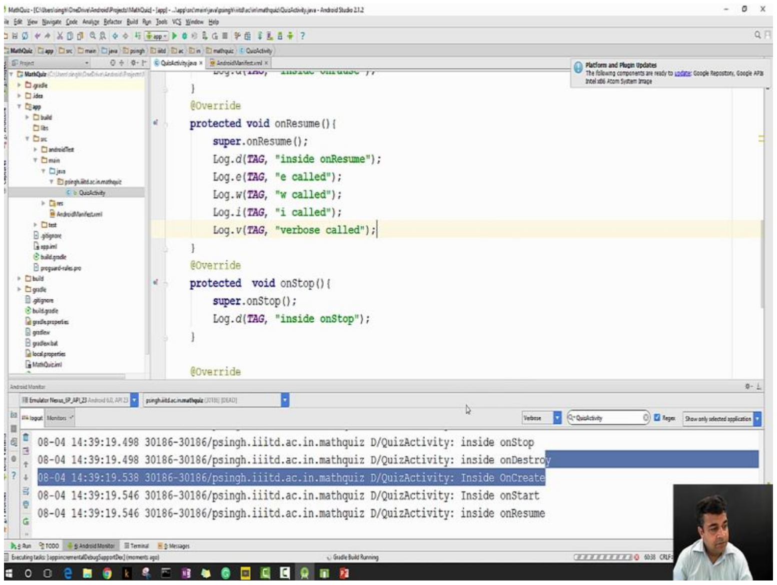
You should use a D tag when you want a debug output that may be filtered out. You should use I when you are using informational messages. You should use W for warnings and E for error messages. So now let us again run our application and try to see how does the log tag handles these messages.

(Refer Slide Time: 19:32)



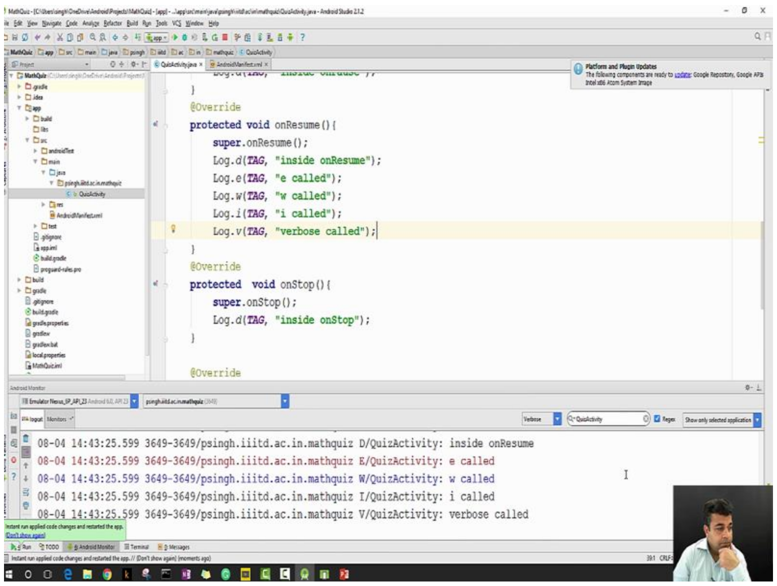
```
}
@Override
protected void onResume(){
    super.onResume();
    Log.d(TA
    Log.e(TA
    Log.w(TA
    Log.i(TA
    Log.v(TA
}
@Override
protected  v
    super.on
    Log.d(TA
}

@Override
```

```
08-04 14:39:19.498 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:39:19.498 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onDestroy
08-04 14:39:19.538 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



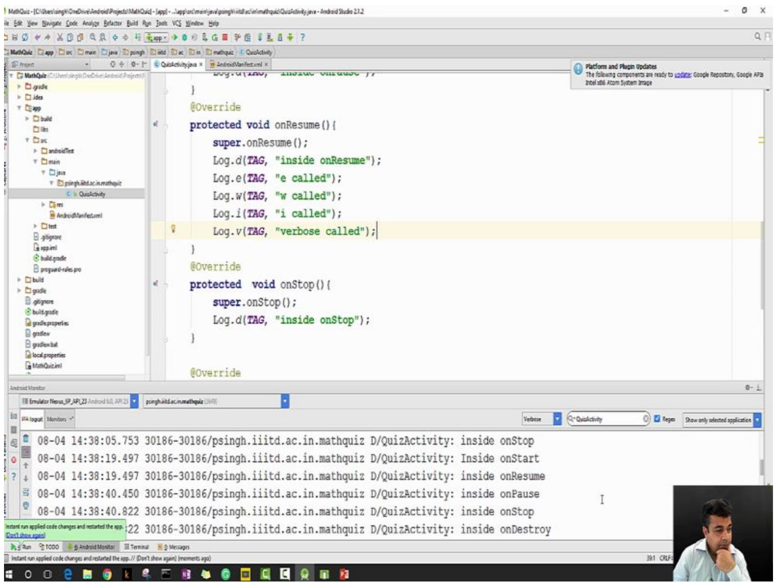
```
}
@Override
protected void onResume(){
    super.onResume();
    Log.d(TAG, "inside onResume");
    Log.e(TAG, "e called");
    Log.w(TAG, "w called");
    Log.i(TAG, "i called");
    Log.v(TAG, "verbose called");
}
@Override
protected  void onStop(){
    super.onStop();
    Log.d(TAG, "inside onStop");
}

