

1 **Introduction**
2 **Runtime stack mechanism**
3 **Default exception handling in java**
4 **Exception Hierarchy**
5 **Customized exception handling by using try catch**
6 **Control flow in try catch**
7 **Methods to print exception information**
8 **try with multiple catch blocks**
9 **finally block**
10 **difference between final,finally,finalize**
11 **control flow in try-catch-finally**
12 **control flow in nested try-catch-finally**
13 **various possible combinations of try catch finally**
14 **throw keyword**
15 **throws keyword**
16 **Exception handling keywords summary**
17 **Various possible compile time errors in exception handling**
18 **Customized or user defined exceptions**
19 **Top -10 exceptions**
20 **1.7 version enhancements**
21 **1. try with resources**
22 **2. multi-catch block**

2:00 AM

{
5:30 AM

{
6:00 AM

{
7:00 AM

Sleeping Exception

M' pattern

6:30 AM

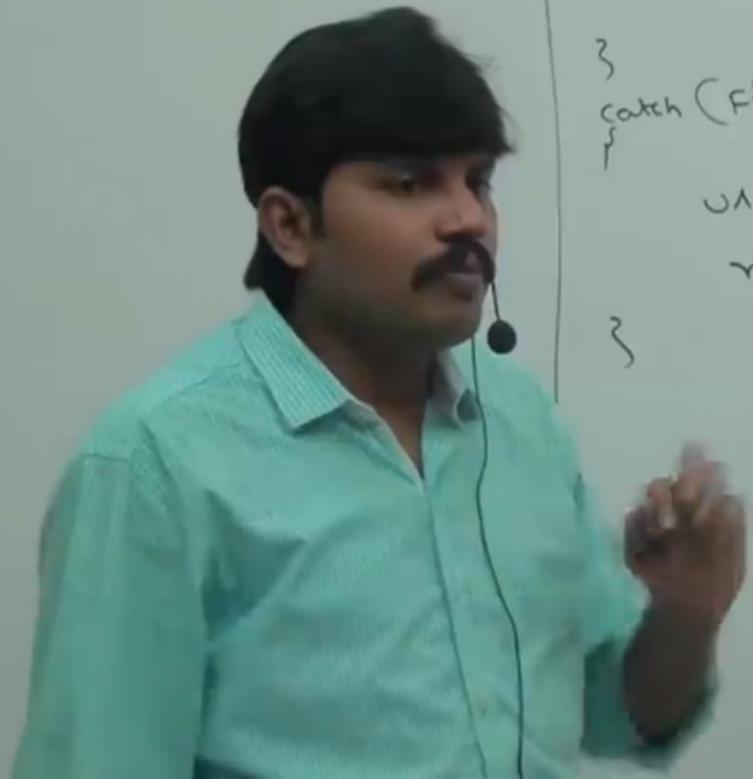
{
Tyre Punctured Exception

7:00 AM

{
8:00 AM

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```
try  
{  
    Read data from remote file  
    located at London  
}  
catch (FileNotFoundException e)  
{  
    Use local file & continue  
    rest of the program normally  
}
```



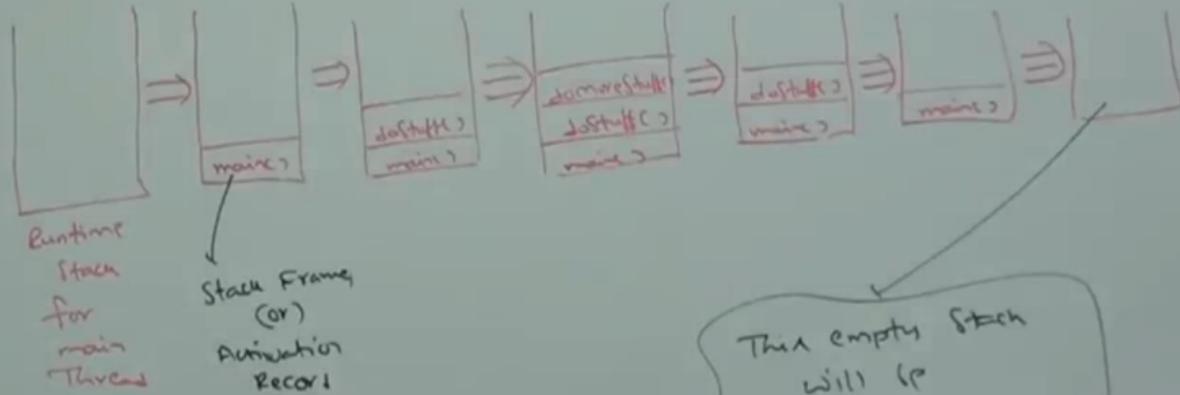
```

class Test {
    public static void main(String[] args) {
        doStuff();
    }

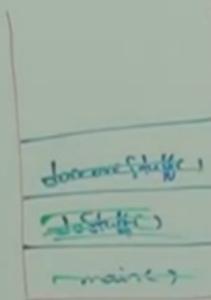
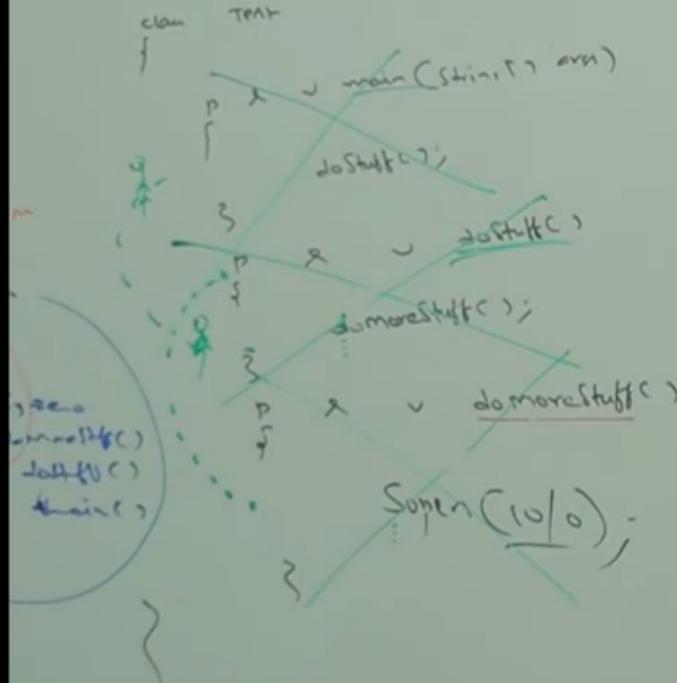
    public static void doStuff() {
        doMoreStuff();
    }

    public static void doMoreStuff() {
        System.out.println("Hello");
    }
}

```

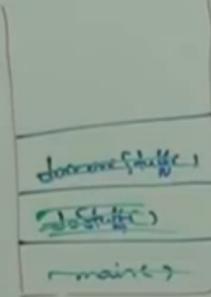
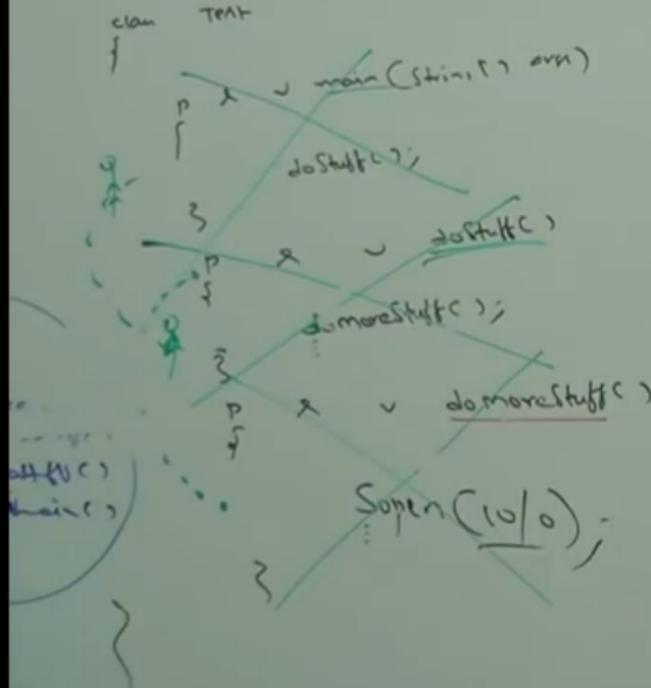


This empty stack
will be
destroyed by
JVM



Default Exception Handler

Execution in thread "main" [AE: / by zero]
at Test.doMoreStuff()
at Test.doStuff()
at Test.main()



Default Exception Handler

Exception in thread "main" java AE: / by zero
 at Test.doMoreStuff()
 at Test.doStuff()
 at Test.main()

Exception in thread "xxx" name of Exception: Description
Stack Trace

```
1 class Test
2 {
3     public static void main(String[] args)
4     {
5         doStuff();
6     }
7     public static void doStuff()
8     {
9         doMoreStuff();
10        System.out.println(10/0);
11    }
12    public static void doMoreStuff()
13    {
14        System.out.println("Hello");
15    }
16 }
```

```
C:\durga_classes>java Test
Hello
Exception in thread "main" java.lang.ArithmetiCExc
at Test.dostuff(Test.java:10)
at Test.main(Test.java:5)
```

```
C:\durga_classes>
```

```
1 class Test
2 {
3     public static void main(String[] args)
4     {
5         doStuff();  I
6         System.out.println(10/0);    |
7     }
8     public static void doStuff()
9     {
10        doMoreStuff();
11        System.out.println("Hi");
12    }
13    public static void doMoreStuff()
14    {
15        System.out.println("Hello");
16    }
17 }
```

```
C:\durga_classes>javac Test.java
C:\durga_classes>java Test
Hello
Hi
Exception in thread "main" java.lang.Arithmeti
      at Test.main(Test.java:6)
C:\durga_classes>
```

