Design Patterns – Assignment

1. **Explain what is design patterns**

In java design patterns describe best practices of software development. It provides solution of problems faced while designing the software. Each pattern provide solution to specific problem which can be used by following the blueprint of design pattern.

1. **what is the main type of design patterns**

design patterns are categorised in 2 parts:

1. core – java design pattern
2. JEE design pattern

Core java design pattern

1. Creational pattern – this design provides the solution to create object while hiding its creation logic. Using this method, we can create object according to suitable use case rather than creating using NEW keyword.
2. Structural pattern – this design describes the composition of class and object. It shows how can we assemble objects and classes efficiently.
3. Behavioral pattern – this pattern describes communication between objects and maintaining their responsibilities.

JEE design pattern

This pattern specifically described in presentation tier, and it is identified by the sun java center.

1. **Explain Factory and Abstract factory design pattern with example**

Factory method is a creational design pattern in which we can create objects using interface.

Chart, box and whisker chart

Description automatically generated

In the above figure flight type interface is implemented by various concrete class including cargo, commercial and private. The factory class in this example is FlightSchedule which create flight according to flight type.

Following is the link to example of factory pattern

Source code :

<https://github.com/asthapatel24/SingletonPatternAssignment/tree/main/FactoryPattern/bin>

Following is the link to example of abstract factory pattern

Source code :

<https://github.com/asthapatel24/SingletonPatternAssignment/tree/main/AbstractFactoryMethod>

1. **Explain the Singleton design patterns with example given in here:**

Singleton design pattern is type of creational pattern in which only one class is responsible to create object. Also, singleton pattern contains only one object of class throughout the program that can be accessed without instantiate the object.

Following is the link to singleton examples.

Source code:

<https://github.com/asthapatel24/SingletonPatternAssignment/tree/main/SingletonPattern>