@Override
```

```
08-04 14:39:19.498 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:39:19.498 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onDestroy
08-04 14:39:19.538 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside OnCreate
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:39:19.546 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
```



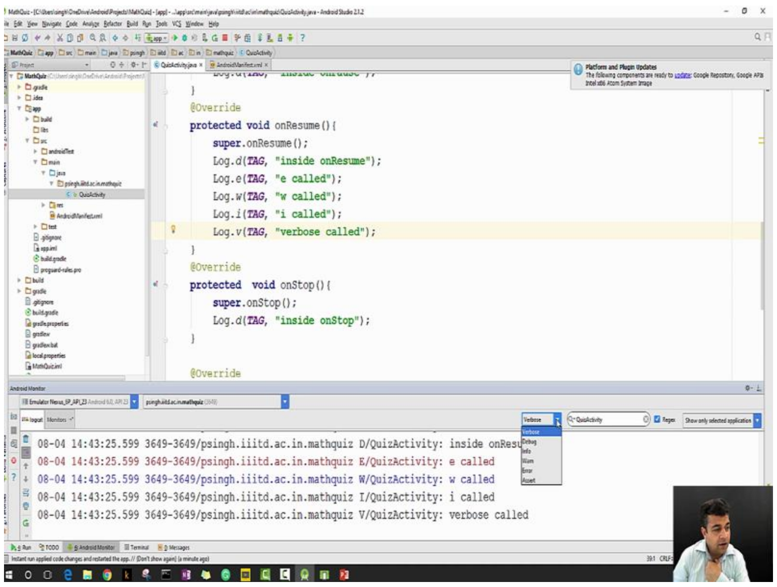
```java
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.e(TAG, "e called");
        Log.w(TAG, "w called");
        Log.i(TAG, "i called");
        Log.v(TAG, "verbose called");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
```

```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz W/QuizActivity: w called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz I/QuizActivity: i called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz V/QuizActivity: verbose called
```



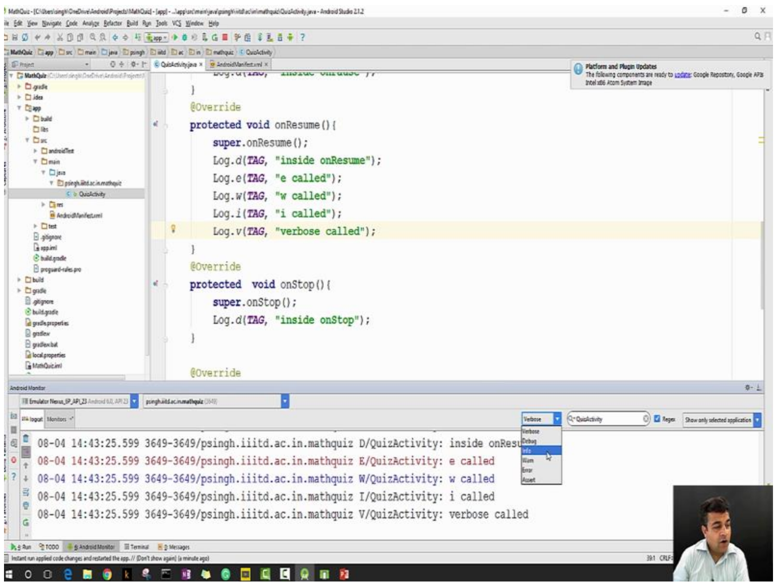
```java
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.e(TAG, "e called");
        Log.w(TAG, "w called");
        Log.i(TAG, "i called");
        Log.v(TAG, "verbose called");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
```