```
class Test  
{  
    public static void main(String[] args)  
    {
```

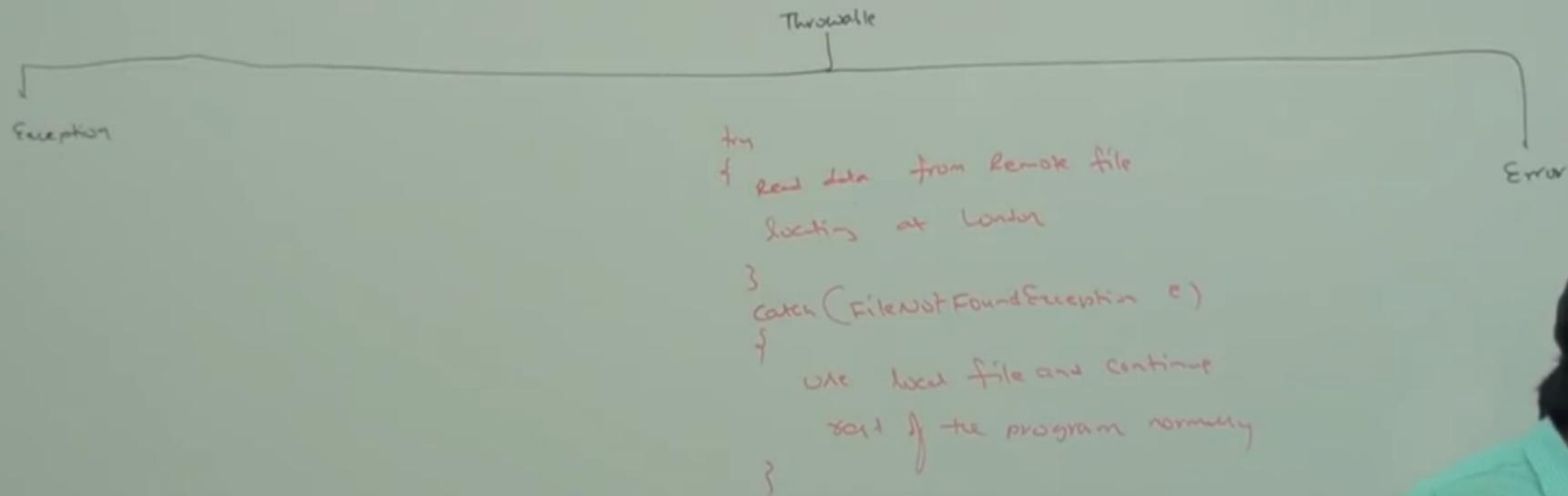
```
        doStuff();  
        System.out.println("0");
```

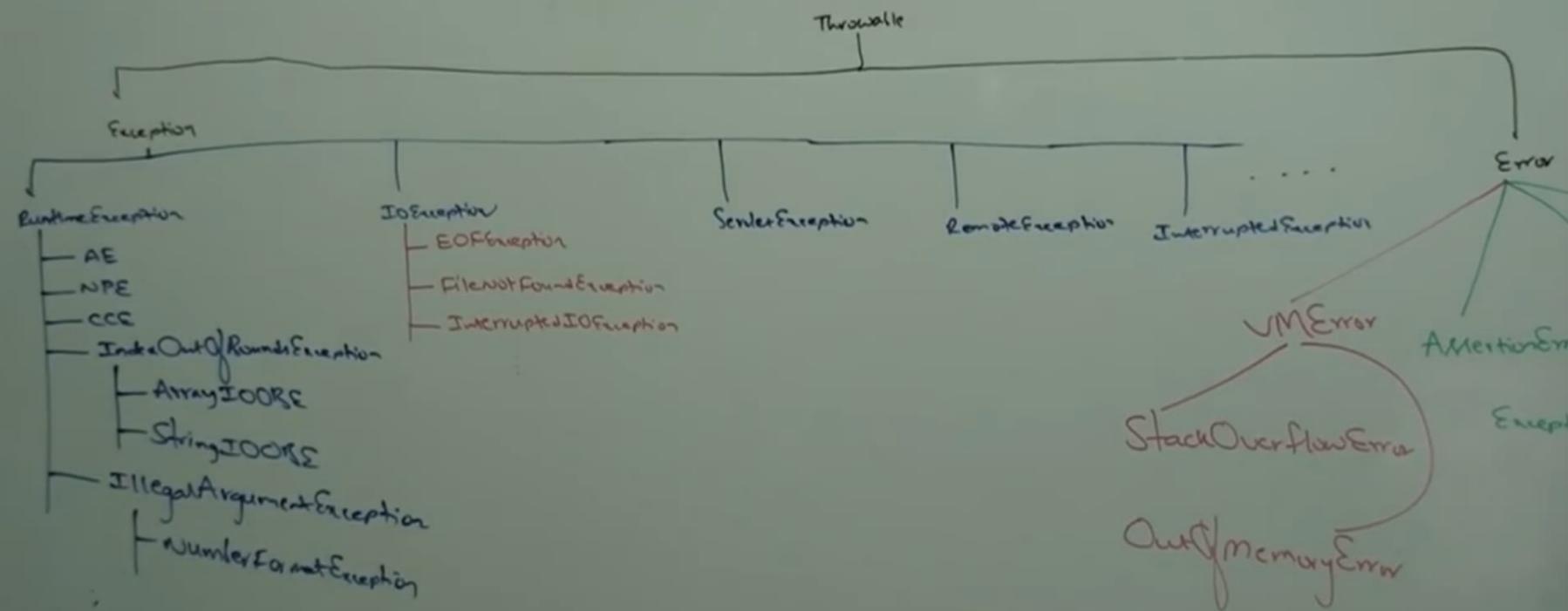
 public void doStuff()
 { System.out.println("Hi"); public void doMoreStuff()
 {

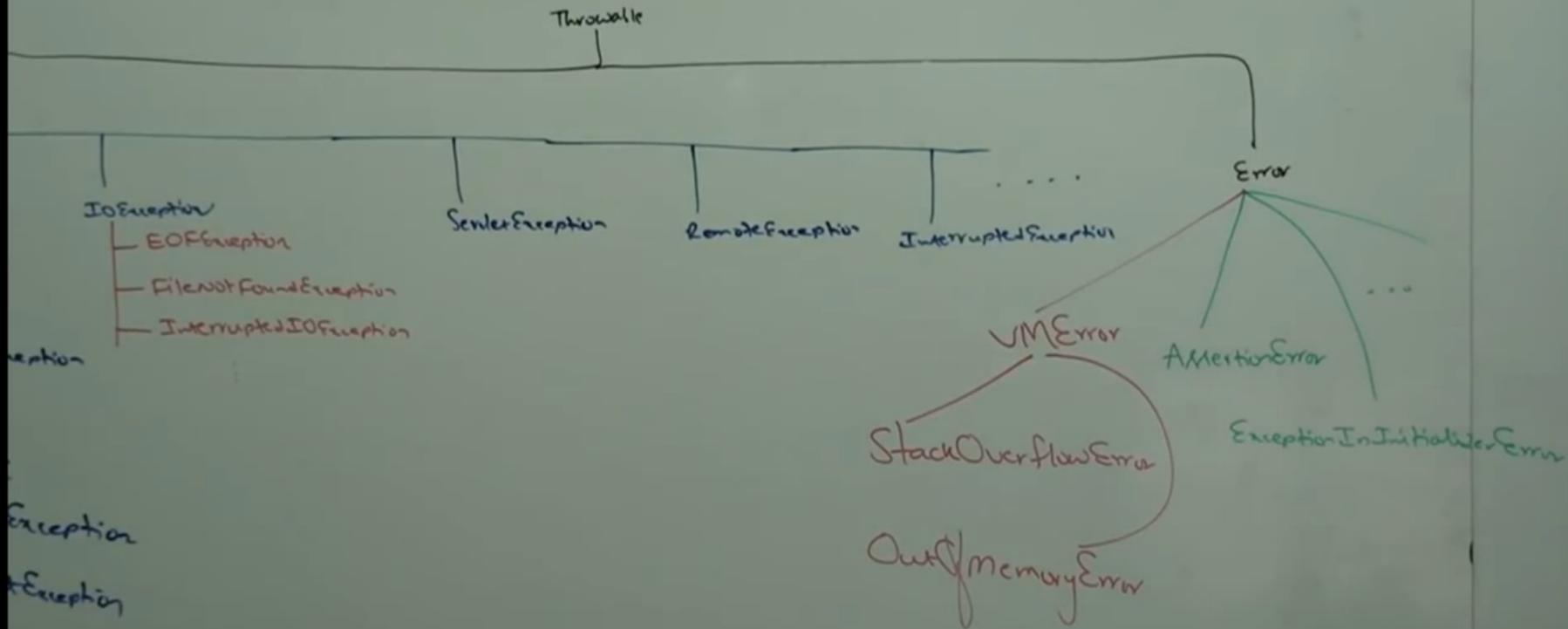
O/P: Hello

Hi

Exception in thread "main"
at Test.main()







```
import java.io.*;  
class Test  
{  
    public static void main(String[] args)  
    {  
        PrintWriter pw = new PrintWriter("abc.txt");  
        pw.println("HELLO");  
    }  
}
```

CE: unreported exception java.io.FileNotFoundException;
must be caught or declared to be thrown

```
1 import java.io.*;
2 class Test
3 {
4     public static void main(String[] args)
5     {
6         PrintWriter pw =new PrintWriter("abc.txt")
7         pw.println("Hello");
8     }
9 }
10 }
11 }
```

MICROSOFT Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Duga>cd ..
C:\Documents and Settings>cd ..
C:\>cd durga_classes

C:\durga_classes>javac Test.java
Test.java:6: unreported exception java.io.
or declared to be thrown
 PrintWriter pw =new Print
 ^
1 error

C:\durga_classes>

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[Version 5.1.2600]
01 Microsoft Corp.

ings\Duga>cd ..

ings>cd ..

