Persistent Programming - Sept 2024

1. Problem Statement: Find Instances of Critical Readings in Patient Health Data

You are given a string readings representing a sequence of patient vital signs readings, separated by a delimiter (e.g., ","). Each reading is either "stable" or "critical".

Your task is to count the total number of **"critical"** readings.

Function Description

Complete the function critical with the following parameters:

- **Input:**
    - readings (STRING): A string containing the sequence of readings, separated by a delimiter.
- **Return:**
    - The function must return an **INTEGER**, denoting the number of occurrences of "critical" in the string.

2. Smart Taxi Driver

There are N people numbered from 1 to N , such that the i-th person lives in a place i in the city of Bob.

Each person wants to go to a destination, and no two people want to go to the same place. The destinations can be represented as a permutation T , where T[i] indicates the destination of the i-th person.

The city's road map is structured as a tree, where:

- Each place X is connected to its parent P[X] , and vice versa.

- The distance between X and P[X] is C[X] .

- The root of the tree is place 1, which means P[1] = 0 and $C[1] = 0$.

Task:

You are a taxi driver who follows this fixed process:

1. Start from any place X in the city.

2. Drive the person at X to their destination $T[X]$

3. Pick up another person at the destination T[X] (if available) and drive them to their destination.

4. Repeat until you reach a place where there are no people to pick up.

5. The taxi driver cannot drive more than distance K

Your task is to find the maximum number of people the taxi driver can transport

3. Separating the Objects

When developing an iOS application, you want to separate the objects making the request from the objects that execute the requests. Which of these design patterns should you use to implement this successfully?

Answer Options:

- Iterator Pattern
- Mediator Pattern
- Composite Pattern
- Command Pattern

4. Choosing Appropriate Design Pattern to Build an Application

When developing an iOS application, you are working with a large number of classes that are complicated to use.
Which of these design patterns is ideal to use in the given scenario?

Answer Options:

- Facade Pattern
- Decorator Pattern
- Memento Pattern
- Adapter Pattern

5. Presenting Custom Modal Content

You want to present custom modal content in your iOS application such that a particular previous view is covered. Which of these presentation styles is suitable for use in the given scenario?

Answer Options:

- Current Context
- Popover
- Page Sheet
- Form Sheet

6. Performing Networking in iOS

Which of the following statements are valid when performing networking in iOS?

1. reachableBlock in the Reachability instance is invoked when the network availability changes from reachable to unreachable.
2. unreachableBlock in the Reachability instance is invoked when the network availability changes from unreachable to reachable.
3. Whenever startNotifier is called, the Reachability instance retains itself.

Answer Options:

- i) is true, ii) is true, iii) is false
- i) is false, ii) is false, iii) is true
- i) is true, ii) is false, iii) is true
- i) is false, ii) is true, iii) is false

7. Errors While Running Tests

You want to run tests for an application on an iOS device. While compiling the application for the simulator, something went wrong and it did not get compiled properly.
Which of these errors are most likely to occur when you try to run the tests?

Answer Options:

- Tests Not Found
- Permission Denied
- Posix Spawn
- Unauthorized Access

8. Problem Statement: Working with NSFetchedResultsController .You are working with NSFetchedResultsController while working with Objective-C.

Question:
In the given context, if the **delegate** and the **file cache name** are non-nil, what mode is the controller likely to be operating in? Answer Options:

1. No tracking
2. Memory-only tracking
3. Full persistent tracking
4. Cache-only tracking