Design Patterns in Java

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What is a Design Pattern?

A design patterns are well-proven solution for solving the specific problem/task.

A design pattern is a well-described solution to a common software problem

Benefits of Design Patterns

- They are reusable in multiple projects.
- They provide transparency to the design of an application.
- They provide the solutions that help to define the system architecture.
- Using design patterns promotes reusability that leads to more robust and highly maintainable code.
- Since design patterns are already defined, it makes our code easy to understand and debug.

Shall we always use design patterns?

- It’s not mandatory to implement design patterns in your project always.
- Design patterns are not meant for project development.
- Design patterns are meant for common problem-solving.

Types of Design Patterns

1.Creational Design Pattern

2. Structural Design Pattern

3. Behavioral Design Pattern

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

Creational Design Pattern

- Singleton Pattern
- Builder Pattern
- Factory Method Pattern
- Abstract Factory Pattern
- Prototype Pattern

Structural Design Pattern

- Structural design patterns are concerned with how classes and objects can be composed, to form larger structures.
- The structural design patterns simplifies the structure by identifying the relationships.

Structural Design Pattern

- Composite Pattern
- Proxy Pattern
- Facade Pattern
- Decorator Pattern

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.

Behavioral Design Pattern

- Template Pattern
- Mediator Pattern
- Observer Pattern