```
c Test.java
ed exception java.io.FileNotFoundException
own
writer pw =new PrintWriter("abc.txt");
^
```

9:39:00 Check Exception

5:39 pm ✓✓

17:39:00

5:48 pm ✓✓

16:43:00

5:49 pm ✓✓

Today

18:48:00-> different
between Check & uncheck
exception

12:53 pm ⏲

```
import java.io.*;  
class Test  
{  
    public static void main(String[] args) throws FileNotFoundException  
    {  
        PrintWriter pw = new PrintWriter("abc.txt");  
        pw.println("Hello");  
        pw.close();  
    }  
}
```

FileNotFoundException

PenNotWorkingException

FileNotFoundException;

to be thrown

```
\durga_classes>javac Test.java
\durga_classes>java Test
Exception in thread "main" java.lang.ArithmetiException: /
at Test.main(Test.java:8)
\durga_classes>_
```

```
1
2
3
4
5
42 IOException
43 RuntimeException
44 InterruptedException
45 Error
46 Throwable
47 ArithmeticException
48 NullPointerException
49 Exception
50 FileNotFoundException
51
52
53
54
55
56
57 |
58
59
60
61
62
```

```
1 2 3 4 5
42 IOException-->Checked(Fully)
43 RuntimeException-->unchecked
44 InterruptedException-->Checked(Fully)
45 Error-->unchecked
46 Throwable-->Checked(Partially)
47 ArithmeticException-->unchecked
48 NullPointerException
49 Exception
50 FileNotFoundException
51
52
53
54
55
56
57
58
59
60
61
62
```

5:29

0.00 KB/S 53%

73.Core Java with OCJP_SCJP_Ter Exception Handling Part-3B__ Customized Epception...



HW

⋮



02:26

-1:12:32



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without try-catch

```
class Test  
{  
    p > main (String args)  
    {  
        sopen ("file1");  
        sopen ("10/0");  
        sopen ("file3");  
    }  
}
```

O/P: file1

RE: A/E : / by zero ✓

Abnormal Termination

with try-catch

```
class Test  
{  
    p > main (String args)  
    {  
        sopen ("file1");  
        try  
        {  
            sopen ("10/0");  
        }  
        catch (ArithmaticException e)  
        {  
            sopen ("file2");  
        }  
        sopen ("file3");  
    }  
}
```

O/P:
file1
5
file3

Normal

```
try  
{  
    risky code  
}  
catch (exception e)  
{  
    handling code  
}
```

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```
try
{
    Stmt1;
    Stmt2;
    Stmt3;
}
catch(X e)
{
    Stmt4;
}
Stmt5;
```

case 1:

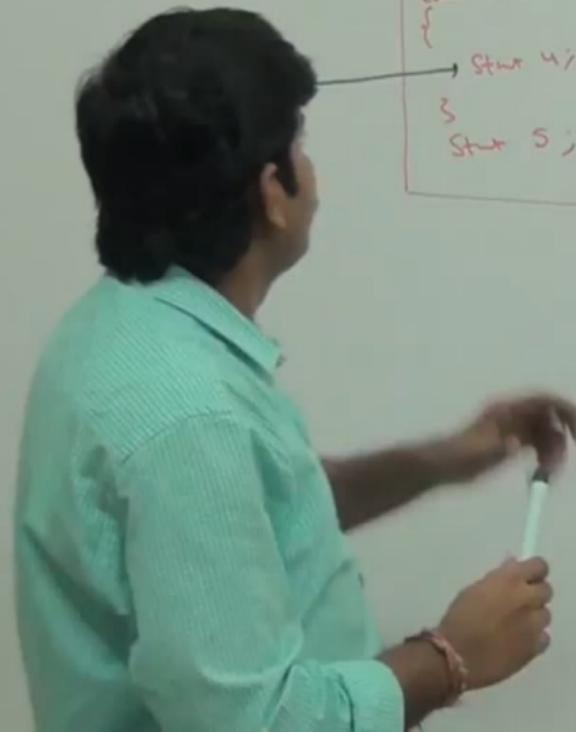
1, 2, 3, 5, NT

case 2:

1, 4,



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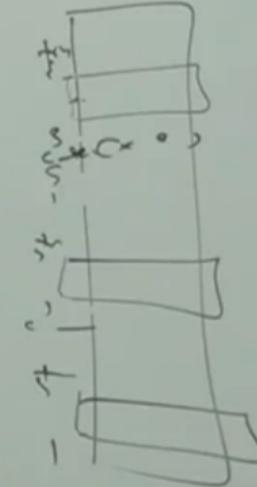


try
{
 stmt1;
 $i = 2;$
 $j = 3;$
}
catch(x e)
{
 stmt 4;
}
stmt 5;

case 1:
1, 2, 3, 5, NT

case 2:
1, 4, 5, NT

case 3:
1, AT



java.lang.AE : / by zero
at Test.main()

java.lang.AE : / by zero

/ by zero

```
class Test
{
    public static void main(String[] args)
    {
        try
        {
            System.out.println(10/0);
        }
        catch(ArithmeticException e)
        {
            e.printStackTrace();
            System.out.println(e.toString());
            System.out.println(e.getMessage());
        }
    }
}
```

```

class Test
{
    public static void main(String[] args)
    {
        try
        {
            System.out.println(10/0);
        }
        catch(ArithmeticException e)
        {
            e.printStackTrace();
            System.out.println(e); // or System.out.println(e.toString());
            System.out.println(e.getMessage());
        }
    }
}

```

method	printable format
① printStackTrace()	Name of Execution : Description Stack Trace
② toString()	Name of Execution : Description
③ getMessage()	Description

```
try  
{  
    Risky code  
}
```

```
}  
catch (Exception e)  
{
```

 // Three checkmarks

```
}
```

WORST practice

```
try  
{  
    Risky code  
}  
catch (ArithmaticException e)  
{  
    perform alternative arithmetic  
    operations  
}  
catch (SQLException e)  
{  
    use MySQL db instead of  
    oracle db  
}  
catch (FileNotFoundException e)  
{  
    use local file instead of  
    remote file  
}  
catch (Exception e)  
{  
    // default exception-handling  
}
```

Best practices

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```
try  
{  
    risky code  
}  
try  
{  
    risky code  
}  
catch (Exception e)  
{  
}  
}  
catch (ArithmaticException e)  
{  
}  
}
```

```
try  
{  
    risky code  
}  
}  
catch (ArithmaticException e)  
{  
    catch (Exception e)  
    {  
    }  
}
```

CE: exception j.l.ArithmaticException had already
been caught

```
class Test
{
    public static void main(String[] args)
    {
        try
        {
            System.out.println(10/0);
        }
        catch (Exception e)
        {
        }
        catch (ArithmaticException e)
        {
        }
    }
}
```

```
C:\durga_classes>javac Test.java
/ by zero

C:\durga_classes>java Test
Test.java:12: exception java.lang.ArithmetiException
          catch (ArithmetiException e)
                  ^
1 error

C:\durga_classes>
```

```
a Test  
  
ac Test.java  
ion java.lang.ArithmetiException has already been c
```

```
1 class Test
2 {
3     public static void main(String[] args)
4     {
5         try
6         {
7             System.out.println(10/0);
8         }
9         catch (ArithmetricException e)
10        {
11        }
12        catch (Exception e)
13        {
14        }
15    }
16 }
```

```
C:\durga_classes>javac Test.java  
/ by zero
```

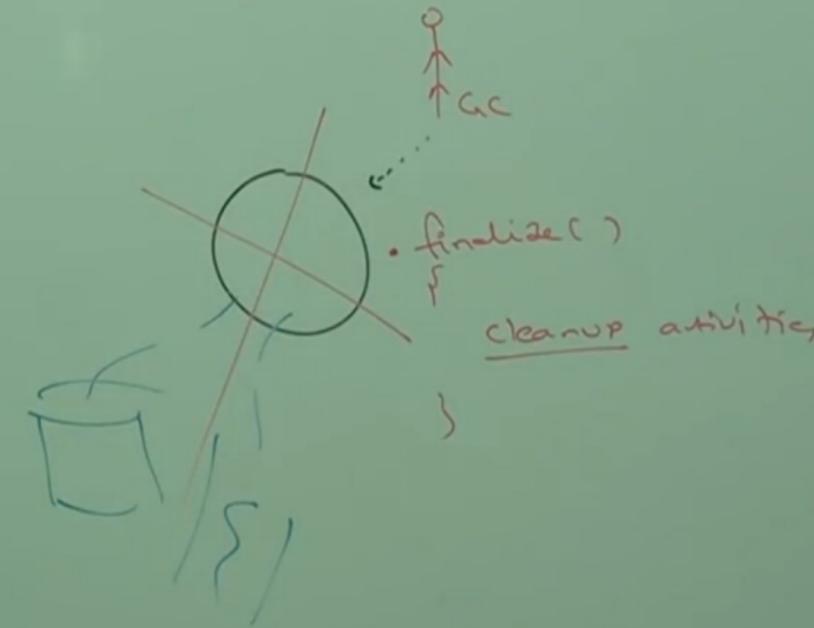
```
C:\durga_classes>javac Test.java  
Test.java:12: exception java.lang.ArithmetiCException  
        catch (ArithmetiCException e)  
          ^  
1 error
```

