

Research Week 7

Research the SOLID principles of Object-Oriented Programming (OOP) as introduced by Robert Martin

The SOLID Principles are guidelines to follow when designing a class in programming. In 2000, Robert Martin developed the principals, followed by Michael Feathers who created the SOLID acronym. The purpose of these principles is to simplify coding so that many different developers can work together.

The 5 SOLID principles of Object-Oriented Programming are:

- The **S**ingle Responsibility Principle
- The **O**pen-Closed Principle
- The **L**iskov Substitution Principle
- The **I**nterface Segregation Principle
- The **D**ependency Inversion Principle

The Single Responsibility Principle states that a class should do one thing and therefore it should have only a single reason to change. If a class only has one thing it needs to do, making changes later on will be much easier. This principle makes version changes much easier.

The Open-Closed Principle requires that classes should be open for extension and closed to modification. Classes should be open to adding new functionality without changing the code of an existing class.

The Liskov Substitution Principle states that subclasses should be substitutable for their base classes. Meaning any subclass of a parent class should be able to pass without returning anything that deviates from what is expected.

Segregation means keeping things separated, and the Interface Segregation Principle is about separating the interfaces. Having many specific interfaces is better than one general purpose interface.

The Dependency Inversion principle states that our classes should depend upon interfaces or abstract classes instead of concrete classes and functions. In his paper Martin described this principle as follows: "If the OCP states the goal of OO architecture, the DIP states the primary mechanism".

<https://www.freecodecamp.org/news/solid-principles-explained-in-plain-english/>

What are wildcards in MySQL? How are they useful?

A wildcard character is used to substitute one or more characters in a string.

Wildcard characters are used with the LIKE operator. The LIKE operator is used in a WHERE clause to search for a specified pattern in a column. Wildcards can also be used in combinations!

1. Using wildcard in MySQL can increase the performance of an application
2. It can reduce the time to filter the record from the database
3. Complex SQL queries can be converted into simple one using wildcards
4. Using wildcards we can develop powerful search engines in a large data-driven application. Searching in the data-driven application is much more dependent on the use of wildcards

%	Represents zero or more characters	Example: re% finds re, red, reader, and ready.
_	Represents a single character	Example: h_t finds hot, hat, and hit.

https://www.w3schools.com/mysql/mysql_wildcards.asp

<https://www.educba.com/wildcards-in-mysql/>