AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

408/1, Kuratoli, Khilkhet, Dhaka 1229, Bangladesh

Assignment Title:	**Pillar of OOP (Abstraction, Encapsulation, Inheritance, Polymorphism)**

Assignment No:	**02**	Date of Submission:	**October 01, 2023**

Course Title:	**OBJECT ORIENTED PROGRAMMING 2**

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Semester:	**FALL**	**2023-24**	**Course Teacher:**	**TONNY SHEKHA KAR**

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1	**MD. SHOHANUR RAHMAN SHOHAN**	**22-46013-1**	**B. Sc. in CSE**	

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OOP stands for Object-Oriented Programming. OOP is an object-oriented programming technique that combines data and instructions for processing that data into an object that can be used within the program. Object-oriented programming provides concepts that help modelling complicated systems of real world into manageable software solutions. OOP is based on four core principles, often referred to as pillars:

1. Abstraction
2. Encapsulation
3. Inheritance
4. Polymorphism.

Now we are going to discuss these four fundamental concepts.

Abstraction: Data Abstraction is the process of hiding unnecessary details of an object's internal structure. By abstracting an object's data, its structure and behavior can be kept separate and more easily understood.

Encapsulation: Encapsulation is the process of wrapping data and related functions into a single unit (object). Encapsulation limits access to object data and methods, preventing their misuse and ensuring their proper functioning.

Inheritance: Inheritance is the ability to create a new class (child class) from an existing one (parent class). The child class typically inherits the attributes (members and methods) of the parent class, although it can also redefine them.

Polymorphism: Polymorphism is the ability of an object to take on multiple forms. This allows objects of different classes to be used interchangeably, as long as they implement a certain interface (have methods of the same name).