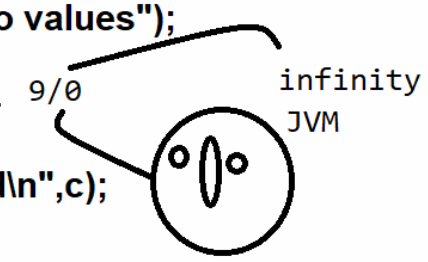
Exception Handling In Java

Q. What Is The Exception?

Exception is events which occur at program run time and which is responsible for disturb the normal flow of application called as Exception.

```
import java.util.*;
public class DivApplication
{
    public static void main(String x[])
    {
            Scanner xyz  =new Scanner(System.in);
            int a,b,c;
            System.out.println("Enter the two values");
            a=xyz.nextInt(); //9
            b=xyz.nextInt(); //0
            c=a/b;
            System.out.printf("Division is %d\n",c);
            System.out.println("Logic1");
            System.out.println("Logic2");
            System.out.println("Logic3");
    }
}
```



In above code if input the value a is 9 and value of b is 0 and perform the operation c=a/b means c=9/0 it is called as infinity. So JVM cannot perform the calculation with infinity so it will raise error at program run time and break the execution of complete program called as exception.

Q. Why use the Exception Handling?

1) Exception handling help program to detect the problem at run time
2) It Help us to skip the code which is responsible for generate the exception and execute the remaining program safe zone.

There Are Three Types of Exception in Java

1) Checked Exception: Those exceptions occur at program compile time called as exception. Normally in Java checked Exception is used for to generate the exception warning at program compile time.

```
import java.io.*;
public class DivApplication
{
    public static void main(String x[])
    {
            DataInputStream xyz= new DataInputStream(System.in);
            int a,b,c;
            System.out.println("Enter the two values");
            a=Integer.parseInt(xyz.readLine());
            b=Integer.parseInt(xyz.readLine());
            c=a/b;
            System.out.printf("Division is %d\n",c);
            System.out.println("Logic1");
            System.out.println("Logic2");
            System.out.println("Logic3");
    }
}
```

```
C:\Program Files\Java\jdk1.8.0_291\bin>javac DivApplication.java
DivApplication.java:9: error: unreported exception IOException; must be caught or declared to be thrown
                a=Integer.parseInt(xyz.readLine());
                                                 ^
DivApplication.java:10: error: unreported exception IOException; must be caught or declared to be thrown
                b=Integer.parseInt(xyz.readLine());
                                                 ^
Note: DivApplication.java uses or overrides a deprecated API.
Note: Recompile with -Xlint:deprecation for details.
2 errors
```

If we think about the above code then we get the exception error at program compile time it will generate the error to us at program compile time IOException must be caught or declared to be thrown

It Will Generate the Warning Message to Us at Program Compile time for handle the IOException in program.

2) Unchecked Exception: That Exception Occur at program run time called as Unchecked Error

```
import java.util.*;
public class DivApplication
{
    public static void main(String x[])
    {
            Scanner xyz = new Scanner(System.in);
             int a,b,c;
             System.out.println("Enter the two values");
             a=xyz.nextInt();
             b=xyz.nextInt();
             c=a/b;
             System.out.printf("Division is %d\n",c);
             System.out.println("Logic1");
             System.out.println("Logic2");
             System.out.println("Logic3");
    }
}
```

Output

```
C:\Program Files\Java\jdk1.8.0_291\bin>javac DivApplication.java

C:\Program Files\Java\jdk1.8.0_291\bin>java DivApplication
Enter the two values
8
0
Exception in thread "main" java.lang.ArithmeticException: / by zero
        at DivApplication.main(DivApplication.java:11)

C:\Program Files\Java\jdk1.8.0_291\bin>
```

If we think about above code then we compile program successfully but we get the exception at program run time when we input the values 8 and 0

3) Error: Error means those exceptions not handle by programmer called as error.

Q. what is the diff between Exception and Error?

Exception may be checked and unchecked and handle by programmer but Error is part of Exception but never handle by programmer