**Encapsulation and Abstraction**

**Encapsulation:**

- Encapsulation is a process of wrapping code and data together into a single unit.

- Protects data from direct access.

- Achieved using:

* Private variables.
* Public getters and setters.

**Benefits of encapsulation:**

- Data hiding.

- Controlled access.

- Flexibility and maintainability.

- Increased security.

**Abstraction:**

- Abstraction is a process of hiding the implementation details and showing only functionality to the user.

- In Java, abstraction is achieved using Abstract classes and interfaces.

**Abstract class:**

- A class which is declared with the abstract keyword.

- Can have both abstract (without implementation) and concrete (with implementation) methods. (Concrete method is also known as Non - Abstract method)

- A class can only extend one abstract class.

- A class extended using extends keyword.

**Interface:**

**-** A interface which is declared with the interface keyword.

- A contract that specifies a set of methods that must be implemented.

- Can only have abstract methods (Java 7 & earlier) or default and static methods (Java 8).

- A class can implement multiple interfaces.

- A interface implemented using implements keyword.