**Exception :** it is a type of error which generate when unexpected or abnormal condition occurs during the execution of a program is known as exception. Using java we can handle unexpected things that is known as exception handling.

<div align="center">java</div>

**javac**                                          **java**

java compiler                                  java interpreter

compile time error                          run time error

syntax error or

typo error

<div align="center">run time error</div>

**Error**                                   **Exception**

**Error and Exception** both are pre defined classes in java part of lang package.
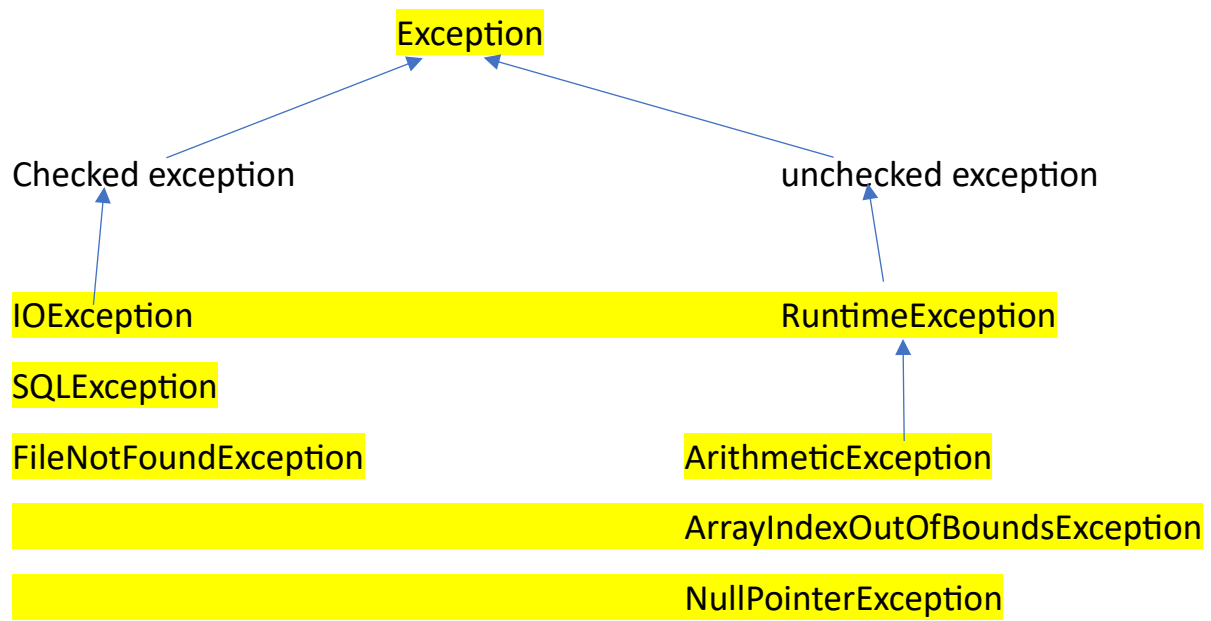
By default java imported lang package.

**Error** : it is a type of run error which generate at run time which we can't handle it.

JVM crash, software or hardware issue or out of memory.

**Exception** : it is a type run time error which generate at run time which we can handle it.

Divided by Zero or array index out of bound.

10/0;

```
                          Exception
                         ↗        ↖

Checked exception                        unchecked exception
                                                  ↑

IOException                              RuntimeException
                                                  ↑
SQLException

FileNotFoundException                    ArithmeticException

                                         ArrayIndexOutOfBoundsException

                                         NullPointerException
```

To handle both type of exception java provided 5 keywords.

1. try
2. catch
3. finally
4. throw
5. throws


to handle unchecked exception

using try and catch block

syntax


try {


}catch(Exception e) {


}

try with single catch block is ready to handle any type of exception as well as if any exception generate we need to do common or generic logic then we can use try with single catch block.

But depending upon the exception if we want to do different task then we need to use try with multiple catch block.

try{

}catch(ArtithmeticException e) {

}catch(ArrayIndexOutOfBoundsException e) {

}

==Finally block== finally is a type of block which will execute 100% sure if any exception generate or not.

Catch block execute only if any exception generate.

==try==

| catch | catch | catch | catch | finally |
|-------|-------|-------|-------|---------|
|       | catch | finally | catch |         |
|       |       |       | finally |         |

to connect mysql database using java using JDBC.

try {

     open the connection of database

do the task like store, delete, update and retrieve

}catch(Exception e) {

}finally {

     Close the connection or resources

}

throw and throws

throw : using throw keyword we can raise or generate pre defined as well as user defined ie custom exception depending upon conditions.

Syntax

throw new Exception();

or

throw new ExceptionSubClass()

in every sub class constructor by default super() provide by java. It is use to call super class empty constructor.

Some time if we want to call super class parameter constructor then we need to use super(parameter).

throws  throws keyword is use to throw the exception to caller method.

Throws we use with method signature.

Syntax

void display() throws Exception, ExceptionSubClass {


}


Checked Exception

Checked exception check twice compile time as well as run time.

Checked exception we need to handle mandatory using try-catch or throws.

Un checked exception we can avoid some extend but checked exception we need to handle mandatory else we can't compile the program.

int res=a/b;

if value of b is 0 it generate the exception.

Int num[]={10,20,30,40};

System.out.println(num[5]);