C2 evaluation OS101 (Networking,SOLID):
25 June, 2022

Note
There are a total of 4 questions.
All the questions are compulsory.
Duration of the test is 2 hours.
Don't seek help from any person/resource during the test.
Marks Distribution is as follows:

Question	*Marks*
1	*4*
2	*6*
3	*6*
4	*4*

Q1 a) What do you know about client server architecture?

b)What is the difference between DNS and IP address?

Q2. What is CAP theorem, discuss a scenario where CAP theorem helps you choose a technology over the other or helps you make a design decision.

Q3 What are SOLID principles? Explain with examples wherever possible.

Q4 In the following diagram (it intentionally contains pseudo code) There is an interface DataManager with two functions.
The three classes implement this interface and provide implementation to the read and write methods.
The write method throws an exception in the InMemoryRealmManager class because it doesn't need the write() method.

A. Which of the design principles: solid principles or clean code pattern is being violated in this scenario.

B. Rectify/fix it with the best practices and also demonstrate the corresponding pseudo code.

```
protocol DataManager {
    func read()
    func write()
}
class DiskRealmManager: DataManager {
    func read() {
        print("Reading DiskRealmManager")
    }

    func write() {
        print("Saving Into Realm")
    }
}
class DiskCoreDataManager: DataManager {
    func read() {
        print("Reading DiskCoreDataManager")
    }

    func write() {
        print("Saving Into Realm")
    }
}

class InMemoryRealmManager: DataManager {
    func read() {
        print("Reading InMemoryRealmManager")
    }

    func write() {
        fatalError()
    }
}
```