Exception Class is a parent class for all the exception classes.

```
ocanner sc-new ocanner (byscem. m/)
                                                                                  meth1() called
80
       void meth1()
9
       {
                                                                                  try block executed
           System.out.println("meth1() called");
10
                                                                                  Enter a number
11
12
           System.out.println(10);
13
           try
                                                                                  finally Block executed
14
           {
15
               System.out.println("try block executed");
16
               System.out.println("Enter a number");
               System.out.println("====>"+(20/sc.nextInt()));
17
18
19
           catch(ArithmeticException e)
20
21
               System.out.println("catch Block executed");
22
23
           finally
24
           {
25
               System.out.println("finally Block executed");
26
27
           System.out.println(30);
28
29⊜
       public static void main(String[] args)
30
31
           ClassA aobj=new ClassA();
           anhi moth1/1.
       ocalmer sc-new ocalmer (oystem. in),
                                                                                  meth1() called
80
       void meth1()
9
                                                                                  try block executed
10
           System.out.println("meth1() called");
                                                                                  Enter a number
11
12
           System.out.println(10);
                                                                                  catch Block executed
13
           try
                                                                                  finally Block executed
14
           {
15
               System.out.println("try block executed");
16
               System.out.println("Enter a number");
17
               System.out.println("====>"+(20/sc.nextInt()))
18
19
           catch(ArithmeticException e)
20
           {
21
               System.out.println("catch Block executed");
22
23
           finally
25
               System.out.println("finally Block executed");
26
27
           System.out.println(30);
28
29∋
       public static void main(String[] args)
30
           ClassA aobj=new ClassA();
31
27
           anhi math1/1.
```

```
ocaliner sc-new ocaliner (oyscem. in),
                                                                                meth1() called
 void meth1()
                                                                                 try block executed
     System.out.println("meth1() called");
                                                                                 Enter a number
     System.out.println(10);
                                                                                catch Block executed
     try
                                                                                 / by zero
                                                                                 finally Block executed
          System.out.println("try block executed");
         System.out.println("Enter a number");
         System.out.println("====>"+(20/sc.nextInt()));
     catch(ArithmeticException e)
          System.out.println("catch Block executed");
         System.out.println(e.getMessage()); // Reason of the Exception
     finally
         System.out.println("finally Block executed");
     System.out.println(30);
 public static void main(String[] args)
     Clased anhi-new Clased().
```

```
Scanner Sc-new Scanner (System. in),
                                                                               meth1() called
void meth1()
                                                                               10
                                                                               try block executed
    System.out.println("meth1() called");
                                                                               Enter a number
    System.out.println(10);
                                                                               catch Block executed
    try
                                                                               java.lang.ArithmeticException: / by zer
    {
                                                                               finally Block executed
        System.out.println("try block executed");
        System.out.println("Enter a number");
        System.out.println("====>"+(20/sc.nextInt()));
    catch(ArithmeticException e)
        System.out.println("catch Block executed");
        //System.out.println(e.getMessage()); // Reason of the Exception
        System.out.println(e.toString());// Name & Reason of the Exception
    finally
        System.out.println("finally Block executed");
    System.out.println(30);
nublic static unid main(String[] args)
```

```
Scanner Sc-new Scanner (System. 41),
                                                                                          meth1() called
void meth1()
                                                                                           try block executed
     System.out.println("meth1() called");
                                                                                          Enter a number
     System.out.println(10);
                                                                                          catch Block executed
                                                                                           java.lang.ArithmeticException: / by zero
                                                                                                    at Training/com.pack1.ClassA.meth1(Cla
         System.out.println("try block executed");
                                                                                                    at Training/com.pack1.ClassA.main(Clas
         System.out.println("Enter a number");
System.out.println("====>"+(20/sc.nextInt()));
                                                                                           finally Block executed
     catch(ArithmeticException e)
         System.out.println("catch Block executed");
         //System.out.println(e.getMessage()); // Reason of the Exception
//System.out.println(e.toString());// Name & Reason of the Exception
         e.printStackTrace(); // Complete info about the Exception
         System.out.println("finally Block executed");
     System.out.println(30);
nublic static unid main(String[] args
```

