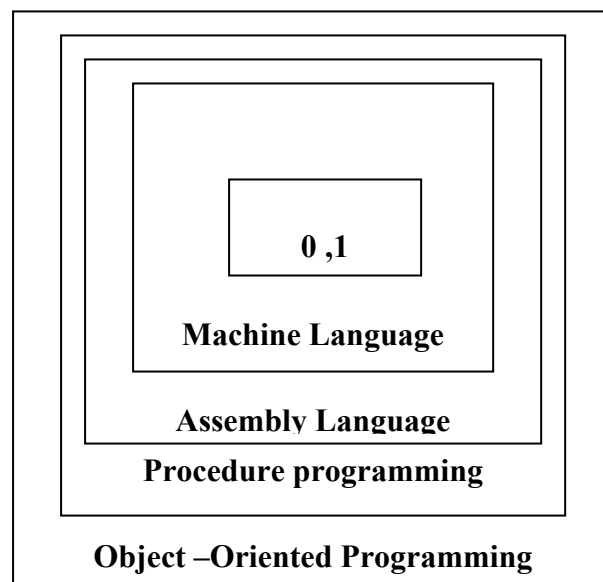


OOP – Lesson 1

Introduction to Object-Oriented Programming



Layers Of Software Technology

Types Of Programming:

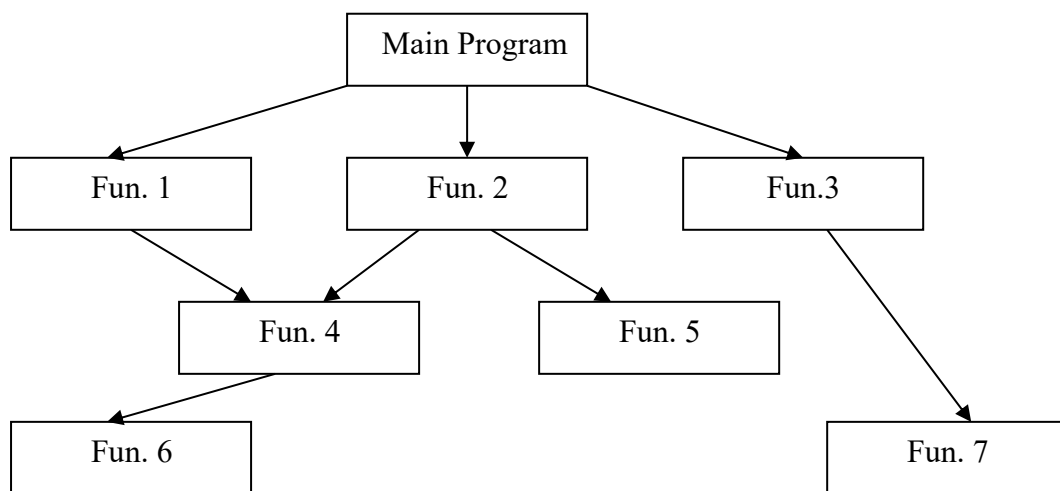
- 1. Procedure-Oriented Programming.**
- 2. Object- Oriented Programming.**

1.Procedure-Oriented Programming:

Conventional programming using high level languages. Such as COBOL, FORTRAN , BASCAL and C. is commonly known as procedure-oriented programming (POP). In POP approach the problem is viewed as sequence of thing to be done, such as reading , calculating and printing. A number of Function are writer

to accomplish these tasks. The primary-focus is on (Function).

POP basically consists of writing a list of instructions for the computer to follow and organize these instructions in to groups known as function. Very little attention is given to the data that are used by functions. Many important data are placed as Global, So they may be accessed by all functions. Each function has its own local data.



**Typical Program Structure For
(POP)**

Characteristic of Procedure-Oriented Programming:

1. Emphasis is on doing things (algorithms).
2. Large programs are divided into smaller program known as function.
3. Most of the function share global data.
4. Data move openly around the system from function to function.
5. Functions transforms data from one form to another.

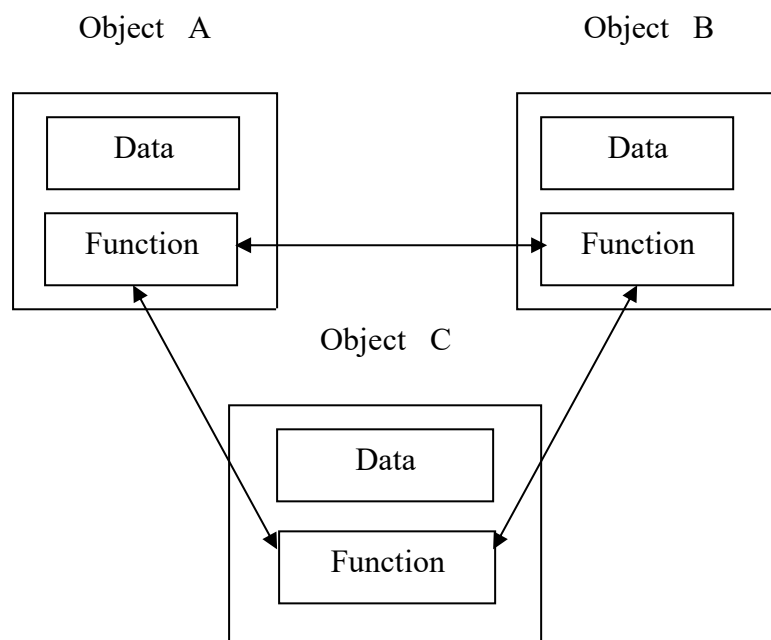
6. Employs TOP-DOWN approach in program design.

2. Object- Oriented Programming:

OOP treats data as a critical element in the program development and does not allow it to flow freely around the system.

It ties data more closely to the functions and protects it from accidental modification from outside function.

OOP allows us to decompose problem into a number of entities called OBJECTS and then builds data and functions around these entities.



Organization of OOP

Characteristic of Object-Oriented Programming:

1. Emphasis is on data rather than procedure.
2. Programs are divided into what are known as **Object**.
3. Objects is characterized by the data structure.
4. Function that operate on the data of an object are tied together in the data structure.

5. data is hidden and cannot be accessed by external functions.
6. Objects may communicate with each other through functions.
7. New Data and function can be easily added whenever necessary.
8. Follows BOTTOM-UP approach in program design.

OOP Definition:

It is approach that provides a way of modularizing programs by created partitioned memory area for both data and functions that can be used as templates for creating copies of such modules on demand.

Benefits of OOP:

1. Through inheritance, we can eliminate redundant code and extend the use of existing classes.
2. We can build programs from standard working module (i.e. save time and higher productivity).
3. The principle of data hiding helps the programmer to build secure programs.
4. it is possible to have multiple instances of an object to co-exist without any interference.
5. it is easy to partition the work in a project base on objects.
6. Object-Oriented System can be easily upgraded from small to large system.
7. Message passing techniques for communication between objects makes the interface descriptions with external system a simpler.
8. Software complexity can be easily managed.

C sharp Language (C#):

- C# is the language developed to create code for the .Net framework.
- C# Fully Object-Oriented , Visual programming language, in which programs are created using an (integrated Development Environment (IDE)).

With the IDE a programmer can create, run, test and debug C# programs conveniently, thereby reducing the time required to produce a working program.

.NET Framework

It is an environment enables different programming language to work together.

The .NET Framework was designed with three goals:

1. Making Microsoft Windows applications more reliable, by providing it a greater amount of security.
2. To give Web based applications and services the flexibility to run both in the traditional and mobile environments.
3. To provide a single set of libraries that would work with multiple languages.