Exam Simulation

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阅读 PDF

System Description

The system manages information about book rental bookings. The system has two types of users: book rental staff and book rental customers that log in and out of sessions. Either may access their information through a web page. Customers can make and cancel a reservation or booking. Customers can optionally be a member of a book discussion club which gives them a discount when making a reservation. Information must be retained between user sessions. Customers are uniquely identified by their identity card number.

The status of a customer is: reserved (rental period defined) and collected (reserved, with selected book collected). Each customer may also include optional extras with the book rental. The options include eReader and Print service. The system also offers book rental staff information about the book being rented (such as, books available for a given time period, books rented for a given time period, and availability of eReaders and Print service). Book rental customers can view their reservation information.

Note: Questions 1 to 3 apply to this system. Make any assumptions that you believe are needed to complete the questions. Explain these assumptions in your answers.

Questions

Question 1

Write two functional requirements for the system regarding a desired search functionality of the tool that would be included in the category **Portability** of the standard ISO/IEC 25010:2023, for the sub-class **Adaptability**.

Question 2

Consider the following ambiguous non-functional requirement for the system regarding security:

- **SRS-01**: The system shall allow each customer to access only their own personal data quickly and not any other data related to any other customer.

List any ambiguities and rewrite that requirement into a number of separate requirements to remove any ambiguities, making assumptions as required.

Question 3

Suggest a plan to apply a **People Capability Maturity Model (P-CMM)** for this system, including what features of P-CMM are adopted and what are the advantages and disadvantages of using P-CMM?

Question 4

Describe the type of errors that are detected when **static flow analysis** is performed on the code.

Question 5

Calculate the cyclomatic complexity of the following function by drawing a graph of program flow and list the independent paths.

```csharp
public static void SomeMethod(int a, int b)
{
    int c = 5;
    if (a < b) // 1 N
    {
        Console.WriteLine("This is some text 1"); // 2 N
    }
    else
    {
        if (a < c) // 3 N
        {
            Console.WriteLine("This is some text 2"); // 4 N
        }
        else
        {
            Console.WriteLine("This is some text 3"); // 5 N
        }
    }
}
```

Question 6

What kind of functionality is provided by a **test management tool** in the area of **reporting**?