Software Engineering CS-303 Quiz 2 Solution

Use the information given below to answer the following questions.

New Bank of Pakistan (NBP) needs a banking application that allows its customers to maintain their bank accounts. This application should allow the customers to view account balance, pay utility bills, transfer funds, and shop online using the bank account number. NBP expects that, once the application is developed, its customers can login using their valid unique account number and a valid password. NBP does not want to get into a situation where account details including the passwords are leaked to unwanted entities during data transmission as well as data storage. An NBP customer cannot create his/her account. Only Admin, residing in Head Office of NBP, creates account of a new customer. The customer, however, enters his/her details into the application and sends the account creation request to Branch Manager. The Branch Manager verifies the customer details and forwards each verified request to Admin through the same banking application before the end of the day. The Admin creates an account on recommendation of the Branch Manager. Admin must ask the customers to verify their emails before end of the next working day. Account creation will be successful only if a customer verifies his/her email address by using the link sent during account creation process. Once the email is verified, the Admin creates the account and provides the customer with a unique login id through the verified email. The password is generated once account creation is successful, but the password is not shared through the banking application. In addition, the Branch Manager is notified about the success of the account creation process. In case the account creation process is not successful, the Admin rejects the request and the Branch Manager is notified about the rejection. The customer must change the password at first login and password must follow a strict password policy. NBP also expects that their customers can perform internet banking swiftly. Specifically, Bill Payment should be processed instantly. Novice users should be able to transfer funds after reading the user manual once. Furthermore, the account balance shall reflect each funds transfer transaction within 5 seconds of request.

1. List **all** functional requirements of the banking application that are directly related to the Branch Manager. All of these requirements should be testable/verifiable.
2. The banking application shall provide the Branch Manager with a list of account creation requests submitted by the customers.
3. The banking application shall show the Branch Manager deadline for each of the account creation requests.
4. The banking application shall show a particular account creation request to the Branch Manager.
5. The banking application shall allow the Branch Manager to send verified account creation requests to Admin for final decision (Accept/Reject).
6. The banking application shall show the Branch Manager a list of notifications about successful/unsuccessful account creation requests
7. List **5 non** functional requirements of the banking application. All of these requirements should be testable/verifiable.
8. The banking application shall store the password in encrypted form.
9. The banking application shall ensure secure transfer of login data (that includes password)
10. The application shall perform authentication at the time of login.
11. The application shall process the funds transfer within 5 seconds of request.
12. The application shall be easy to use and novice users shall be able to transfer funds after reading the user manual once.
13. [6] For the following multiple choice questions, give a valid reason to get full credit.
14. Which of the following property or properties does not correspond to a good SRS?
15. Verifiable b. **Ambiguous** c. Complete d. Traceable

As mentioned in class, no requirement should be ambiguous.

1. Which of the following is/are not a project management goal?
2. Keeping overall costs within budget d. Avoiding customer complaints.
3. Maintaining a happy development team **e. None of the above.**
4. Delivering fully completed software within allotted time

**We should deliver a working software in allotted budget and time while maintaining a happy team to avoid customer complaints.**

1. In a safety critical system, the most important software quality attribute is:
2. Maintainability b. **Reliability** c. Performance d. Usability.
3. [4] For the following given requirements, determine whether they are verifiable or not verifiable. Also list down the category of non-functional requirement the statement hints at.
4. The number of mouse clicks the user needs to perform when navigating to any window must be less than 10.

**Usability. – verifiable.**

1. In case of failure, the system must be easy to recover and must suffer minimum loss of important data.

**Reliability – verifiable.**

1. [6] For the following multiple choice questions, give a valid reason to get full credit.
2. Which of the following property or properties does not correspond to a bad SRS?
3. **Verifiable** b. Ambiguous c. **Complete** d. **Traceable**

**See reason above.**

1. Which of the following is/are not a project management goal?
2. Keeping overall costs within budget d) Avoiding customer complaints.
3. **Maintaining an overworked development team** e) None of the above.
4. **Delivering partly completed software within allotted time**

**See reason above.**

1. In a safety critical system, the most important software quality attribute is:
2. Maintainability b. **Reliability** c. Performance d. Usability.
3. [4] For the following given requirement, determine whether they are verifiable or not verifiable. Also determine whether the requirement is functional or non-functional.
4. The banking application shall allow the customer to retrieve forgotten passwords.

**Non-functional – verifiable.**

1. The application shall provide the Admin a list of account creation requests forwarded by the Branch Manager.

**Functional – verifiable.**