```
08-04 14:38:05.753 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
08-04 14:38:19.497 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: Inside onStart
08-04 14:38:19.497 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
08-04 14:38:40.450 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onPause
08-04 14:38:40.822 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onStop
                22 30186-30186/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onDestroy
```



```java
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.e(TAG, "e called");
        Log.w(TAG, "w called");
        Log.i(TAG, "i called");
        Log.v(TAG, "verbose called");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
```

```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResu
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz W/QuizActivity: w called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz I/QuizActivity: i called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz V/QuizActivity: verbose called
```

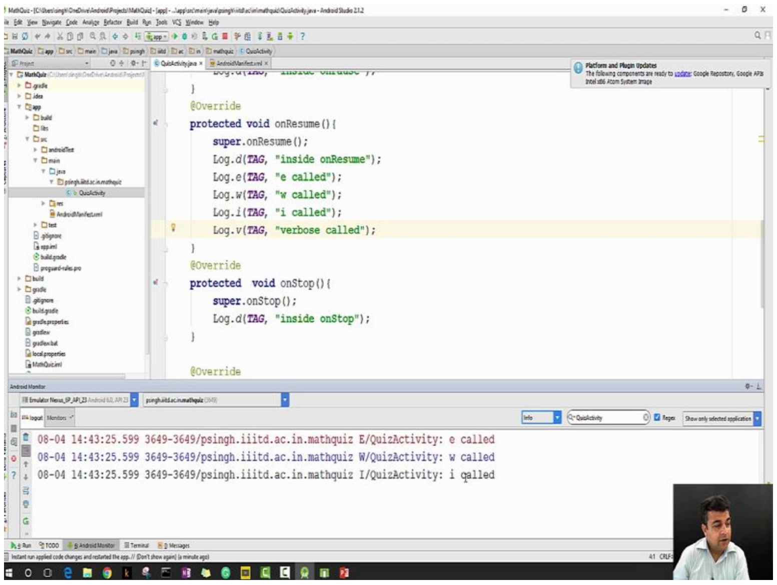


```
}
@Override
protected void onResume(){
    super.onResume();
    Log.d(TAG, "inside onResume");
    Log.e(TAG, "e called");
    Log.w(TAG, "w called");
    Log.i(TAG, "i called");
    Log.v(TAG, "verbose called");
}
@Override
protected  void onStop(){
    super.onStop();
    Log.d(TAG, "inside onStop");
}

@Override
```

```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResu
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz W/QuizActivity: w called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz I/QuizActivity: i called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz V/QuizActivity: verbose called
```

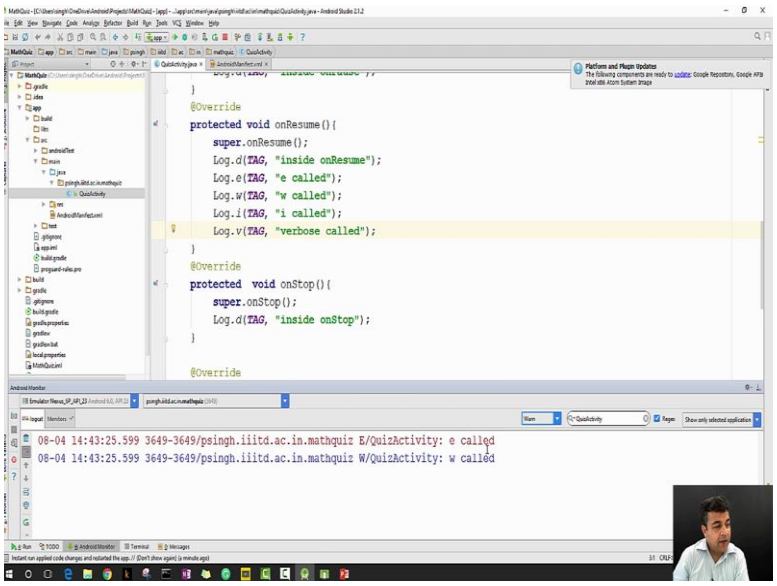
So I am currently putting a filter. You will see a small window there, currently says the verbose. The verbose mean that anything about verbose will be called. The verbose is the lowest level. Let me set it to what I call debug. Now you see that from previous (meth) previous log messages, the messages which had we called is gone comes back.

(Refer Slide Time: 20:34)



