SNS COLLEGE OF ENGINEERING

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23CSB101

OBJECT ORIENTED PROGRAMMING

Overview of OOP

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Overview of OOP

Object-Oriented Programming System (OOPs) is a programming paradigm based on the concept of —objects that contain data and methods, instead of just functions and procedures.

- The primary **purpose** of object-oriented programming is to increase the flexibility and maintainability of programs.
- Object oriented programming brings together data and its behavior (methods) into a single entity (object) which makes it easier to understand how a program works

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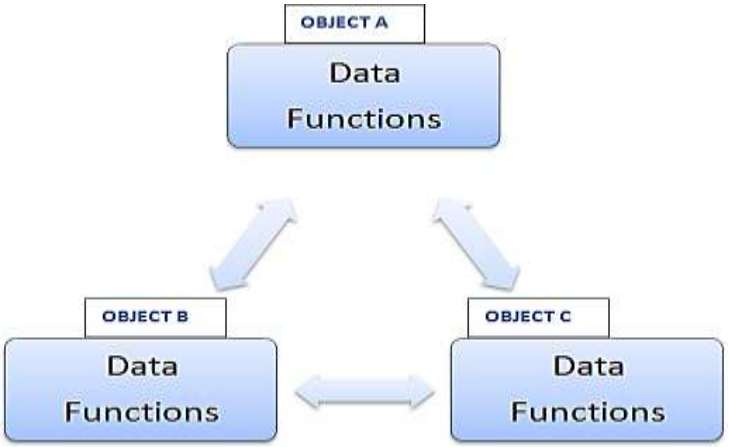


Features / advantages of Object Oriented Programming

- It emphasis in own data rather than procedure.
- It is based on the principles of inheritance, polymorphism, encapsulation and dataabstraction.
- Programs are divided into objects.
- Data and the functions are wrapped into a single unit called class so that data ishidden and is safe from accidental alternation.
- Objects communicate with each other through functions.
- New data and functions can be easily added whenever necessary
- Employs bottom-up approach in program design.

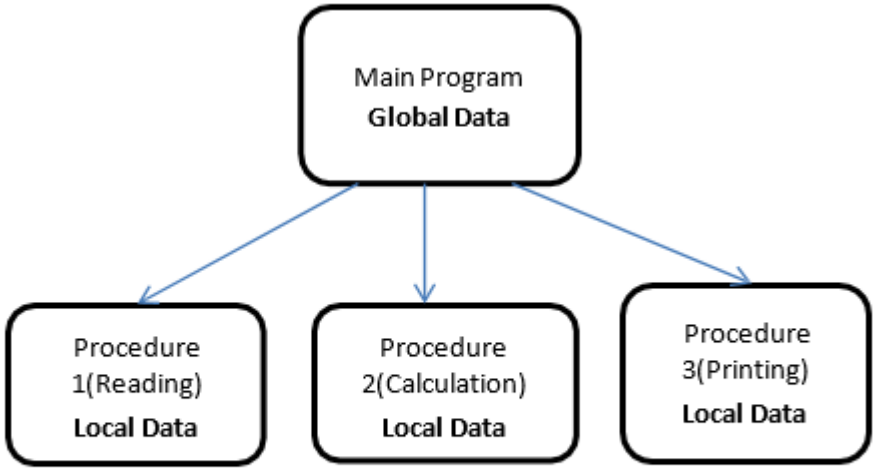
PROCEDURE-ORIENTED PROGRAMMING [POP]

Procedure-Oriented Programming is a conventional programming which consists of writing a list of instructions for the computer to follow and organizing these instructions into groups known as Functions (or) Procedures (or) subroutines (or)Modules.

Example: A program may involve the following operations:

- Collecting data from user (Reading)
- Calculations on collected data (Calculation)
- Displaying the result to the user (Printing)

POP vs OOP


Main Program
Global Data
Procedure 1(Reading)
Local Data
Procedure 2(Calculation)
Local Data
Procedure 3(Printing)
Local Data

