JAVA

Cpp

* Members   * Methods

CLASS :- It is a collection of similar objects

OBJECT :- It is a collection of members & methods.

An instance of a class is called objects.

VARIOUS PRINCIPLES OF OBJECTS [OR] OBJECT ORIENTED PROGRAMMING ⇒

→ class

→ object

→ Encapsulation :- Text hide ; Members & Methods are
bounded to protect from unathorized users [private]

→ Abstraction :- Class is an abstract datatype

→ Polymorphism :- More than 1 operation
* operator overloading
* Method overloading

→ Inheritance :- 1 class acquire properties of another class

→ Dynamic Binding :- Determining the specific implementation
of a method at runtime.

→ Message Communication :- sending an object
i.e sending a message from 1 thread to another thread

11-06-2024

DIFFERENCE BETWEEN PROCEDURAL ORIENTED PROGRAMMING [POP's] & OBJECT ORIENTED PROGRAMMING [OOP's] =>

POP's	OOP's
→ We concentrate on procedures i.e on "Functions"	→ We concentrate on objects i.e on "Data"
→ Data moves freely around the system	→ Data is bounded between members & methods
→ Not suitable for real world application	→ Suitable for real world application
→ Ex:- C ; cobal	→ Ex:- C++, Java, Python

PRINCIPLES OF OOP's :-

1. class
2. object
3. Encapsulation
4. Abstraction
5. Polymorphism
6. Inheritence
7. Dynamic Binding
8. Message Communication

1. **CLASS :-** It is a collection of similar objects.

   A class is a factory which produces different objects of similar type.

2. **OBJECT :-** An entity of a class [OR] instance of a class.

   An object is a collection of properties i.e members & methods.

3. **ENCAPSULATION :-** It is a mechanism that the members & the methods bounded together to protect from unathorized users.

   It is a technical term of hiding.

4. **ABSTRACTION :-** Creating new data-type through encapsulation is called Abstraction.

   The datatype which is created by abstraction is called "Abstracted data-type" [ADT].

   <u>Ex</u> :- class

5. **POLYMORPHISM :-**

      POLY = Many / More

      MORPHISM = Action

            POLYMORPHISM

COMPILE TIME / STATIC BINDING	RUN TIME BINDING
1. FUNCTION OVERLOADING	DYNAMIC BINDING
2. OPERATOR OVERLOADING	

6. **INHERITANCE :-** It is a process by which 1 class object acquires the properties of another class object.

JAVA → ISLAND IN INDONESIA

JAVA :- The language was initially called "Oak" after an oak tree that stood outside Gosling's office.

Later the project went by the name Green & was finally renamed "Java", from "Java Coffee", a type of coffee from Indonesia.

JAVA was invented by JAMES GOSLING in 1995 while he was working at SUN MICRO SYSTEMS.

1995   James Gosling   OAK

It is renamed in 2000 as JAVA

The company who developed JAVA is "SUN MICRO SYSTEMS". "ORACLE" acquire "SUN MICRO SYSTEMS" in 2010 So, now JAVA is owned by "ORACLE"

JDK - JAVA DEVELOPMENT KIT

JDK → TOOLS

JAVA R
JRE → JAVA RUNTIME ERROR

JSE → JAVA STANDARD EDITION

JSE = JDK + JRE

J2EE → JAVA ENTERPRISE EDITION

EDITIONS OF JAVA =>

J2EE - JAVA ENTERPRISE EDITION

JAKARTA EE - ORACLE [APPLICATION SERVER]

JME - JAVA MOBILE [OR] MICRO EDITION

The oracle Java, Micro Edition [Java ME] software Development kit [SDK] provides device emulation, a standalone development environment & a set of utilities for rapid development of Java ME applications.