Methods To Display Exception Information

 Throwable class defines the following methods to print exception information to the console.

| Method Name | Description |
|-------------------|--|
| printStackTrace() | Name of the exception: description of exception Stack trace |
| toString() | Name of the exception: description of exception |
| getMessage() | Only Description |

```
3 import java.util.Scanner;
4
5 public class ClassA
6 {
7
       Scanner sc=new Scanner(System.in);
89
       void meth1()
9
       {
           System.out.println("meth1() called");
10
11
12
           System.out.println(10);
13
           try
14
           {
15
               System.out.println("try block executed");
16
               System.out.println("Enter a number");
17
               System.out.println("====>"+(20/sc.nextInt()));
18
19
           catch(ArithmeticException e)
20
21
               System.out.println("catch Block executed");
22
               //System.out.println(e.getMessage()); // Reason of the Exception
23
               //System.out.println(e.toString());// Name & Reason of the Exception
               e.printStackTrace(); //****** Complete info about the Exception
24
25
26
           finally
27
            {
                 System.out.println("finally Block executed");
28
29
30
            System.out.println(30);
31
        public static void main(String[] args)
320
33
        {
34
            ClassA aobj=new ClassA();
35
            aobj.meth1();
36
        }
37 }
```

```
Scanner Sc=new Scanner (System. th);
                                                                   meth1() called
80
       void meth1()
                                                                   10
                                                                   try block executed
10
           System.out.println("meth1() called");
                                                                   Enter a number
           System.out.println(10);
                                                                   finally Block executed
13
           try
                                                                   Exception in thread "main" java.lang.ArithmeticException
14
                                                                           at Training/com.pack1.ClassA.meth1(ClassA.java:17)
               System.out.println("try block executed");
System.out.println("Enter a number");
                                                                           at Training/com.pack1.ClassA.main(ClassA.java:33)
               System.out.println("====>"+(20/sc.nextInt()));
18
           catch(NullPointerException e)
20
               System.out.println("catch Block executed");
               e.printStackTrace();
23
           finally
26
27
               System.out.println("finally Block executed");
28
           System.out.println(30);
30€
       public static void main(String[] args)
31
           Claced aphi-now Claced().
                ac-new ocannier (oyacem. w/)
                                                                      metni() called
ge.
       void meth1()
 9
                                                                      try block executed
10
           System.out.println("meth1() called");
                                                                      Enter a number
           System.out.println(10);
                                                                      catch Block executed
13
            try
                                                                      java.lang.ArithmeticException: / by zero
           {
                                                                               at Training/com.pack1.ClassA.meth1(ClassA.java:17)
                System.out.println("try block executed");
                                                                               at Training/com.pack1.ClassA.main(ClassA.java:33)
                System.out.println("Enter a number");
                                                                      finally Block executed
                System.out.println("====>"+(20/sc.nextInt()));
18
            catch(RuntimeException e)
20
                System.out.println("catch Block executed");
                e.printStackTrace();
24
            finally
                System.out.println("finally Block executed");
28
            System.out.println(30);
29
309
       public static void main(String[] args)
31
        scanner sc=new scanner(system.un);
                                                                       meth1() called
88
        void meth1()
 9
                                                                       try block executed
10
            System.out.println("meth1() called");
                                                                       Enter a number
11
            System.out.println(10);
                                                                      catch Block executed
13
            try
                                                                       java.lang.ArithmeticException: / by zero
14
                                                                               at Training/com.pack1.ClassA.meth1(ClassA.java:17)
                System.out.println("try block executed");
                                                                       finally Block executed
                System.out.println("Enter a number");
                                                                               at Training/com.pack1.ClassA.main(ClassA.java:33)
