**Course 2 - Backend and Database Development**

**Day 1: 6 Dec 2024**

Java

Core Java or JSE (Java Standard Edition)

Basic Programming in Java

OOPs

Object, class, Encapsulation, Inheritance, Polymorphism, Abstraction

Static, abstract, final

Interface

Access specifiers, public, private, protected and default

Packages

Exception Handling

Multi threading Overview

Collection Framework (like Data structure)

JDBC (help to connect database like MySQL)

Maven tool : build tool

Using Java Web Application ie JEE (Java Enterprise Edition)

Servlet and JSP (Java Server pages) which help to create web application.

Java : Java is pure object oriented and platform independent programming language.

Java developed in Nov 1995. The initial name of java is Oak. James gosling and Team. It was belong to sun micro system but now part of Oracle.

Version

Java 1, 2, 4, 5,6,7,8 ,9,11,15,17,21,22 etc

Features of Java

1. Java is simple.
2. Compiler and interpreter
3. High secure
4. Platform Independent: write once and run anywhere.
5. Exception handling: handle error.
6. Multi threading : Multi tasking

Object : object is any real world entity.

Property -🡪 have

Person

Behaviour 🡪 do/does

Bank

Account

Animal

Car

Class : Blue print of objects or template of object or user defined data types which help to create the objects.

Syntax of class.

class Demo {

variable declaration;

method declaration;

}

class Demo {

public static void main(String args[]){

System.out.println(“Welcome to Java”);

}

}

JDK : Java Development Kit : it is use to develop the application

JRE : Java Run time environment : it is use to run the application.

**Variables :** variable is name which hold the value.

**Data types** : Data type is a type of data which tells what type of value it can hold

In Java data types are divided into 2 types.

1. Primitive data types : it is use to store only value of any type.

8 types

1. byte 1 byte range -127 to 128
2. short 2 byte
3. int 4 byte
4. long 8 byte

it is use to store number without decimal

1. float 4 byte
2. double 8 byte

with decimal

1. char 2 byte single character
2. boolean 1 bit true or false
3. Non primitive or reference data types : it is use to store value as well as reference of another data types.

4 types

1. Array
2. Class : pre defined or user defined
3. Interface : pre defined or user defined
4. Enum : pre defined or user defined

Type Casting

Converting from one data type to another data type is known as type casting.

2 types.

1. Implicit type casting
2. Explicit type casting

Int family

Implicit type casting

byte short int long

🡨-----------------------------------------------------------------🡪

Explicit type casting

byte a=10;

short b=a; // implicit type casting

short c=10;

byte d=c; // Error

byte d = (type)c;

byte d=(byte)c; explicit type casting

Operator

Arithmetic Operator : +, -, \*, /, %(modules: it is use to find the remainder).

int a=10;

int b=3;

int div = a/b; 3

int mod = a%b; 1

conditional operator : >, >=, <, <=, ==

int a=10;

int b=5;

boolean result1 = a>b;

boolean result2 = a==b;

logical operator : &&, ||, !

increment and decrement operator :

++ increment by 1 int a=10;

-- decrement by 1 a++ value of a is 11

a-- value of a is 10

conditional statement

1. Simple if statement
2. If else statement
3. Nested if (if within another if)
4. If else if

Switch statement :

Switch user or programmer can decide which block need to execute depending upon the choice.

int n=1;

switch(n){

case 1 : block1;

break;

case 2:block2;

break;

case 3:block3;

break;

default : default block;

break;

}