```
C:\durga_classes>javac Test.java  
C:\durga_classes>
```

① final:

② finally:

(~~finalize()~~)



①	try {} catch(x e) {} }	②	try {} catch(x e) {} catch(y e) {} }	③	try {} catch(x e) {} catch(x e) {} finally {} }	④	try {} catch(x e) {} finally {} }	⑤	try {} catch(x e) {} catch(y e) {} finally {} }	⑥	try {} catch(x e) {} catch(y e) {} finally {} }	⑦	try {} catch(x e) {} catch(y e) {} finally {} }	⑧	try {} catch(x e) {} finally {} }	⑨	try {} catch(x e) {} finally {} }	⑩	try {} finally {} }	⑪	try {} finally {} catch(x e) {} }
⑫	try {} try {} catch(x e) {} } }	⑬	try {} try {} catch(x e) {} } }	⑭	try {} try {} finally {} } }	⑮	try {} try {} catch(x e) {} } }	⑯	try {} try {} catch(x e) {} } }	⑰	try {} try {} finally {} } }	⑱	try {} try {} catch(x e) {} } }	⑲	try {} try {} catch(x e) {} finally {} } }	⑳	try {} try {} catch(x e) {} finally {} } }	㉑	try {} try {} catch(x e) {} finally {} } }	㉒	try {} try {} catch(x e) {} finally {} } }
㉓	try {} try {} catch(x e) {} } }	㉔	try {} try {} catch(x e) {} } }	㉕	try {} try {} finally {} } }	㉖	try {} try {} catch(x e) {} } }	㉗	try {} try {} catch(x e) {} } }	㉘	try {} try {} finally {} } }	㉙	try {} try {} catch(x e) {} } }	㉚	try {} try {} finally {} } }	㉛	try {} try {} finally {} } }				

CE: exception x has already been caught

CE: try without catch or finally

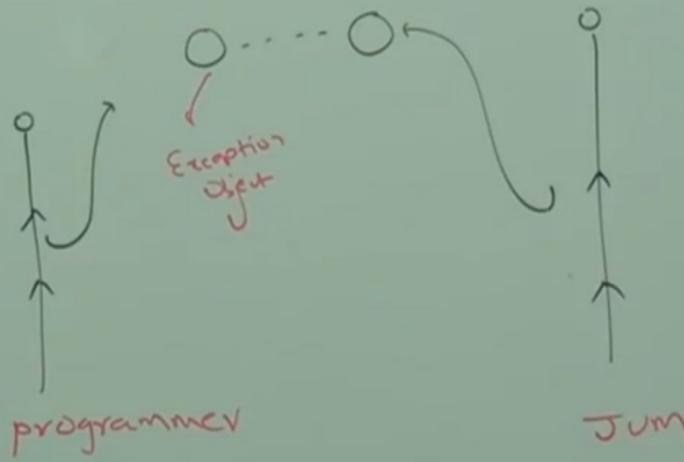
CE: finally without try

CE: finally without catch

CE: catch without try

6	try {} catch(x e) {} try {} catch(Y e) {} finally { } ✓	7	try {} catch(x e) {} try {} finally { } ✓	8	try {} catch(x e) {} ce: try without Catch (or) finally without try	9	try {} catch(x e) {} ce: catch without try	10	try {} finally {} ce: finally without try	11	try {} finally {} ce: catch without try	12	try {} Sopen("Hello"); catch(x e) {} ce: try without catch or finally try	13	try {} catch(x e) {} Sopen("Hello"); catch(Y e) {} ce: catch without try	14	try {} catch(x e) {} Sopen("Hello")); finally {} ce: finally without try
---	---	---	---	---	---	---	--	----	---	----	--	----	--	----	--	----	--

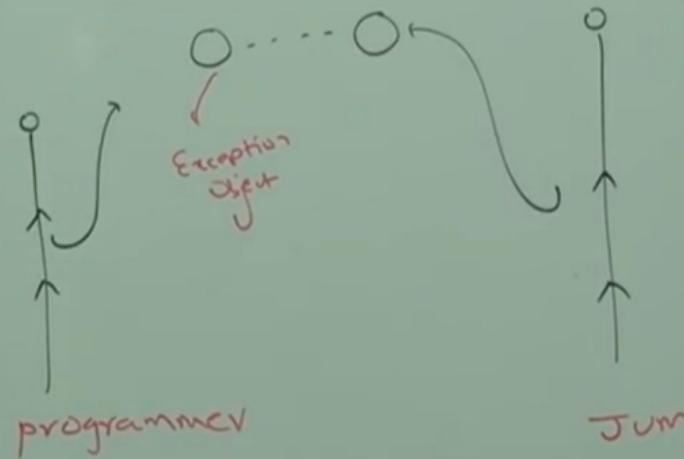
15	try {} catch(x e) {} try {} finally {} ce: finally without try ✓	16	try {} catch(x e) {} finally {} ce: finally without try ✓	17	try {} catch(x e) {} try {} finally { } ce: finally without try ✓	18	try {} catch(x e) {} try {} finally { } ce: finally without try ✓	19	try {} catch(x e) {} finally { } ce: finally without try ✓	20	try {} catch(x e) {} finally { } ce: finally without try ✓	21	try {} catch(x e) {} finally { } ce: finally without try ✓	22	try {} catch(x e) {} finally { } ce: finally without try ✓	23	try {} Sopen("try"); catch(x e) {} Sopen("catch"); finally { } ce: finally without try ✗	24	try {} catch(x e) {} Sopen("catch"); finally { } ce: finally without try ✗	25	try {} catch(x e) {} finally { } Sopen("finally"); ce: finally without try ✗
----	--	----	---	----	---	----	---	----	--	----	--	----	--	----	--	----	--	----	---	----	---



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75.Core Java with OCJP_SCJP_Exception Handling Part-5 __ throw and throws

Exception
Def.

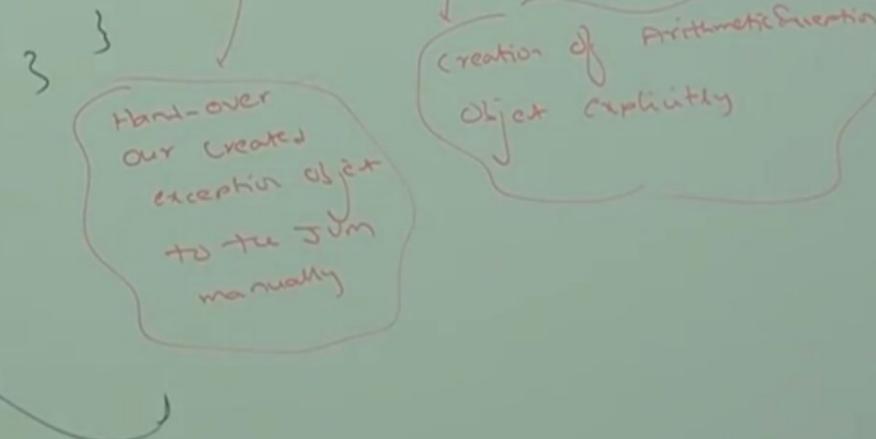


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```
class Test  
{  
    public static void main(String[] args)  
    {  
        System.out.println(10/0);  
    }  
}
```

Exception in thread "main" java.lang.ArithmaticException
at Test.main()

```
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            new AE(" / by zero")  
        }  
        catch(ArithmaticException e)  
        {  
            System.out.println(e.getMessage());  
        }  
    }  
}
```



```
1 class Test  
2 {  
3     public static void main(String[] args)  
4     {  
5         throw new ArithmeticException("/ by zero explicitly");  
6     }  
7 }
```

```
C:\durga_classes>java Test
Exception in thread "main" java.lang.ArithmetricException: ,
at Test.main(Test.java:5)
C:\durga_classes>javac Test.java
C:\durga_classes>java Test
Exception in thread "main" java.lang.ArithmetricException: ,
at Test.main(Test.java:5)
C:\durga_classes>javac Test.java
C:\durga_classes>java Test
Exception in thread "main" java.lang.ArithmetricException: ,
at Test.main(Test.java:5)
C:\durga_classes>
```

```
"Test"
"main" java.lang.ArithmetiException: / by zero
(Test.java:5)
ac Test.java
a Test
"main" java.lang.ArithmetiException: / by zero
(Test.java:5)
ac Test.java
a Test
"main" java.lang.ArithmetiException: / by zero explicitly
(Test.java:5)
```

```
class Test  
{  
    public void main(String[] args)  
    {  
        System.out.println(10/0);  
    }  
}
```

Exception in thread "main" java.AE / by zero
at Test.main()

```
class Test  
{  
    public void main(String[] args)  
    {  
        throw new AE(" / by zero");  
    }  
}
```

Exception in thread "main" java.AE : / by zero
at Test.main()

withdraw(double amount)

{
if (amount > balance)

throw new InsufficientFundsException();

----- 1214
R
T
X
X

throw new AE(" / by zero")



```
class Test  
{  
    static AE e = new AE();  
    p > ~ main(String[] args)  
    {  
        throw e;  
    }  
}
```

RE : AE

```
class Test  
{  
    static AE e;  
    p > ~ main(String[] args)  
    {  
        throw e;  
    }  
}
```

RE : NPE

throw e;

If e refers null then
we will get

NPE

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```
3 static ArithmeticException e = new ArithmeticException()
4 public static void main(String[] args)
5 {
6     throw e;
7 }
8 }
```



```
:>java Test
Exception in thread "main" java.lang.Arithmeti
      at Test.<clinit>(Test.java:3)
:\durga_classes>
```

```
1 class Test
2 {
3     static ArithmeticException e;
4     public static void main(String[] args)
5     {
6         throw e;
7     }
8 }
```

```
: \durga_classes>java Test
Exception in thread "main" java.lang.Arithmeti
      at Test.<clinit>(Test.java:3)
: \durga_classes>javac Test.java
: \durga_classes>java Test
Exception in thread "main" java.lang.NullPointe
      at Test.main(Test.java:6)
: \durga_classes>
```

class Test

{
 public static void main(String[] args)

 {
 System.out.println("Hello");
 System.out.println("Hello");

}

RF: AE: / by zero

✓

class Test

{
 public static void main(String[] args)

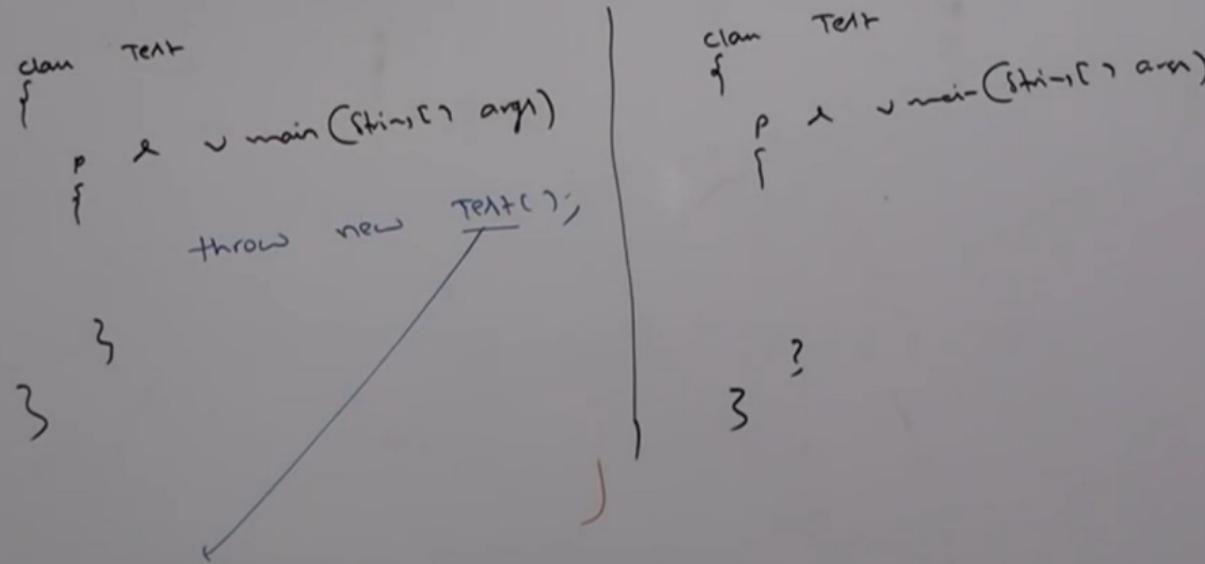
 {
 throw new AE("/ by zero");

 }

?

CE: unreachable Statement

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CE: incompatible types

found : Test

Required : j.l.Throwable

```
class Test  
{  
    public static void main(String[] args)  
    {  
        throw new Test();  
    }  
}
```