```
}
@Override
protected void onResume(){
    super.onResume();
    Log.d(TAG, "inside onResume");
    Log.e(TAG, "e called");
    Log.w(TAG, "w called");
    Log.i(TAG, "i called");
    Log.v(TAG, "verbose called");
}
@Override
protected  void onStop(){
    super.onStop();
    Log.d(TAG, "inside onStop");
}

@Override
```

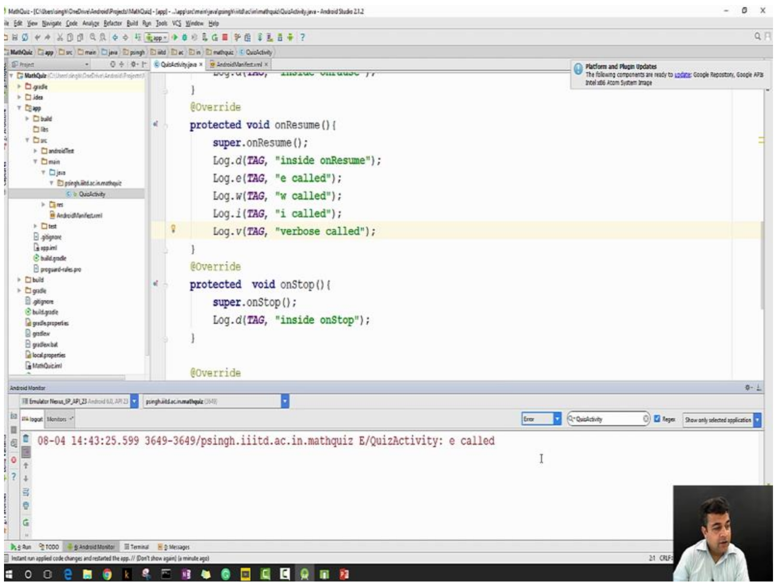
```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz W/QuizActivity: w called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz I/QuizActivity: i called
```



```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.e(TAG, "e called");
        Log.w(TAG, "w called");
        Log.i(TAG, "i called");
        Log.v(TAG, "verbose called");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
```

Warn | QuizActivity | Regex | Show only selected application

```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz W/QuizActivity: w called
```



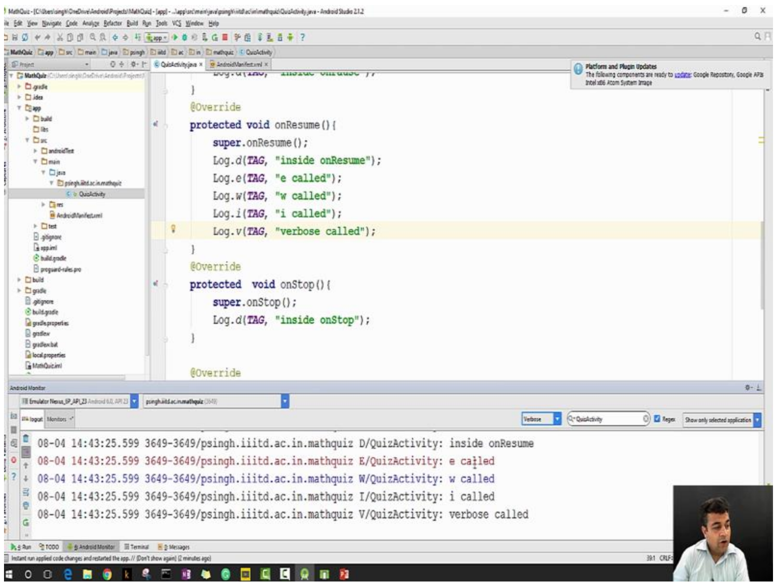
```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.e(TAG, "e called");
        Log.w(TAG, "w called");
        Log.i(TAG, "i called");
        Log.v(TAG, "verbose called");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
```

Error | QuizActivity | Regex | Show only selected application

