**JFSD: A-Z of Back-end and Database Development**

**Day 4 : 20 Jul. 24**

**Pre defined packages**

Core Java provided mainly two root packages

Ie java javax -🡪 root package

lang sql

io net

util servlet

sql ejb

net

etc etc

By Every java program imported lang package. So we can use all classes and interfaces part of lang package without import.

By default in Java every user defined or pre defined directly or indirectly extends pre defined class Object. Object is super class for all classes by default.

Super API (Application Programming Interface) it can be class or interface.

lang packages classes and interfaces

Exception and type of exception classes : Exception handling

Thread class and Runnable interface : Multi threading

String

StringBuffer

StringBuilder

Class pre defined class. class keyword.

Object

Wrapper (Integer, Float, Character, all 8 classes).

System

Exception Handling : Exception is an object or memory when unexcepted or abnormal conditions occurs during the execution of a program is known as exception. To handle generated exception using some technique is known as exception handling.

Java Program

javac (Java Compiler) java (Java Interpreter)

convert whole code in another format. It check the code line by line.

.class file (byte code)

javac Demo.java java Demo

Compile time error Run time error

Syntax error or typo error Error Exception

Error : it is a type of pre defined class part of lang package. Error is a type of error which generate at the run time which we can’t handle it. JVM crash, software or hardware issue, out of memory etc.

Exception : it is type of pre defined class part of lang package. Exception is a type of error which generate at run time which we can handle it. Divided by Zero.

Exception

Checked exception unchecked exception

IOException RuntimeException

FileNotFoundException

SQLException ArithmeticException

ArrayIndexOutOfBoundsException

NumberFormatException

Etc

To handle both checked as well as un checked 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 multiple catch block

try {

}catch(ArithmeticException e) {

}catch(ArrayIndexOutOfBoundsExcepton e) {

}

Try with single catch block : if any exception generate we want to do common or generic task. Then use try with single catch block. If we don’t know which code generate which type of exception.

Try with multiple catch : depending upon type of exception we want to do different type of task. In this option you must be known name of the exception and the code which generate type of exception.

try

catch catch catch catch finally

catch finally catch

catch finally

finally block : this block execute 100% sure if any exception generate or not.

Try block : the code one line or multiple which generate exception we need to keep in try block

Catch block : this block execute only if any exception generate. No exception not catch block.

File handling

Database connection using jdbc

try{

Open the file

Read and write operation

}catch(Exception e) {

}finally {

Close the resources.

}

throw : this keyword is use to generate pre defined or user defined exception depending upon the conditions.

Syntax

throw new Exception();

or

throw new ExceptionSubClass();

By default every sub class constructor contains super() present. It will help to call super class empty constructor. Some time depending upon requirement with help to super() we can call super class parameter constructor.

Employee emp = new Employee();

throws this keyword is use to throw the exception to caller methods. This keyword we need to use with method signature.

void display() throws Exception, ExceptionSubClass {

}

Unchecked exception

ArithmeticException : /0

Checked exception

Multi threading

Program : set of instruction to perform specific task.

Processor : processor is responsible to execute the code.

Process : time taken to execute the code or program in execution.

Thread : thread is known as light weighted process. It is small execution of a code

with in a process.

By default inside a main method default thread execute.

Java is thread based programming language.

Thread t = Thread.currentThread();

System.out.println(t); Thread[main,5,main];

main 🡪name of the thread

5🡪 priority

Main 🡪 group of the thread.

t.setName(“Demo thread”)

t.setPriority(1) min 1, norm 5 and max 10

Multi tasking :

1. Process base
2. Thread base

Multi tasking using thread base is faster than multi tasking using single process base.

Using some technique we can create more than one thread in java.

To create more than one thread in java

1. Using extends Thread class
2. Using implements Runnable interface