**Due: 4/15/2022**

Raise a PR to: <https://github.com/TAIsRich/chuwa4.1ShortQuestions.git>

**Remember PR to the branch names with your name.**

1. What are the types of design patterns in Java?

Ans: Design patterns are well-proven solutions for solving a specific problem/task.

creational patterns

Factory Pattern

Abstract Factory Pattern

Singleton Pattern

Prototype Pattern

Builder Pattern.

structural patterns

Adapter Pattern

Bridge Pattern

Composite Pattern

Decorator Pattern

Facade Pattern

Flyweight Pattern

Proxy Pattern ##3. Behavioral Design Pattern

Chain Of Responsibility Pattern

Command Pattern

Interpreter Pattern

Iterator Pattern

Mediator Pattern

Memento Pattern

Observer Pattern

State Pattern

Strategy Pattern

Template Pattern

Visitor Pattern

behavioral patterns

Sun Java Center defined J2EE patterns

1. What are the SOLID Principles?

Ans:

Single Responsibility Principle.

Open-Closed Principle.

Liskov Substitution Principle.

Interface Segregation Principle.

Dependency Inversion Principle.

1. How can you achieve thread-safe singleton patterns in Java?

Ans:

Create the private constructor to avoid any new object creation with new operator.

Declare a private static instance of the same class.

Provide a public static method that will return the singleton class instance variable.

1. What do you understand by the Open-Closed Principle (OCP)?

Ans: The Open-Closed Principle (OCP) states that software entities (classes, modules, methods, etc.) should be open for extension, but closed for modification. In practice, this means creating software entities whose behavior can be changed without the need to edit and recompile the code itself.