

Assignment -2

Question 1

1. Which SOLID principle does the Customer class violate?

Customer class violates **Single Responsibility Principle**

2. Why does the code violate the principle?

Both Boolean validation and emailCustomerSpecialOffer responsibilities are in the same class overloading the class functionality and violating single responsibility principle.

Question 2

1. Which SOLID principle does the USDollarAccount class violate?

USDollarAccount class violates **Liskov Substitute Principle**.

2. Why does the code violate the principle?

When USDollarAccount class is extended from Account class, get balance method in account is not used by USDollarAccount class. This reduce the behaviour of parent Account class thereby violates Liskov Substitute principle.

Question 3

1. Which SOLID principle does the Student class violate?

Student class violates **Single Responsibility Principle**

2. Why does the code violate the principle?

Both Save and load responsibilities of files present in same class overloads the class functionality and provides more than one reason for class to change, thereby violating Single Responsibility principle.

Question 4

1. Which SOLID principle does the Employer class violate?

Employer class violates **Dependency Inversion Principle**.

2. Why does the code violate the principle?

Concrete objects of HourlyWorker and SalaryWorker classes (low level modules) present in employer class (high level module) increases coupling and also violates Dependency Inversion principle.

Question 5

1. Which SOLID principle does the following code violate?

Code violates **Interface Segregation principle**.

2. Why does the code violate the principle?

Interface Insect contains both swim and fly methods. So, AquaticInsect class is forced to implement fly method and similarly FlyInsect class is forced to implement Swim method. It leads to unnecessary dependency of methods and coupling, thereby violating Interface Segregation principle.

Question 6

1. Which SOLID principle does the following code violate?

Code violates **Open/Closed principle**.

2. Why does the code violate the principle?

CountryGDPReport class is limited to two countries Canada and Mexico and if any changes like other country needs to be added entire methods in the class needs to be modified. Similarly PrintCountryGDPReport is also defined for Canada and Mexico violating Open/Closed principle.

Question 7

1. Which SOLID principle does the following code violate?

Code violates **Interface Segregation principle**.

2. Why does the code violate the principle?

ILibraryItem interface have many methods such as getPlayTime, getAuthor, getTitle, isDigitalOnly, getCastList and thereby forces both Books and DVDItems to implement all the methods. As no clients should be forced to depend on methods which are not used by them, it violates Interface Segregation principle.