***Software Engineering II***

**Activity: Requirements Elicitation and Analysis**

**Objective:**

Practice requirements gathering and analysis skills by working through a scenario to understand and document software requirements.

**Instructions:**

**Step 1: Introduction**

One member will Start with a brief introduction to the importance of requirements gathering in the software development life cycle. Discuss how a clear understanding of requirements is crucial for successful project outcomes.

**Step 2: Scenario Presentation**

Scenario: You are part of a development team working on a new online banking system for a financial institution. The system should allow users to check account balances, transfer funds, and view transaction history. Additionally, the system should have a high level of security to protect user information.

**Step 3: Group Brainstorming**

Each group is tasked with brainstorming and listing potential requirements for the given scenario. Encourage creativity and think about both functional and non-functional requirements.

**Step 4: Requirements Prioritization**

Once each group has a list of requirements, Prioritize the requirements based on importance and criticality. Discuss the challenges and considerations involved in prioritizing requirements.

**Step 5: Group Presentation**

Each group presents their identified requirements and prioritization to the rest of the class. Have a discussions and questions from other groups to simulate real-world scenarios where collaboration and communication are key.

**Step 6: Refinement and Documentation**

After the presentations, Each group will refine and document the requirements. Emphasize the importance of clear and unambiguous documentation for effective communication with stakeholders and the development team.

**Step 7: Review and Feedback**

Conduct a review of the documented requirements with the entire class. Discuss common challenges faced by different groups and how they were addressed. Provide constructive feedback on the quality of the requirements and prioritization.

Step 8: Conclusion

Wrap up the activity with a brief discussion on the importance of continuous communication and collaboration between stakeholders, developers, and testers throughout the software development life cycle.

Homework/Extended Activity:

For homework or as an extended activity, Research and write a short reflection on the importance of requirements gathering and analysis in the context of real-world software projects. I Encourage you to explore the impact of well-defined requirements on project success.

**Answer:**

**Requirements Elicitation and Analysis: Online Banking System**

**1. Functional Requirements:**

* 1. **Account Management:**

**User Registration:**

The system shall allow users to register for online banking with a valid account number, personal information, and contact details.

User registration must include a secure authentication process.

**Account Balances:**

Users shall be able to check their account balances for various linked accounts.

Account balances must be real-time and accurate.

Transaction History:

The system shall provide users with a detailed transaction history for each account, including date, time, and transaction type.

Users should be able to filter and search transactions based on specific criteria.

1.2 Fund Transfers:

**Transfer Between Own Accounts:**

Users shall be able to transfer funds between their linked accounts.

Transfers must be secure and real-time.

**External Transfers:**

The system shall support fund transfers to external accounts with proper validation and authorization.

External transfers must comply with banking regulations and security standards.

**1.3 Security:**

**User Authentication:**

The system shall implement a multi-factor authentication process for user login.

Passwords must adhere to strong security standards.

**Data Encryption:**

All user data, including account details and transactions, must be encrypted during transmission and storage.

**Secure Session Handling:**

The system shall manage user sessions securely, implementing session timeouts and re-authentication for sensitive transactions.

**2. Non-Functional Requirements:**

**2.1 Performance:**

**Response Time:**

The system shall respond to user actions (e.g., balance inquiries, fund transfers) within 2 seconds under normal load conditions.

**Scalability:**

The system architecture must be scalable to handle an increasing number of users and transactions over time.

**2.2 Reliability:**

**System Availability:**

The online banking system shall be available 24/7 with scheduled maintenance communicated to users in advance.

**Backup and Recovery:**

Regular backups of user data must be performed, and the system should have a robust recovery mechanism in case of failures.

**2.3 Usability:**

**User Interface:**

The user interface must be intuitive and user-friendly, supporting users of varying technical expertise.

**Accessibility:**

The system shall comply with accessibility standards, ensuring usability for users with disabilities.

**3. Regulatory and Compliance:**

**Data Privacy:**

The system must comply with data privacy regulations, ensuring that user information is handled securely and with consent.

**Transaction Tracking:**

The system shall maintain an audit trail for all financial transactions to comply with regulatory requirements.

**4. Reporting and Analytics:**

**Reporting Tools:**

The system shall provide reporting tools for users to generate statements, summaries, and analytics on their financial activities.

**5. Integration:**

**Integration with Core Banking System:**

The online banking system shall integrate seamlessly with the institution's core banking system for real-time data synchronization.

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