CMP211 – Darshana Mam

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Java is Object – oriented Multi programming language.

Java is a Case Sensitive language.

Java Supports JVM machine (**Java virtual machine**) which can be work as mediator. It helps to convert a Source Code BYTE-code and again Generate Source Code as a Response.

Java file must be saved **“.java”** extension.

Java file name Compulsory given same as like class name.

Write a Java code to print a message (Hello World).

**18/01/2024**

Variable is an Object name which can be stored a different type of value and store only a single value at a time.

Ex- int a=10

Datatype means to define a type of value which can be stored in a variable.

PRIMITIVE DATATYPE NON-PRIMITIVE DATATYPE

A) NUMERIC B) NO NUMERIC

1. Int 1. char
2. Float 2. String 1. Class, interface, array
3. Double 3. Boolean
4. Long int

Write a Java code to create different type of variable and display value of variable.

Write a java code to print, defining student information.

Student Id, Name, Contact number, Percentage, Grade

**24/01/2024**

**Type Casting- It’s a type of data converted into another type of data this process is called as type casting.**

**TC process is divided into two parts**

1. **Automatic Casting**
2. **Manual Casting**

**AUTOMACTIC CASTING**

**When user want to convert a smaller size of data into bigger size of data this process is called as Automatic Casting.**

**Here conversation process is automatic generated by system.**

**MANUAL CASTING**

**When User want to Convert a bigger size of data into a smaller size of data this process is called as Manual Casting.**

**Here users follow defining Syntax for Manual casting.**

**Datatype var\_name=(convert\_type) variable\_name;**

**Write a Java code for creating Type Casting for the given data.**

**25/01/2024**

* **Method is a code of block which can be executed multiple times depends on user requirements.**
* **User define functions are also known as method in java.**
* **A Method is always created outside the void main function and called inside a function.**

**Write a Java code to print a simple message by using simple method.**

* **Method with pass by parameter**

**Constructor –**

1. **The first thing we do is to make users defined functions/variables (or methods).**
2. **Constructor is similar like functions/methods.**
3. **There won’t be any written type against written type,**
4. **Method name = class name.**
5. **Constructor can’t be called from object name**
6. **Constructor is same as like method creation.**
7. **When users creates a method and give same as class name, this methods is called constructor.**
8. **Constructor does not have any written type.**
9. **Constructor are automatic calling when we create object of class.**
10. **Constructor does not fall by objects.**
11. **Constructors are created in 3 ways.**

* **Default**
* **Parameter**
* **Constructors overloading**

1. **Default Constructor – It is automatically constituted when java programme is running.**

**# Write a Java Code to Print a Student Name by using Constructor.**

**Parameter As Constructor**

1. **In this type the Constructor creation time we must we must pass some parameter**
2. **Also pass an value during an object creation time.**
3. **To print information about employee using Parameterized Constructors and display it.**

**Features of Java**

* **Simple**
* **Object – Oriented Programming**
* **Multiprogramming**
* **Multi-Threaded**
* **Artificial Intelligence**
* **Dynamic**
* **Portable**
* **Distributive**

**OOBS concept – OOBS means real world application are created by different programming logic**

**OOBS concept the following points**

1. **Class and object**
2. **Constructor**
3. **Inheritance**
4. **Polymorphism**
5. **Encapsulation**
6. **Class is a template structure of any kind of object.**
7. **Class defines characteristics of object.**
8. **Inside a class user create either methods or declare a variable.**
9. **Class generates a block.**
10. **Class is defined by creating an object.**

**Class class\_name**

**{**

**Dataytype variable\_name;**

**-----------------------------------**

**Returntype method\_name();**

**-----------------------------------**

**}**

**Class employee**

**{**

**Int eid=101;**

**Public void print()**

**{**

**System.out.println(“emp id=”+eid”);**

**}**

**}**

**01/02/2024**

**Write a java Code to input 2 numbers and swap both numbers using method with pass by parameter.**

**Write a java code to input any 1 number and to check that the given number is odd or even with the return statement**

**LAB MANUAL**

1. **Write a java code to print a simple message “Hello World”.**
2. **Write a java code to Print following information about student**

**Roll no=101, Name=” Darshil”, Percentage=89.78, Grade=’A’.**

1. **Write a java code to assign any 3 numbers and find out which number is a maximum number.**
2. **Write a java code to calculate the sum of two numbers by using method.**
3. **Write a java code to check given number is even or odd using method with return statement.**
4. **Write a java code to swap given two using pass by parameter method.**
5. **Write a java code to pass any 3 values at runtime and display how many values given at runtime.**
6. **Write a java code to create a type casting for given inputs.**

**Examples:**

**Input:2.72 output:2**

**Input:5 output:5.00**

1. **Write a java code to assign and display following student information using class.**

**Roll no=101**

**Name=” xyz”**

**Grade=’A’**

**Percentage=79.20**

1. **Write a java code to assign and display following Employee information using class.**

**When user create two or more constructor inside a same class this process is called constructor overloading.**

**Constructor overloading time users creates object that time the first priority is given to default constructor.**

**In constructor overloading we have to create either default constructor or different parametrized constructor.**

**Garbage collection**

**When user create object of class but it cannot be used after this in this collection garbage collection are generated.**

**Garbage collection reuse the unused memory.**

**Compare to other language java provide automatic garbage collection.**

**Using garbage collection memory are managed and reused for another process.**

**Conditions for garbage collection**

1. **Object are created but not used.**
2. **Only allotted memory of class but object is not created.**
3. **One reference assign to another reference but both are not used.**
4. **When finalised method generates a specific message before any garbage collection are created.**
5. **Java provide GC function from system package which can be checked, that GC is generated or not.**

**Inheritance:**

**Class can be created from another class this process is called inheritance.**

**Main class also known as super class/parent class/base class.**

**Generated class also known as sub class/ child class/ derived class.**

**Inheritance also defined as a relationship.**

**Child class also access all the properties (variable or function)**

**So we always create object of child class inside a function of main function.**

**Java support following three types of inheritance**

1. **Single**
2. **Multi**
3. **Hierarchical**

* **Write a java code to a single inheritance for specified employee data. Employee class created as a parent class which define employee ID and employee name and department class created as a child which define employee ID, department and Salary.**

**Write a java code to create a same class which defines information about a specific shape and to generate rectangle and triangle, which defines the area of the specific shape.**

**Encapsulation:**

**It means to hide some information or data from another user/file/class.**

**Technically encapsulation are achieved by setter () method and getter () method for every field.**

**Setter method set the value of specific field.**

**Getter method return the value of variable to user.**

**When we want to create inheritance that time parent class variable also use with it’s same values inside a child class, that time member of the parent class are called by super keyword.**