

Software Engineering Assignment

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# MODULE: 4

## OOPS Concept

SUBMITTED BY:

MEMAN ASGAR ALI

SUBMITTED TO:

CHINMAYEEMAM

1.What is OOP? List OOP concepts.

* OOP (Object-oriented programming) is a computer programming model that organizes software design around data, or objects, rather than functions and logic. An object can be defined as a data field that has unique attributes and behaviour.

OOP Concepts:

* Class
* Object
* Encapsulation
* Inheritance
* Polymorphism
* Abstraction
* Class:
* A class is blueprint/templet/collection of data member and member functions.
* Object:
* An instance of a class. It represents a specific entity with attributes and behaviour defined by its class
* Encapsulation:
* The wrapping up of data and function into a single unit is known as encapsulation.
* Inheritance:
* Inheritance is the process by which objects of one class acquire the properties of object of another class.
* Polymorphism:
* Polymorphism is a one objects multiple forms.
* Abstraction:
* Abstraction is the concept of hiding the complex details of a system and showing only the essential features.

2. What is the difference between OOP and POP?

**Object-Oriented Programming (OOP)**

1. **Structure**: Programs are divided into objects.
2. **Data Security**: Data is hidden and protected within objects.
3. **Approach**: Follows a bottom-up approach.
4. **Examples**: C++, Java, Python.

**Procedural-Oriented Programming (POP)**

1. **Structure**: Programs are divided into functions.
2. **Data Security**: Data can be accessed and modified by any function.
3. **Approach**: Follows a top-down approach.
4. **Examples**: C, Pascal, FORTRAN.