```
class Test  
{  
    public static void main(String[] args)  
    {  
        throw new Test();  
    }  
}
```

CE: incompatible types
found : Test
required : j.l.Throwable

RE: Exception in thread "main" Test
at Test.main()

76.Core Java with OCJP_SCJP_ Exception Handling Part-6 __ throws keyword

```
import java.io.*  
class Test  
{  
    public static void main(String[] args)  
    {  
        PrintWriter pw = new PrintWriter("abc.txt");  
        pw.println("Hello");  
    }  
}
```

CE: unreported exception `java.io.FileNotFoundException;`
must be caught or declared to be thrown

unreported exception XXX ; must be caught or declared to be
thrown

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Ques 2:

```
class Test  
{  
    public static void main(String[] args)  
    {  
        Thread.sleep(10000);  
    }  
}
```

CE: unreported exception java.lang.InterruptedException;
must be caught or declared to be thrown

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```
import java.io.*  
class Test  
{  
    public static void main(String[] args)  
    {  
        PrintWriter pw = new PrintWriter("abc.txt");  
        pw.println("Hello");  
    }  
}
```

CE: Unreported Exception `java.io.FileNotFoundException;`
must be caught or declared to be thrown

unreported exception XXX ; must be caught or declared to be
thrown

I

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```
class Test  
{  
    public static void main(String[] args)  
    {  
        Thread.sleep(10000);  
    }  
}
```

CE: unreported exception java.lang.InterruptedException;
must be caught or declared to be thrown

```
Test.java:6: unreported exception java.io.FileNotFoundException  
or declared to be thrown  
    PrintWriter out = new PrintWriter("abc.txt");  
                                         ^  
1 error  
  
C:\durga_classes>javac Test.java  
Test.java:5: unreported exception java.lang.InterruptedException  
or declared to be thrown  
    Thread.sleep(10000);  
                           ^  
1 error  
  
C:\durga_classes>
```

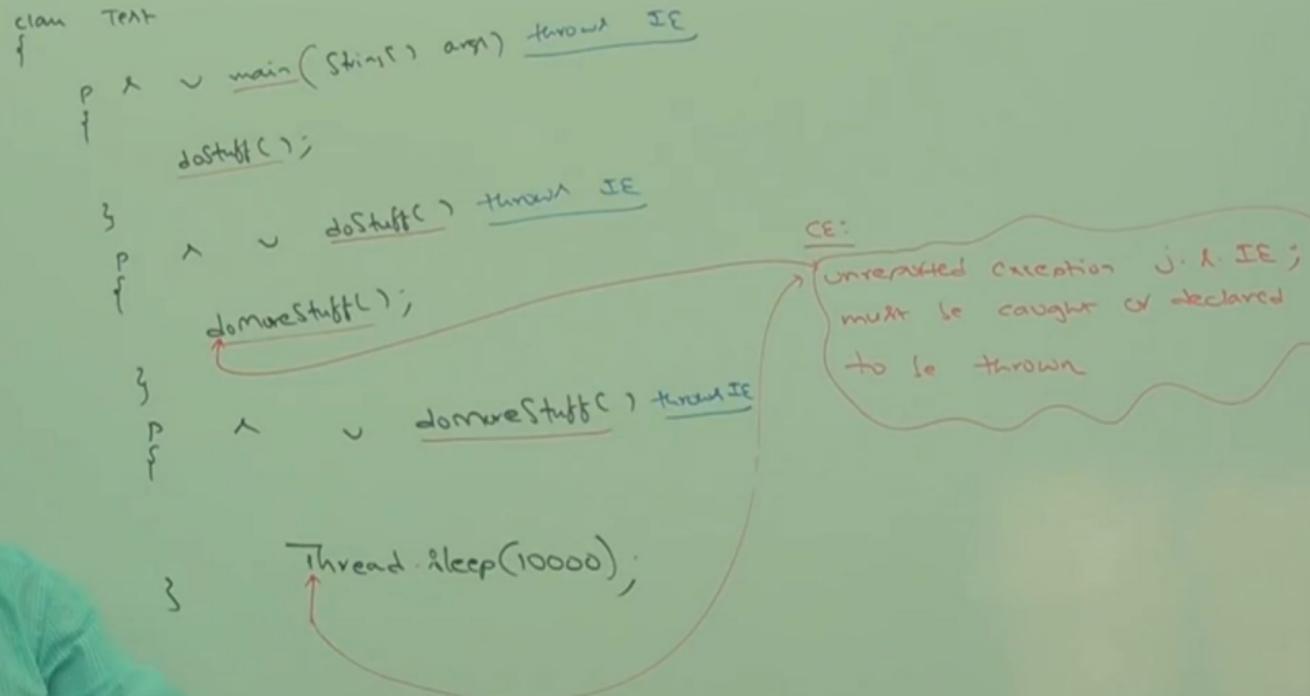
```
class Test
{
    public static void main(String[] args)
    {
        try
        {
            Thread.sleep(10000);
        }
        catch(InterruptedException e)
        {
        }
    }
}
```

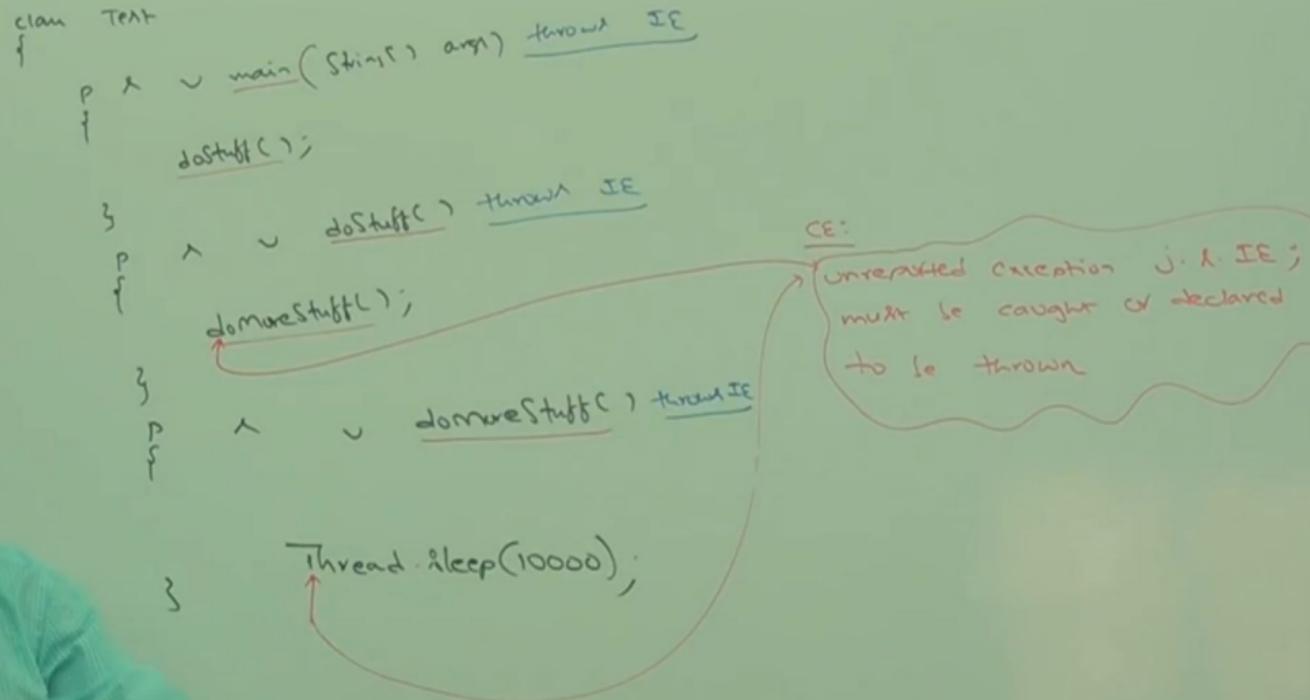
```
1 class Test
2 {
3     public static void main(String[] args)
4     {
5         try{
6             Thread.sleep(10000);
7         }
8         catch(InterruptedException e){}
9     }
10 }
```

```
c:\durga_classes>javac Test.java
Test.java:5: unreported exception java.lang.InterruptedException;
or declared to be thrown
        Thread.sleep(10000);
                           ^
error

\c:\durga_classes>javac Test.java
\c:\durga_classes>
```

class Test
{
 public static void main(String[] args) throws IE
 {
 Thread.sleep(10000);
 }
}

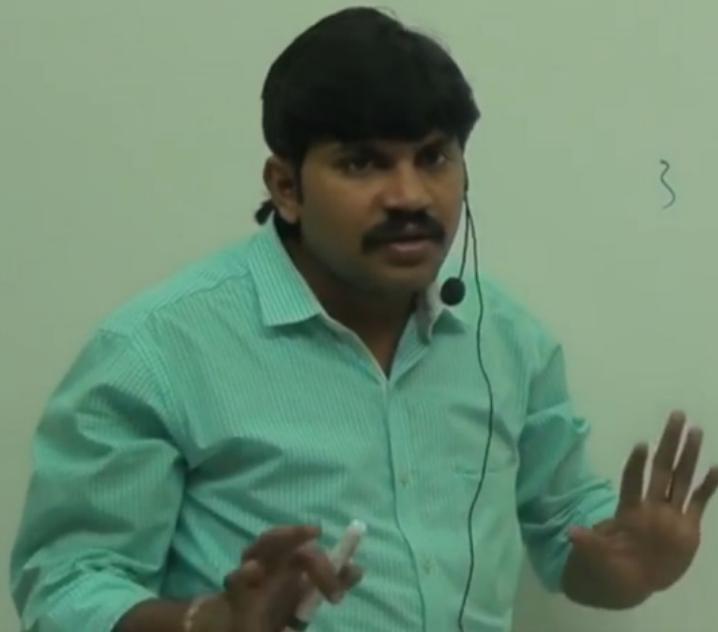




throw clause

1. we can use to delegate responsibility of exception handling to the caller (it may be method or Jvm)
2. it is required only for checked exceptions and usage of throw keyword for unchecked exception there is no impact.
3. it is required only to convince compiler and usage of throw does not prevent abnormal termination of program.

