Singleton Design Pattern

Through Maya Mnaizel

- A creational design pattern

- Ensures only one instance of its kind exists, and provides a single point of access to it

- They let you access your object from anywhere in your application, and they encapsulate the attribute of this object in one single class

- Guarantee that only one instance of this class will be available at any point in time

Used for:

Database connection, logging services, or configuration settings.

Key characteristics of the Singleton pattern:

1. Single instance

    a. The class must have only one instance

    b. This instance should be easily accessible

2. Global access point: The single instance should be globally accessible, allowing other classes to use it easily

3. Lazy Loading (optional)

```
public class Singleton{
//Private static instance variable
  private static Singleton instance;

  private Singleton(){
    //Initialization code
  }
  //provides a global access point to the instance
  //ensures that only one instance in the class is created
  public static Singleton getInstance(){
    if (instance ==null) {
      instance = new Singleton();
    }
    return instance;
  }
}
```