Module 4.1 : C++ basic

❖ What is OOP? List OOP concept.

- Its stands for Object -Oriented Programming.
- Procedural programming is all about writing procedure or a function that performs operation on the data, while Object Oriented programming is create objects that contains both data and function.
- There are many object-oriented programming languages, including JavaScript, C++, Java and Python.

  - Dynamic binding: In dynamic binding, the code to be executed in response to function call is decided at runtime.
  - Class:
    - Class is a collection of data member & member function with its behaviour.
    - A class is a blueprint or template of an object.
    - It is a user-defined data type.
    - Inside a class, define variables, constants, member functions and other functionality.
      - Private
      - Public
      - Protected
  - Object:
    - An object is an identifiable entity with some characteristic and behaviour.
    - It is referred to as an instance of the class.
    - It contains member functions, variables that we have defined in class.
    - It occupies space in the memory.
    - Different objects have different states or attributes and behaviour.
    - An object is an instance of a class.

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- Encapsulation:
  - Encapsulation is one of the key features of object-oriented programming.
  - It involves the bundling of data members and functions inside a single class.
  - Objects are instances of a class created with specific data.
  - Bundling similar data members and functions inside a class together also helps in data hiding.

- Inheritance:
  - Property of parent class derived into child class.
  - It allows us to create a new class (derived class) from an existing class (base class).

  Types:

  - Single inheritance: A child class derived from only one base class.
  - Multilevel inheritance : A child class derived from another class, which is itself derived from a base class.
  - Multiple inheritance : A child class derived from more than one base class.
  - Hybrid inheritance : Formed by combining two or more types of inheritance, creating a blended inheritance structure incorporating diverse inheritance paradigms.
  - Hierarchical inheritance : Multiple child classes derived from the same base or parent class.

- Polymorphism :
  - It simply means more than one form.
  - That is, the same entity (function or operator) behaves differently in different scenarios.
  - Overloading
  - Overriding

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❖ What is the difference between OOP and POP?

OOP	POP
Object-Oriented Programing	Procedural-Oriented Programing
Task done through procedure or structure	Objects are made that inherite the properties of class.
Program divided into sections called function.	Program divided into sections called object.
No entity access mode	Entity is accessing is categorized in public or private.
No provision of inheritance	Inheritance is present in three forms public, private, protected