Assignment 1 Software Design Patterns

Documentation

*Yryskeldi Yerensiz*

*SE-2225*

Brief explanation of Singleton Design Pattern:

Singleton is a Creational type design pattern that creates a class in which there is only one instance and gives global access to it, that is, when trying to create a second or more instances, it will only refer to the first one. For violation of the principles of Single Responsibility and Open-Closed is considered an antipattern. Use case: Logging system, where exist only one logger, to avoid inconsistent and hard-to-read logs.

Brief explanation of Strategy Design Pattern:

The Strategy pattern is a Behavioral design pattern that helps to create new similar algorithms by introducing them into your "interface class". This way we can reduce the number of code changes to create new implementation methods in subclasses.  
Use case: As in my code, to add new payment methods without changing whole class.

Instructions:

To run Singleton pattern part we may run Client Class, to just show that Singleton works, or run SingletonThreadSimulator to tun simulation of threads, and check if Singleton class is thread-safety.

To run Strategy pattern part we may run Main class, where we can 1) chose add products to cart(1), or view products in cart(2), or enter to chose payment menthod and buy products in cart(3), and exit(4). When whe chosing payment method we can use QR payment and Card payment method. After pay off, we see payment method, sum of products in tenge, products we bought.