Sessional Exam Assignment

Course Name: Software Requirement And Specification

Submitted By:

Inzamam (12998)

BS (SE-8) Section: A

Submitted To:

Mam Aasma Khan

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Department of Computer Science,
IQRA National University, Peshawar Pakistan

IQRA NATIONAL UNIVERSITY

Sessional 2020 Examination

Course Name	Max. Marks	Deadline	Date	Instructor
Software Requirement Specification	20	10th June, 2020	10th May, 2020	Aasma Khan

- **Attempt all questions.**
- **Marks will be given as per the DEPTH of the answer, not LENGTH.**

Question No: 01 **(20)**

Pair programming is an agile software development technique in which two programmers work together at one work station. One types in code while the other reviews each line of code as it is typed in. The person typing is called the driver. The person reviewing the code is called the observer. The two programmers switch roles frequently (possibly every 30 minutes or less).

Suppose that you are asked to build a system that allows Remote Pair Programming. That is, the system should allow the driver and the observer to be in remote locations, but both can view a single desktop in real-time. The driver should be able to edit code and the observer should be able to "point" to objects on the driver's desktop. In addition, there should be a video chat facility to allow the programmers to communicate. The system should allow the programmers to easily swap roles and record rationale in the form of video chats. In addition, the driver should be able to issue the system to backup old work.
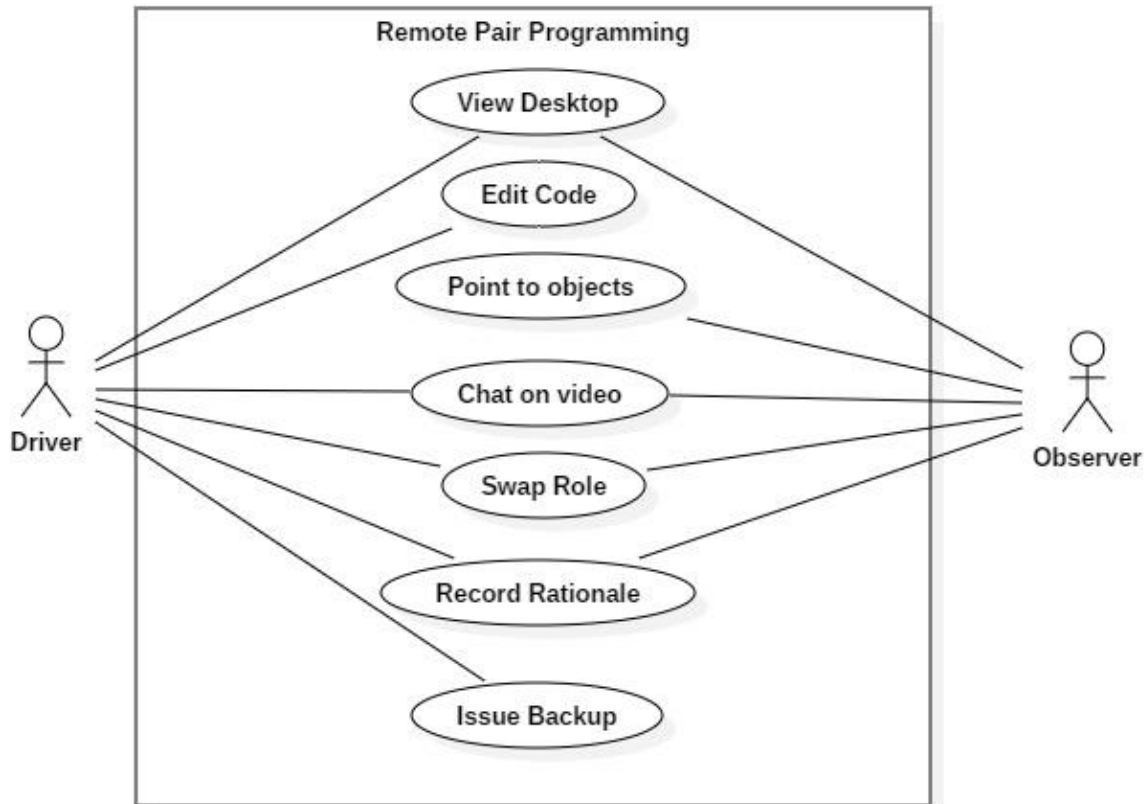
- Draw a use case diagram to show all the functionality of the system.
- Describe in detail four non-functional requirements for the system.
- Give a prioritized list of design constraints for the system and justify your list and the ordering.
- Propose a set of classes that could be used in your system and present them in a class diagram.

Good Luck ☺

Question 1

Answer:

Use Case Diagram

Remote Pair Programming

Driver

View Desktop

Edit Code

Point to objects

Chat on video

Swap Role

Record Rationale

Issue Backup

Observer

Non-Functional Requirements:

- **Portability:** The programmers should be able to use the system regardless of what computer and operating system used by the programmers.

- **Security:** The backup code should be kept securely and be protected from unauthorized access.

- **Cost:** Users should pay no more than $5 per month to use RPP.

- **Reliability:** The system should be reliable, i.e., it should not crash when the internet speed is slow and when the internet connection is suddenly down the user should be able to resume the session at a later time.

Prioritized list of design constraints:

- The system should be portable is a non-functional requirement. This non-functional requirement may lead to a constraint on the programming language used for the implementation of the system (e.g., the programming language Java (rather than C and C++) might be preferred in order to meet this non-functional requirement).

- The system must be secured is a non-functional requirement. The design constraints could be a user authentication must be in place, the communication protocol must be encrypted, and/or the data must be stored on a server behind firewall.

- The system must be cheap to use is a non-functional requirement. This design constraints may cause the company less profit as the system is very cheap to use. It just requires 5$.

- The system must be reliable is a non-functional requirement. This design constraints requires constant and fast internet connection. If the internet is not constant then the system may crash or work slow.

Class Diagram