```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
```

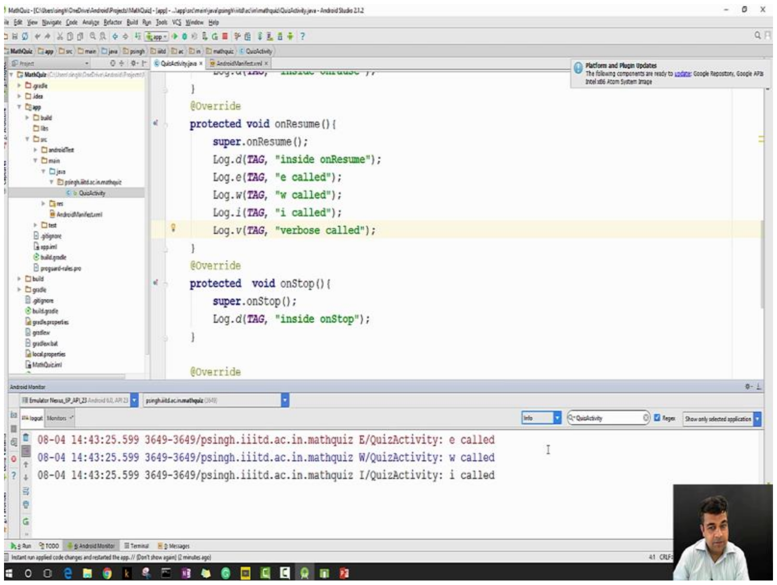
What I am (show) what I am showing you is the use of filter and log tag. Filter unwanted messages if I set it to I only I, W, E are there. Even D is gone. If I set it to w only the messages above W label will remain. So that is W and E. If I set it to E then only the messages above E will remain.

(Refer Slide Time: 21:06)



```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.e(TAG, "e called");
        Log.w(TAG, "w called");
        Log.i(TAG, "i called");
        Log.v(TAG, "verbose called");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
```

```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz D/QuizActivity: inside onResume
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz W/QuizActivity: w called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz I/QuizActivity: i called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz V/QuizActivity: verbose called
```



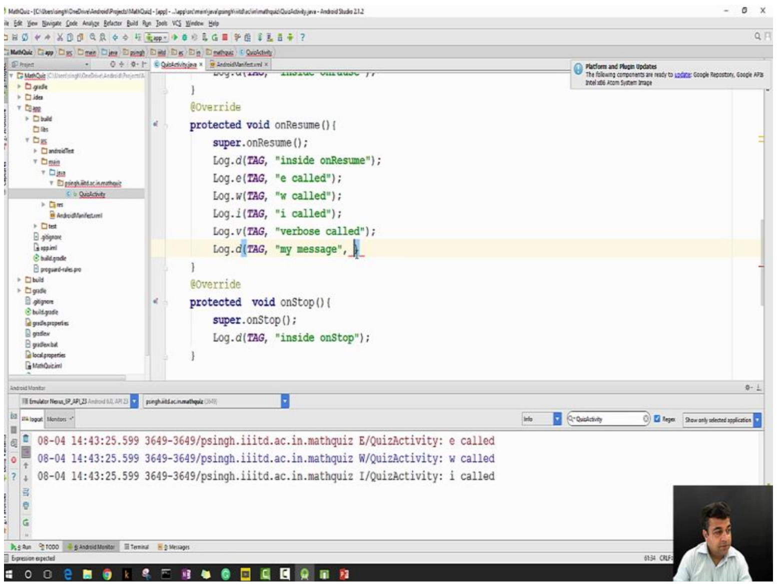
```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.e(TAG, "e called");
        Log.w(TAG, "w called");
        Log.i(TAG, "i called");
        Log.v(TAG, "verbose called");
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }

    @Override
```

```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz W/QuizActivity: w called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz I/QuizActivity: i called
```

So this shows different order in which these messages are divided. Based on your uses you can use this. So that by using this filter you can see the appropriate messages. And when you are using android.util.log class to send log messages, you are not only controlling the content of the message but also a level as you just saw.

Now so far we have been using a method called which is taking two string parameters. One is the tag and another is the message. Let us see what else is available. Let us see what is it?

(Refer Slide Time: 22:10)



```
    }
    @Override
    protected void onResume(){
        super.onResume();
        Log.d(TAG, "inside onResume");
        Log.e(TAG, "e called");
        Log.w(TAG, "w called");
        Log.i(TAG, "i called");
        Log.v(TAG, "verbose called");
        Log.d(TAG, "my message", )
    }
    @Override
    protected  void onStop(){
        super.onStop();
        Log.d(TAG, "inside onStop");
    }
```

```
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz E/QuizActivity: e called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz W/QuizActivity: w called
08-04 14:43:25.599 3649-3649/psingh.iiitd.ac.in.mathquiz I/QuizActivity: i called
```

Expression expected

So this is another method it takes a tag takes a message and it also take a throwable instance. It also takes thorowable instance. From your knowledge of JAVA you know that JAVA uses exceptions. You can use this new signature of the log message to throw a certain type of exception.

So as we move forward and when we will use exception we will try to use the other signature of the log methods that is provided by android studio. In this lecture we learned about logging. How logging can be used to debug. And also our logging can be used to learn more about your program. Thank you!