                System.out.println("====>"+(20/sc.nextInt()));
18
19
            catch(Exception e)
20
21
                System.out.println("catch Block executed");
                e.printStackTrace();
23
24
            finally
26
                System.out.println("finally Block executed");
27
28
            System.out.println(30);
29
30=
       public static void main(String[] args)
31
            ClassA sobi-man ClassA().
```

```
ocanner sc=new ocanner (oyscem. in);
                                                                         meth1() called
80
       void meth1()
                                                                         10
9
                                                                         try block executed
            System.out.println("meth1() called");
10
                                                                         Enter a number
11
12
            System.out.println(10);
                                                                         catch Block executed
13
            try
                                                                         java.lang.ArithmeticException: / by zero
14
            {
                                                                                 at Training/com.pack1.ClassA.meth1(ClassA.java:17)
                System.out.println("try block executed");
                System.out.println("Enter a number");
System.out.println("===>"+(20/sc.nextInt()));
16
                                                                         finally Block executed
18
19
            catch(Throwable e)
20
21
                System.out.println("catch Block executed");
22
                e.printStackTrace();
23
24
            finally
25
26
                System.out.println("finally Block executed");
27
28
            System.out.println(30);
30∍
       public static void main(String[] args)
31
            Classe aghi-now Classell.
       scanner sc=new scanner (system. in);
                                                                                   meth1() called
89
       void meth1()
                                                                                   10
9
                                                                                   try block executed
10
           System.out.println("meth1() called");
                                                                                   Enter a number
           System.out.println(10);
                                                                                   catch Block executed
13
           try
                                                                                   java.lang.ArithmeticException: / by zero
14
                                                                                           at Training/com.pack1.ClassA.meth1(ClassA.ja
               System.out.println("try block executed");
                                                                                           at Training/com.pack1.ClassA.main(ClassA.jav
               System.out.println("Enter a number");
System.out.println("====>"+(20/sc.nextInt()));
16
                                                                                   30
18
19
           catch(Exception e)
20
21
               System.out.println("catch Block executed");
22
               e.printStackTrace();
24
25
           System.out.println(30);
       public static void main(String[] args)
28
29
           ClassA aobj=new ClassA();
30
           aobj.meth1();
31
       ocanner sc=new ocanner(oyscem.un);
                                                                                   meth1() called
8=
       void meth1()
                                                                                   10
                                                                                   try block executed
10
            System.out.println("meth1() called");
                                                                                   Enter a number
           System.out.println(10);
                                                                                   finally Block executed
            try
                                                                                   Exception in thread "main" java.lang.ArithmeticExcer
14
                                                                                           at Training/com.pack1.ClassA.meth1(ClassA.ja
                System.out.println("try block executed");
                                                                                           at Training/com.pack1.ClassA.main(ClassA.jav
                System.out.println("Enter a number");
16
                System.out.println("====>"+(20/sc.nextInt()));
18
19
            finally
21
               System.out.println("finally Block executed");
23
24
            System.out.println(30);
25
268
       public static void main(String[] args)
27
           ClassA aobj=new ClassA();
28
29
           aobj.meth1();
30
31 }
```

```
meth1() called
5 public class ClassA
6 {
 70
        void meth1()
                                                                                           try block executed
 8
                                                                                           Enter a number
                                                                                           5
 9
             System.out.println("meth1() called");