```
class Test {  
    throw Exception; X  
}  
  
Test t = new Test();  
t.throwException(); ✓  
  
public void m() {  
    throw Exception;  
}  
}
```



```
class Test  
{  
    public void m1() throws Test  
    {  
    }  
}
```

cc: incompatible type
found: Test
required: j

```
class Test extends RuntimeException  
{  
    public void m1() throws Test  
    {  
    }  
}
```

```
class Test
{
    public static void main(String[] args) throws Test
    {
    }
}
```

```
C:\durga_classes>javac Test.java
Test.java:3: incompatible types
    found   : Test
           required: java.lang.Throwable
                  public static void main(String[] args)
1 error
C:\durga_classes>
```

```
1 class Test extends RuntimeException
2 {
3     public static void main(String[] args) throws Test
4     {
5     }
6 }
7 }
```

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```
class Test  
{  
    public static void main(String[] args)  
    {  
        throw new Exception();  
    }  
}
```

CE = unreported exception J·I·Exception;

must be caught or declared to

be thrown

```
class Test  
{  
    public static void main(String[] args)  
    {  
        throw new Error();  
    }  
}
```

RE: Exception in thread "main" J·I·Error
at Test.main()

```
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(AE e)  
        {  
        }  
    }  
}
```

```
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(Exception e)  
        {  
        }  
    }  
}
```

```
import java.io.*;  
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(IOException e)  
        {  
        }  
    }  
}
```

```
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(InterruptedException e)  
        {  
        }  
    }  
}
```

```

    } // arr
    {
        class Test
        {
            public static void main(String args[])
            {
                try
                {
                    System.out.println("Hello");
                }
                catch(Exception e)
                {
                }
            }
        }
    }

    import java.io.*;
    class Test
    {
        public static void main(String args[])
        {
            try
            {
                super.println("Hello");
            }
            catch( IOException e )
            {
            }
        }
    }

    class Test
    {
        public static void main(String args[])
        {
            try
            {
                System.out.println("Hello");
            }
            catch( InterruptedException e )
            {
            }
        }
    }

    class Test
    {
        public static void main(String args[])
        {
            try
            {
                super.println("Hello");
            }
            catch( Error e )
            {
            }
        }
    }
}

```



```
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(AE e)  
        {  
            // unchecked  
        }  
    }  
}
```

O/p: Hello

```
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(Exception e)  
        {  
            // partially checked  
        }  
    }  
}
```

O/p: Hello

```
import java.io.*;  
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(IE e)  
        {  
            // fully checked  
        }  
    }  
}
```

CE exception java.io.IOException
is never thrown in body
of corresponding try
statement

```
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(IE e)  
        {  
            // fully checked  
        }  
    }  
}
```

CE exception java.io.IOException
is never thrown
in body of
corresponding
try statement

```
class Test  
{  
    public static void main(String[] args)  
    {  
        try  
        {  
            System.out.println("Hello");  
        }  
        catch(Error e)  
        {  
        }  
    }  
}
```

O/p: Hello

- ① try → To maintain try block code
- ② catch → To maintain exception handling code
- ③ finally → To maintain cleanup code
- ④ throw → To hand-over our created exception object
to the JVM manually
- ⑤ throws → To delegate responsibility of exception handling
to the caller

1 2 3 4 5 6
277 1. unreported exception XXX ; must be caught or declared to be
thrown
278 2. Exception XXX has already been caught
279 3. Exception XXX is never thrown in body of corresponding try
statement
280 4. unreachable statement
281 5. incompatible types
282 found: Test
283 required: java.lang.Throwable
284 6. try without catch or finally
285 7. catch without try
286 8. finally without try
287
288
289
290

```
1 2 3 4 5 6  
277 1. unreported exception XXX ; must be caught or declared to be  
278 thrown  
279 2. Exception XXX has already been caught  
280 3. Exception XXX is never thrown in body of corresponding try  
281 statement  
282 4. unreachable statement  
283 5. incompatible types  
284 found: Test  
285 required: java.lang.Throwable  
286 6. try without catch or finally  
287 7. catch without try  
288 8. finally without try  
289
```

Various compile time error in Exception Handling

TooYoungException: plz wait some more
time definitely u will get
best match

TooOldException: your age is -
- - - -

Name:	Sally
Age:	14
DOB:	26-08-1999
Father's Name:	-
Constituency:	-
Height:	5.7
Waist:	68
Qualification:	M.Tech
Profession:	Sof -
Drinking Habit:	NO
Eating habit:	NO
Requirement:	YES

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```
class TooYoungException extends RuntimeException
```

```
{  
    TooYoungException(String s)  
}
```

```
{  
    super(s);  
}
```

```
}  
class TooOldException extends RuntimeException
```

```
{  
    TooOldException(String s)  
}
```

```
{  
    super(s);  
}
```

```
class CutExceptionDemo
```

```
{  
    public static void main(String[] args)
```

```
{  
    int age = Integer.parseInt(args[0]);  
}
```

```
if (age > 60)  
{  
    throw new
```

TooYoungException ("

plz wait
definitely
w

```
}  
else if (age < 18)  
{  
    throw new
```

TooOldException (" your a
marria
of a

```
}  
else
```

```
{  
    System.out.println("you will get match  
email !!")
```

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ptum extends RuntimeException

inception(String s)

er(s);

12Exception extends RuntimeException

String s)

```
class GunExceptionDemo
{
    public static void main(String[] args)
    {
        Integer.parseInt(args[0]);
        int age = Integer.parseInt(args[0]);
        if (age > 60)
        {
            throw new TooYoungException("Plz wait some more time
                                            definitely you will get your
                                            match");
        }
        else if (age < 18)
        {
            throw new TooOldException("Your age already crossed
                                         marriage age and no chance
                                         of getting marriage");
        }
        else
        {
            System.out.println("you will get match details soon by
                                email !!!");
        }
    }
}
```

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```
1 class TooYoungException extends RuntimeException
2 {
3     TooYoungException(String s)
4     {
5         super(s);
6     }
7 }
8 class TooOldException extends RuntimeException
9 {
10    TooOldException(String s)
11    {
12        super(s);
13    }
14 }
15 class CustException
16 {
17     public static void main(String[] args)
18     {
19         int age = Integer.parseInt(args[0]);
20         if(age > 60)
21         {
22             TooYoungException e = new TooYoungException("Age is too young");
23             throw e;
24         }
25         else
26         {
27             TooOldException e = new TooOldException("Age is too old");
28             throw e;
29         }
30     }
31 }
```

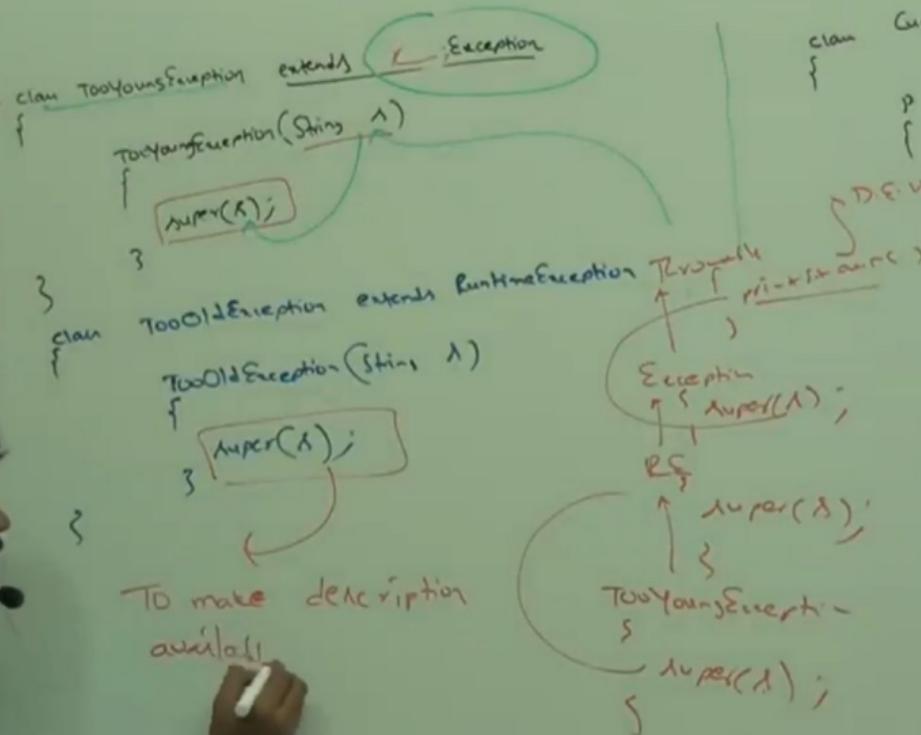
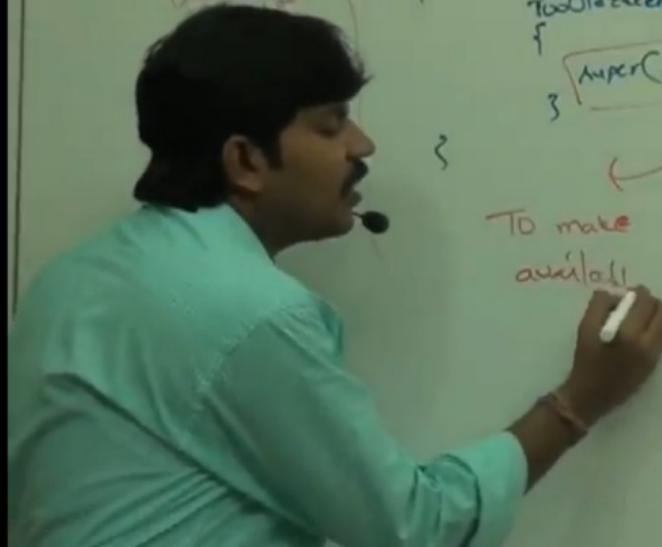
```
15 class CustException
16 {
17     public static void main(String[] args)
18     {
19         int age = Integer.parseInt(args[0]);
20         if(age >60)
21         {
22             throw new TooYoungException("plz wait some more time");
23         }
24         else if(age <18)
25         {
26             throw new TooOldException("your age is already crossed");
27         }
28         else
29         {
30             System.out.println("you will get match details soon");
31         }
32     }
33 }
34 }
```

```
1 class TooYoungException extends Exception
2 {
3     TooYoungException(String s)
4     {
5         super(s);
6     }
7 }
8 class TooOldException extends RuntimeException
9 {
10    TooOldException(String s)
11    {
12        super(s);
13    }
14 }
15 class CustException
16 {
17     public static void main(String[] args)
18     {
19         int age = Integer.parseInt(args[0]);
20         if (age < 18)
21             throw new TooYoungException("Age is less than 18");
22         else if (age > 60)
23             throw new TooOldException("Age is more than 60");
24         else
25             System.out.println("Age is valid");
26     }
27 }
```

```
C:\durga_classes>javac CustException.java
CustException.java:22: unreported exception Too
                           ^
                           declared to be thrown
        you will get best match      throw new TooYoungExcept
        1 error                      ion("You are too
                                       soon");
                                       ^
                                       ^
```

```
C:\durga_classes>_
```

