**Core Java - Assignment**

**Module - 1**

1. **Interfaces and Abstract classes :**

**Theory : -**

1. Abstract Classes and Methods :

-> An abstract class is a class that cannot be instantiated directly. It acts as a blueprint for other classes, defining common properties and methods that subclasses must implement.

-> Characteristics:

-> Declared using the abstract keyword.

-> Can contain both abstract and concrete methods (methods with implementations).

-> Cannot be instantiated directly.

-> Subclasses must either inherit from the abstract class and provide implementations for all

inherited abstract methods or be declared abstract themselves.

Methods : A method declared without an implementation. It is simply declared with the abstract keyword and a semicolon.

-> To define a contract that subclasses must fulfill.

-> To enforce specific behaviors in subclasses.

1. Interfaces: Multiple Inheritance in Java:

-> Interface means child class can access method or variable of parent class.

->While Java doesn't directly support multiple inheritance for classes, interfaces allow a class to inherit methods and constants from multiple sources.

-> **Interface:** An interface is a blueprint or contract that defines a set of methods that a class must implement. Interfaces cannot have concrete method implementations.

-> ****Implementing an Interface**:** A class implements an interface using the implements keyword. This means the class must implement all methods declared in the interface.

-> **Multiple Interfaces:** A class can implement multiple interfaces, effectively inheriting methods

and constants from each interface.

1. Implementing Multiple Interfaces :

-> A class can implement multiple interfaces using the implements keyword followed by a

comma-separated list of interface names.

-> Each interface method must be implemented within the class.

-> This allows a class to inherit multiple behaviours and conform to different contracts.