                                                                                           ===>4
10
             Scanner sc=new Scanner(System.in);
                                                                                           Hello world!!!
11
12
             System.out.println(10);
                                                                                           finally Block executed
13
             try
14
                 System.out.println("try block executed");
15
16
                 System.out.println("Enter a number");
17
                 System.out.println("====>"+(20/sc.nextInt()));
18
                 System.out.println("Hello world!!!");
19
                 sc.close();
20
             catch(Exception e)
21
22
23
                 System.out.println("catch Block executed");
24
                 e.printStackTrace();
25
26
            finally
27
                 System.out.println("finally Block executed");
28
29
5 public class ClassA
                                                                       meth1() called
                                                                       10
                                                                       try block executed
       void meth1()
 8
                                                                       Enter a number
      1
          System.out.println("meth1() called");
                                                                       catch Block executed
          Scanner sc=new Scanner(System.in);
                                                                       java.lang.ArithmeticException: / by zero
          System.out.println(10);
                                                                       finally Block executed
          try
                                                                              at Training/com.pack1.ClassA.meth1(ClassA.ja
                                                                              at Training/com.pack1.ClassA.main(ClassA.jax
              System.out.println("try block executed");
                                                                       30
              System.out.println("Enter a number");
17
              System.out.println("Hello world!!!");
19
              sc.close();
20
          catch(Exception e) _
              System.out.println("catch Block executed");
              e.printStackTrace();
          finally
              System.out.println("finally Block executed");
```

```
5 public class ClassA
 6 {
 70
        void meth1()
 8
           System.out.println("meth1() called");
 9
           Scanner sc=new Scanner(System.in);
10
11
12
           System.out.println(10);
13
           try
14
               System.out.println("try block executed");
15
               System.out.println("Enter a number");
16
               System.out.println("====>"+(20/sc.nextInt()));
17
           System.out.println("Hello world!!!");
18
19
20
            catch(Exception e)
21
22
               System.out.println("catch Block executed");
23
                e.printStackTrace();
24
               sc.close();
25
26
           finally /
27
28
               System.out.println("finally Block executed");
29
```

```
public class ClassA
{
0
       void meth1()
            System.out.println("meth1() called");
            Scanner sc=new Scanner(System.in);
            System.out.println(10);
            try
            {
                 System.out.println("try block executed");
                 System.out.println("Enter a number");
                 System.out.println("====>"+(20/sc.nextInt()));
                 System.out.println("Hello world!!!");
            catch(Exception e)
                 System.out.println("catch Block executed");
                 e.printStackTrace();
            finally v
                 System.out.println("finally Block executed");
                  sc.close();
                                                                           meth1() called
       void meth1()
                                                                           10
 8
                                                                           try block executed
 9
          System.out.println("meth1() called");
                                                                           Enter a number
10
          Scanner sc=new Scanner(System.in);
11
                                                                           1)===>4
12
          String arr[]=new String[5];
                                                                           Enter index postion of array
          arr[1]="Kishan";
arr[2]="Java";
13
14
                                                                           2)===>KISHAN
15
                                                                           Hello world!!!
16
          System.out.println(10);
                                                                           finally Block executed
17
          try
18
          {
19
             System.out.println("try block executed");
20
             System.out.println("Enter a number");
             System.out.println("1)===>"+(20/sc.nextInt()));
21
22
             System.out.println("Enter index postion of array");
23
24
             System.out.println("2)===>"+arr[sc.nextInt()].toUpperCase());
             System.out.println("Hello world!!!");
25
26
          catch(Exception e)
27
28
             System.out.println("catch Block executed");
29
             e.printStackTrace();
30
          finally
```