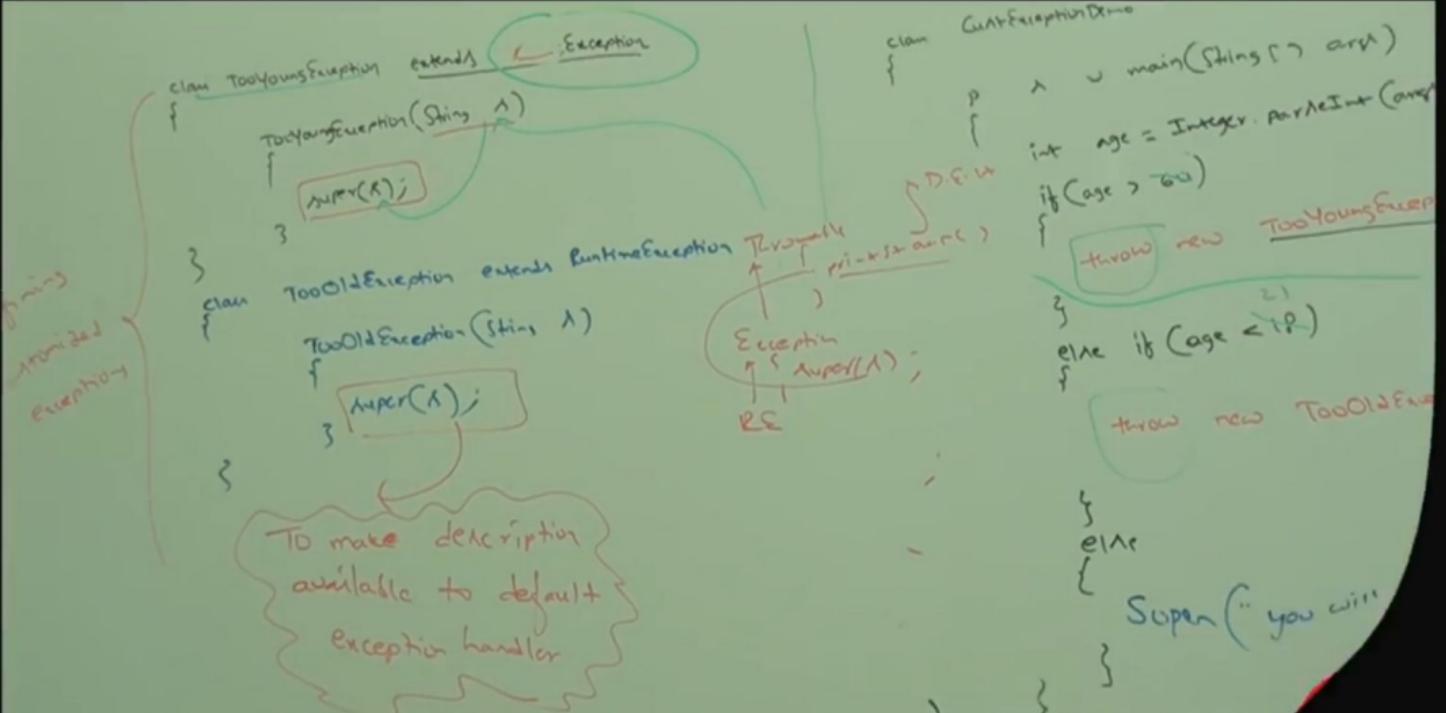
Defines



To make description available

```
CodeExceptionDemo
main(String[])
{
    int age = Integer.parseInt(
        if (age > 18)
            throw new TooYou
        else if (age < 18)
            throw new Too
    }
    else
        Super("you")
```

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JVM

sopen(10/0); RE: AE

Programmer

API developer

class Thread
{
 setPriority(int newPriority)
 {
 Thread t = new Thread();
 t.setPriority(5); ✓

 t.setPriority(15); RE: IllegalArgumentExcep
 if(newPriority > MAX_PRIORITY) newPr < min_P
 throw new IllegalArgumentExcep;
 }
};

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```
1005 * @see #checkAccess()  
1006 * @see #getThreadGroup()  
1007 * @see #MAX_PRIORITY  
1008 * @see #MIN_PRIORITY  
1009 * @see ThreadGroup# getMaxPriority()  
1010 */  
1011 public final void setPriority(int newPriority) {  
1012     ThreadGroup g;  
1013     checkAccess();  
1014     if (newPriority > MAX_PRIORITY || newPriority <  
1015         MIN_PRIORITY) {  
1016         throw new IllegalArgumentException();  
1017     }  
1018     if ((g = getThreadGroup()) != null) {  
1019         if (newPriority > g.getMaxPriority()) {  
1020             newPriority = g.getMaxPriority();  
1021         }  
1022         setPriority0(priority = newPriority);  
1023     }  
}
```

String s = new String("durga");

Object o = (Object)s;



Object o = ~~new Object();~~

String s = (String)o;

RE: ClassCastException

Object o = ~~new String("durga");~~

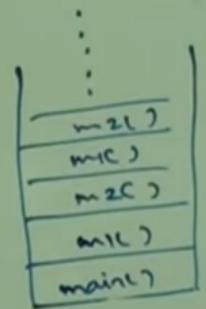
String s = (String)o;



```

class Test
{
    ↗ ↘ m1();
    {
        ↗ ↘ m2();
        {
            ↗ ↘ m2();
            {
                ↗ ↘ m1();
                {
                    ↗ ↘ main(stri->arr)
                    {
                        ↗ ↘ m1();
                    }
                }
            }
        }
    }
}

```



RE: StackOverflowError

NoClassDefFoundError

Java Test ↪

RE : NoClassDefFoundError : Test

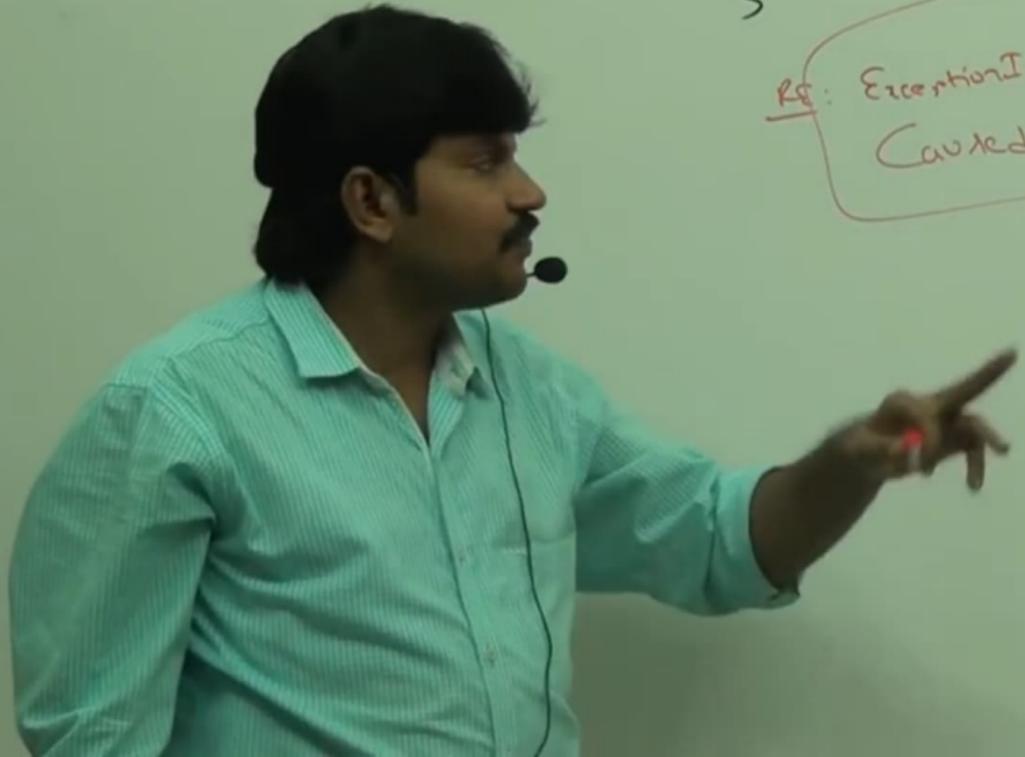
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```
a Test  
a TestTestTest  
d main class TestTestTest  
"main" java.lang.NoClassDefFoundError: TestTestTest  
her.LauncherHelper.checkAndLoadMain(LauncherHelper.jav  
.ClassNotFoundException: TestTestTest  
URLClassLoader$1.run(URLClassLoader.java:299)  
URLClassLoader$1.run(URLClassLoader.java:288)  
rity.AccessController.doPrivileged(Native Method)  
URLClassLoader.findClass(URLClassLoader.java:287)  
.ClassLoader.loadClass(ClassLoader.java:422)  
Launcher$AppClassLoader.loadClass(Launcher.java:325)  
.ClassLoader.loadClass(ClassLoader.java:355)  
her.LauncherHelper.checkAndLoadMain(LauncherHelper.ja
```

```
class Test  
{  
    static int n = 10/0;  
}
```

3

Re: Execution Initialization Error
Caused by: j. l. AE / by zero



```
class Test  
{  
    static int z = 10/0;  
}
```

}

RE: ExceptionInInitializerError
Caused by: j.l.AE / by zero

```
class Test  
{  
    static  
    {  
        String s = null;  
        System.out.println(s.length());  
    }  
}
```

}

RE: ExceptionInInitializerError
Caused by: j.l.NPE

✓ `int i = Integer.parseInt("10");`

✗ ~~`int i = Integer.parseInt("ten");`~~; RE: NumberFormatException

RE
Illegal Argument
└ NumberFormatException

```
Thread t = new Thread();
```

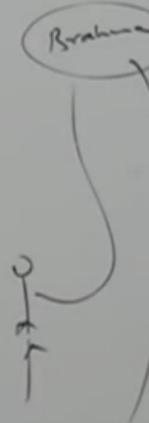
```
t.start(); ✓
```

```
;
```

```
;
```

```
;
```

```
t.start(); X RE: Illegal Thread State Exception
```