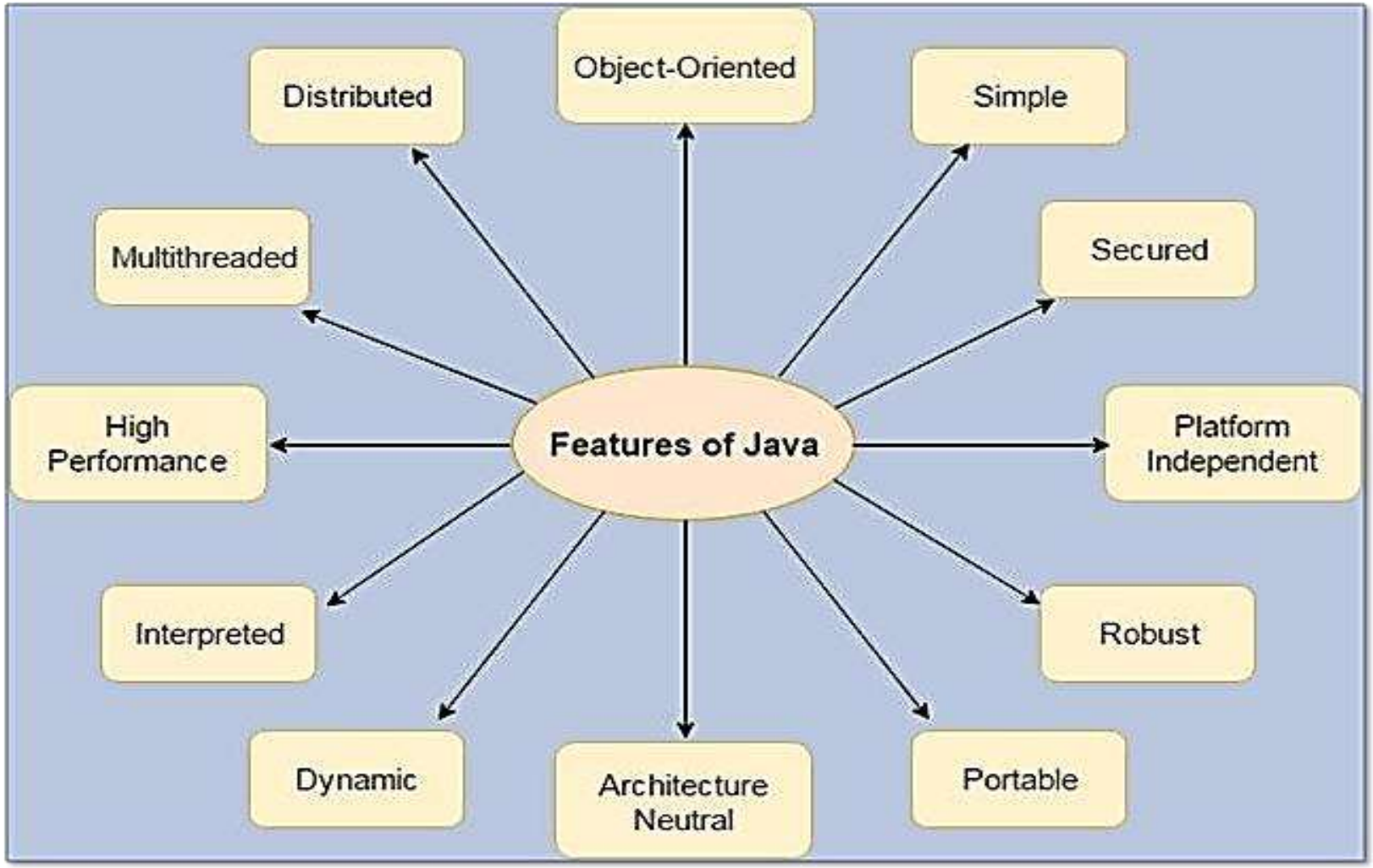
Characteristics of Procedural oriented programming

- It focuses on process rather than data.
- It takes a problem as a sequence of things to be done such as reading, calculating and printing. Hence, a number of functions are written to solve a problem.
- A program is divided into a number of functions and each function has clearly defined purpose.
- Most of the functions share global data.
- Data moves openly around the system from function to function.
- Employs top-down approach in program design.

Drawback of POP

- Procedural languages are difficult to relate with the real world objects.
- Procedural codes are very difficult to maintain, if the code grows larger.
- Procedural languages do not have automatic memory management as like in Java. Hence, it makes the programmer to concern more about the memory management of the program.
- The data, which is used in procedural languages, are exposed to the program. So, there is no security for the data

	Procedure Oriented Programming	Object Oriented Programming
Divided Into	In POP, program is divided into smallparts called **functions.**	In OOP, program is divided into partscalled **objects.**
Importance	In POP, Importance is not given to **data** but to functions as well as **sequence** of actions to be done.	In OOP, Importance is given to the data rather than procedures or functions because it works as a **real world.**
Approach	POP follows **Top Down approach.**	OOP follows **Bottom Up approach.**
Access Specifiers	POP does not have any accessspecifier.	OOP has access specifiers named Public, Private, Protected, etc.
Data Moving	In POP, Data can move freely from function to function in the system.	In OOP, objects can move and communicate with each other throughmember functions.
Expansion	To add new data and function in POPis not so easy.	OOP provides an easy way to add newdata and function.
Data Access	In POP, Most function uses Global data for sharing that can be accessed freely from function to function in the system.	In OOP, data cannot move easily from function to function, it can be kept public or private so we can control the access of data.
Data Hiding	POP does not have any proper wayfor hiding data so it is **less secure.**	OOP provides Data Hiding so provides **more security.**
Overloading	In POP, Overloading is not possible.	In OOP, overloading is possible in the form of Function Overloading and Operator Overloading.
Examples	Examples of POP are: C,VB, FORTRAN, and Pascal.	Examples of OOP are: C++, JAVA, VB.NET, C#.NET.


Features of Java
Distributed
Object-Oriented
Simple
Multithreaded
Secured
High Performance
Platform Independent
Interpreted
Robust
Dynamic
Architecture Neutral
Portable

THANK YOU