

## Assignment No - 10

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(10)

Title:

Implement and apply strategy design pattern for simple Shopping Cart where three payment strategies are used such as Credit Card, PayPal, Bit coin. Create an interface for strategy pattern and give concrete implementation for payment.

Theory

### Design Pattern :-

A design pattern are well-proved solution for solving the specific problem/task.

design pattern are programming language independent strategies for solving the common object-oriented design problem. That means a design pattern represents an idea, not a particular implementation.

By using the design patterns you can make your code more flexible, reusable and maintainable.

### Advantage

- 1) They are reusable in multiple projects.
- 2) They provides the solutions that helps to define the system Architecture.
- 3) They capture the software engineering experiences.

4) They provide transparency to the design of an application.

categorization of design patterns :

Basically, design patterns are categorized into two parts :

1. Core Java (or JSE) Design Patterns.
2. JEE Design Patterns.

Core Java Design Pattern

In core Java, there are mainly three types of design pattern.

1) Creational Design Pattern.

Creational design patterns are concerned with the way of creating objects. These design patterns are used when a decision must be made at the time of instantiation of a class.

Types

- 1) Factory Method Pattern
- 2) Abstract Factory Pattern
- 3) Singleton Pattern
- 4) Prototype Pattern
- 5) Builder Pattern
- 6) Object Pool Pattern.



## 2) Structural Design Pattern:

Structural Design Patterns are concerned with how classes and objects can be composed, to form larger structures.

The structural design patterns simplify the structure by identifying the relationships.

### Types

- 1) Adapter Pattern
- 2) Bridge Pattern
- 3) Composite Pattern
- 4) Decorator Pattern
- 5) Facade Pattern
- 6) Flyweight Pattern
- 7) Proxy Pattern

## 3) Behavioral Design Pattern

Behavioral design patterns are concerned with the interaction and responsibility of objects.

In these design patterns, the interaction between the objects should be in such a way that they can easily talk to each other and still should be loosely coupled.

### Types :

- 1) Chain of Responsibility Pattern
- 2) Command Pattern
- 3) Interpreter Pattern

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4) Iterator Pattern

5) Mediator Pattern

Conclusion :

Hence, we have successfully implemented the strategy design pattern program.