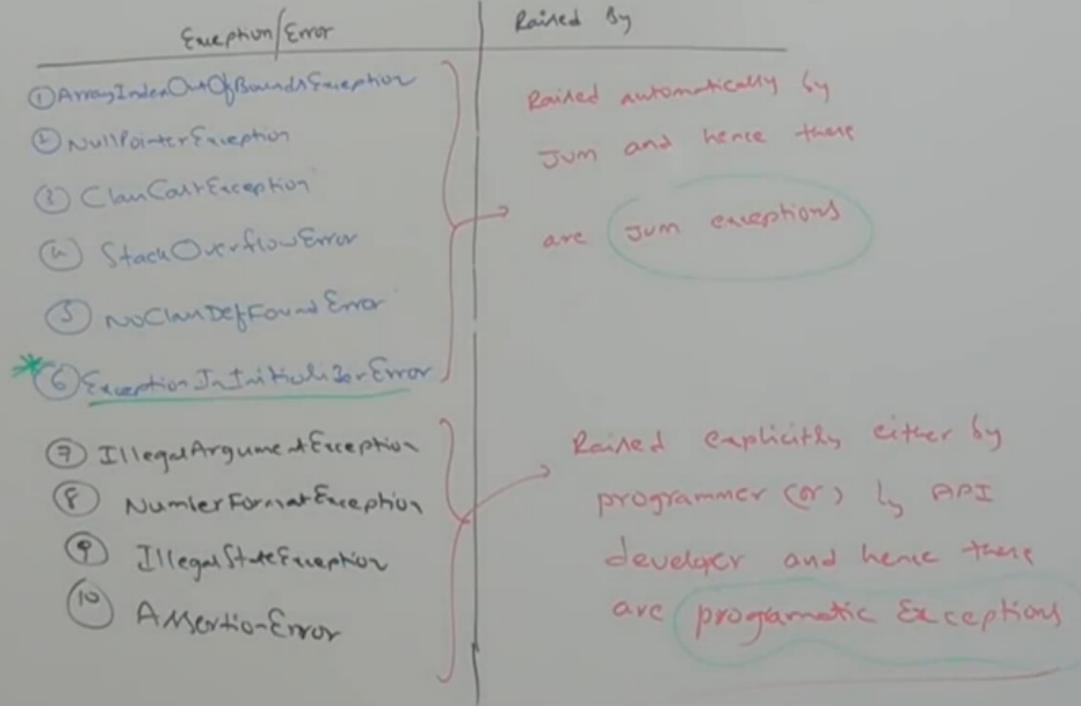
RE: Illegal state error.

ASSERTIONError

eg:

assert ($x > 10$);

RE: AssertionError



1.7 V enhancement A cost Exception Handling



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```
BR bx = null;  
try  
{  
    bx = new BR(new FileReader("input.txt"));  
    // use bx based on our requirement  
}  
catch (IOException e)  
{  
    // Handling code  
}  
finally  
{  
    if (bx != null)  
    {  
        bx.close();  
    }  
}
```



1.6v

```

BR br = null;
try {
    br = new BR(new FR("input.txt"));
    // use br based on our requirement
}
catch (IOException e) {
    // Handling code
}
finally {
    if (br != null)
        br.close();
}

```

1.7v

```

try (BR br = new BR(new FR("input.txt")));
{
    // use br based on our requirement
    // br will be closed automatically once
    // control reaches end of try block either normally
    // or abnormally and we are not responsible to
    // close explicitly.
}
catch (IOException e) {
    // Handling code
}

```

remove?

```
try(r1; r2; r3)  
{  
}=  
}
```

new = new Ref(new
↳ based on
will be called
not reached on
abnormally and
explicitly -

}
catch (Exception
f
and then, code

try (R₁; R₂; L₃)

{

res:

try (FileWriter fw = new FileWriter("output.txt"));

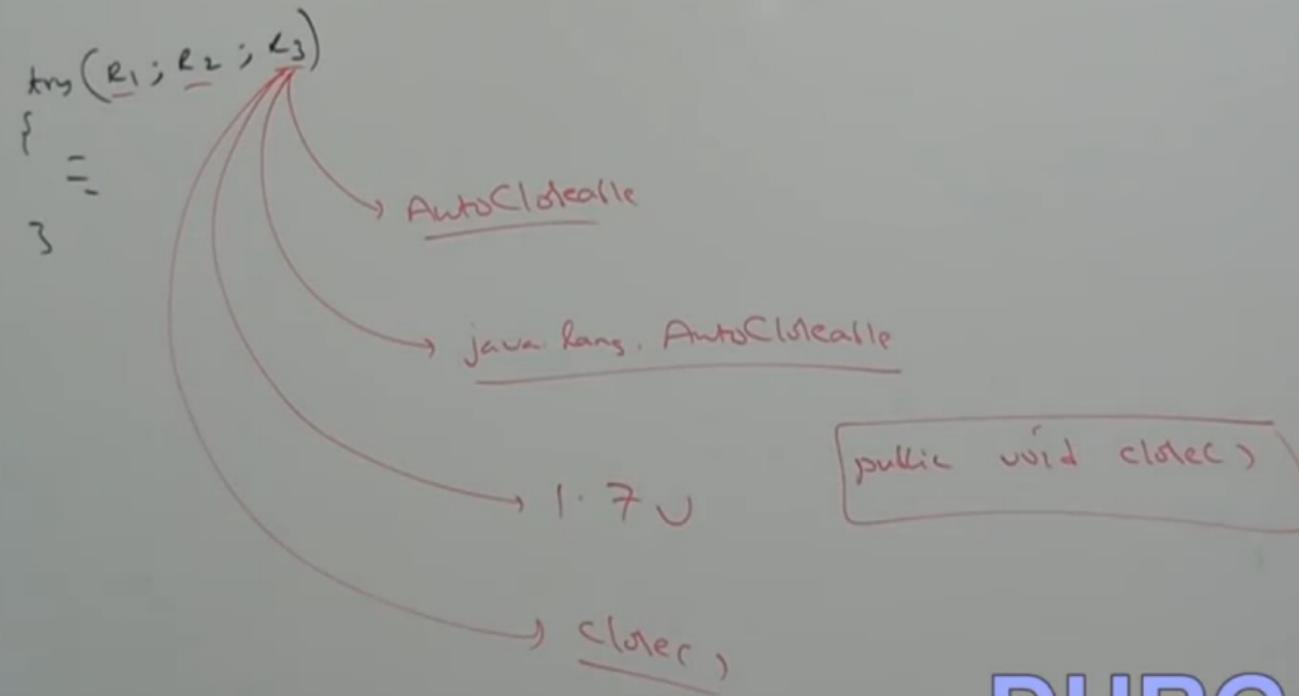
R₁

FR fr = new FR("input.txt")

R₂

=

}



try(BR br = new BR(new FR("input.txt")))
- fr.read();
br → input.txt
↓
3
find
←
(cc)

```
import java.io.*;
class TryWithResources
{
    public static void main(String[] args) throws Exception
    {
        try (BufferedReader br=new BufferedReader(new
FileReader("input.txt")))
        {
            br = new BufferedReader(new
FileReader("output.txt"));
        }
    }
}
```

```
\durga_classes>javac TryWithResources.java
\durga_classes>TryWithResources.java:8: error: auto-closeable resource
          br = new BufferedReader(new
                           ^
error
```

```
\durga_classes>javac TryWithResources.java
\durga_classes>
```

```
sources.java  
auto-closeable resource br may not be assigned  
BufferedReader(br = new BufferedReader(new FileReader("output.txt")));
```

```
sources.java
```

```
try  
{  
    finally  
}
```

```
try(r)  
{  
    =  
}
```

```
{  
;  
}  
}  
catch(AE e)  
{  
    e.printStackTrace();  
}  
}  
catch(EOFException e)  
{  
    e.printStackTrace();  
}  
}  
catch(NPE e)  
{  
    super(e.getMessage());  
}  
}  
catch(InterruptedException e)  
{  
    super(e.getMessage());  
}
```

```
{  
;  
}  
}  
catch(AE | IOException e)  
{  
    e.printStackTrace();  
}  
}  
catch(NPE | InterruptedException e)  
{  
    super(e.getMessage());  
}  
}
```

```
import java.io.*;
class MultiCatchBlock
{
    public static void main(String[] args)
    {
        try
        {
            System.out.println(10/0);
            String s = null;
            System.out.println(s.length());
        }
        catch (ArithmetcException | NullPointerException e)
        {
            System.out.println(e);
        }
    }
}
```

```
durga_classes>javac MulticatchBlock.java  
durga_classes>java MulticatchBlock  
java.lang.ArithmetricException: / by zero  
durga_classes>
```

class MultiCatchP extends

{ 79.Core Java with OCJP_SCJP_ Exception

Handling Part-9 --- try with resources and ...

{ static void main(String[] args)

1.50
X

```
//System.out.println(10/0);
String s = null;
System.out.println(s.length());
```

}

```
catch (ArithmetricException | NullPointerException e)
{
    System.out.println(e);
}
```

}

1:35:36

-15:52

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```
durga_classes>javac MultiCatchBlock.java
durga_classes>java MultiCatchBlock
java.lang.ArithmetricException: / by zero
durga_classes>javac MultiCatchBlock.java
durga_classes>java MultiCatchBlock
java.lang.NullPointerException
durga_classes>
```

```
durga_classes>javac MultiCatchBlock.java
durga_classes>java MultiCatchBlock
java.lang.ArithmetricException: / by zero
durga_classes>javac MultiCatchBlock.java
durga_classes>java MultiCatchBlock
java.lang.NullPointerException
durga_classes>
```

```
try  
{  
;  
}  
}  
catch(AE | Exception e)  
{  
    e.printStackTrace();  
}  
}  
CE;
```

```
4 public static void main(String[] args)
5 {
6     try
7     {
8         System.out.println(10/0);
9         String s = null;
10        System.out.println(s.length());
11    }
12    catch (ArithmeticException | Exception e)
13    {
14        System.out.println(e);
15    }
16 }
```

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```
C:\durga_classes>javac MultiCatchBlock.java
MultiCatchBlock.java:12: error: Alternatives in
    catch (ArithmetiException | E
        ^
Alternative ArithmeticException is a subclass
1 error
C:\durga_classes>_
```