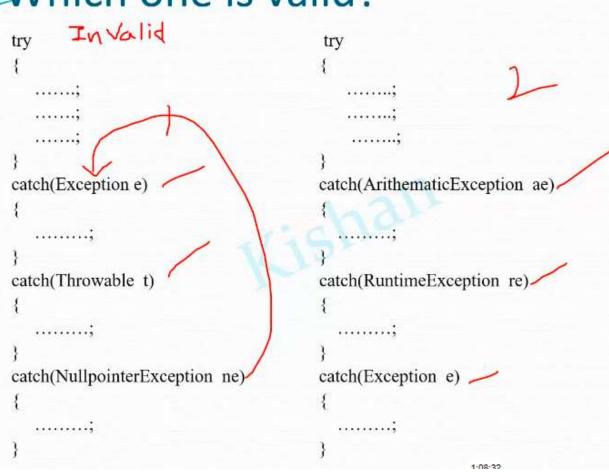
```
meth1() called
        void meth1()
                                                                                                 try block executed
             System.out.println("meth1() called");
                                                                                                 Enter a number
             Scanner sc=new Scanner(System.in);
11
                                                                                                 1)===>4
             String arr[]=new String[5];
                                                                                                 Enter index postion of array
            arr[1]="Kishan";
arr[2]="Java";
                                                                                                finally Block executed
                                                                                                Exception in thread "main" java.lang.NullPoi
             System.out.println(10);
                                                                                                         at Training/com.pack1.ClassA.meth1(C
17
             try
                                                                                                         at Training/com.pack1.ClassA.main(Cl
19
                 System.out.println("try block executed");
20
                 System.out.println("Enter a number");
21
                 System.out.println("1)====>"+(20/sc.nextInt()));
                 System.out.println("Enter index postion of array");
System.out.println("2)===>"+arr[sc.nextInt()].toUpperCase());
23
24
                 System.out.println("Hello world!!!");
25
26
             catch(ArithmeticException e)
27
28
                 System.out.println("catch Block executed");
                 e.printStackTrace();
30
31
             finally
                                                                               meth1() called
       void meth1()
8
                                                                               try block executed
            System.out.println("meth1() called");
                                                                               Enter a number
10
            Scanner sc=new Scanner(System.in);
            String arr[]=new String[5];
arr[1]="Kishan";
                                                                               finally Block executed
                                                                               Exception in thread "main" java.lang.ArithmeticException: /
13
                                                                                        at Training/com.pack1.ClassA.meth1(ClassA.java:21)
14
            arr[2]="Java";
                                                                                        at Training/com.pack1.ClassA.main(ClassA.java:41)
            System.out.println(10);
17
            try
18
                System.out.println("try block executed");
System.out.println("Enter a number");
System.out.println("1)====>"+(20/sc.nextInt()));
19
20
                System.out.println("Enter index postion of array");
System.out.println("2)===>"+arr[sc.nextInt()].toUpp
23
24
                 System.out.println("Hello world!!!");
25
            catch(NullPointerException e)
                System.out.println("catch Block executed");
28
                e.printStackTrace();
30
            finally
                                                                               meth1() called
             System.out.println(10);
             try
                                                                               try block executed
                                                                               Enter a number
                 System.out.println("try block executed");
20
                 System.out.println("Enter a number");
                                                                               1)===>4
                 System.out.println("1)===>"+(20/sc.nextInt()));
                                                                               Enter index postion of array
                 System.out.println("Enter index postion of array");
                 System.out.println("2)===>"+arr[sc.nextInt()].toUppo
                                                                               2nd catch Block executed
24
                 System.out.println("Hello world!!!");
                                                                               java.lang.NullPointerException: Cannot invoke "String.toUppe
                                                                                        at Training/com.pack1.ClassA.meth1(ClassA.java:23)
26
             catch(ArithmeticException e)
                                                                                        at Training/com.pack1.ClassA.main(ClassA.java:46)
                                                                               finally Block executed
28
                 System.out.println("1st catch Block executed");
                 e.printStackTrace();
29
30
31
             catch(NullPointerException e)
32
33
                 System.out.println("2nd catch Block executed");
34
                 e.printStackTrace();
36
             finally
37
38
                 System.out.println("finally Block executed");
39
                 sc.close();
```

```
meth1() called
            System.out.println(10);
                                                                              10
            try
                                                                              try block executed
                                                                              Enter a number
                System.out.println("try block executed");
                System.out.println("Enter a number");
System.out.println("]====>"+(20/sc.nextInt()));
                                                                              1st catch Block executed
                System.out.println("Enter index pos
System.out.println("2)===>"+arr[sc.
                                                                              java.lang.ArithmeticException: / by zero
                                                                                       at Training/com.pack1.ClassA.meth1(ClassA.java:21)
                                                       nextInt()].toUpp
                                                                                       at Training/com.pack1.ClassA.main(ClassA.java:46)
                System.out.println("Hello world!!!");
                                                                              finally Block executed
            catch(ArithmeticException e)
                System.out.println("1st catch Block executed");
                e.printStackTrace();
30
            catch(NullPointerException e)
                System.out.println("2nd catch Block executed");
                e.printStackTrace();
            finally
38
                System.out.println("finally Block executed");
```

Which one is valid?

```
try
                                                   try
    . . . . . . . .
                                                       . . . . . . . . . . ,
catch(Exception e)
                                                  catch(ArithematicException ae)
catch(Throwable t)
                                                  catch(RuntimeException re)
                                                     . . . . . . . . . . . . . . . . . . .
    catch(NullpointerException ne)
                                                  catch(Exception e)
    . . . . . . . . . .
                                                      . . . . . . . . . ,
```

Which one is valid?



```
16
           System.out.println(10);
17
           try
18
           {
               System.out.println("try block executed");
19
20
               System.out.println("Enter a number");
               System.out.println("1)====>"+(20/sc.nextInt()));
21
22
                System.out.println("Enter index postion of array");
               System.out.println("2)===>"+arr[sc.nextInt()].toUpperCase());
23
24
               System.out.println("Hello world!!!");
25
26
           //System.out.println("hi"); // C.E
27
           catch(NullPointerException e)
28
           {
29
               System.out.println("1st catch Block executed");
30
               e.printStackTrace();
31
32
           catch(Exception e)
33
34
               System.out.println("2nd catch Block executed");
35
               e, printStackTrace();
36
37
           //System.out.println("hi"); // C.E
38
           finally
39
               System.out.println("finally Block executed");
40
```

Keypoint in Exception Handling:

- 1) We can handle an exception by using try, catch, finally blocks.
- 2) Whenever we are using all the three blocks we should 100% maintain the order. catch-try-finally \improx Invalid
- 3) Inside try block always we need to write minimum code. [Write only suspecious code inside the try block]
- 3) fiside try block always we need to write minimum code. [write only suspectous code fiside the try block]
- 4) If there is an exception occurred in the try block then immediately the compiler will be coming to its respective catch block. Remaining code which is present inside the try block will not be executed.

try-finally-catch ⇒ Invalid

finally-try-catch > Invalid try-catch-finally > Valid

- 5)A catch block will be executed only if there is an exception occurred in the try block and we are catching that respective exception.
- 6) If we are catching the parent Exception of all the exception classes ie., [Exception] then every Exception will be handled.
- 7) A single try block never exists.
- 8) try block should be followed with either catch block (or) finally block (or) both.

try-catch Valid try-finally Valid catch-finally Invalid try-catch-finally Valid try-catch-finally

- 9) If we are not writing catch block in our program then we will not be having any error but if there is an exception occurred in our program it will not be handled.
- 10) finally block is used to close the existing database/server connections.
- 11) Between try-catch-finally blocks there should not be any individual statements.
- 12) We can handle multiple exceptions by using multiple catch blocks.
- 13) For a single try block we can write multiple catch blocks but we need to write a single finally block
- 14) Multiple catch blocks are allowed but multiple finally blocks are not allowed.
- 15) Whenever we are using multiple catch blocks always parent exception should be handled in the last catch block.
- 16) If we are using multiple catch blocks duplicate exception handling is not allowed. [We will be getting an Compile time error]
- 17) From Java 1.7v onwards we can write a single try block also. try(Resources) { }
- 18) From Java 1.7v onwards we can handle multiple exceptions by using a single eacth block. But those exceptions should not have any parent child relation ship.