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|  | **BAHRIA UNIVERSITY, (Karachi Campus)**  *Department of Software Engineering*  **Quiz 3 - Spring 2023** |  |



COURSE TITLE: **SOFTWARE QUALITY ENGINEERING** COURSE CODE: **SEN-321**

Class: **BSE-6 (B)** Shift: **Morning**

Course Instructor: Sohaib ur RehmanTime Allowed:  **20 min.**

Date: 9th June 2023Max. Marks: **2.5 Marks**

**Question No. 1 [CLO3: 2.5 Marks]**

Scenario: You are working as a quality assurance engineer for a software development company. Your team has recently developed a new mobile application for a client. The client is concerned about the overall quality of the application and wants you to explain the internal and external quality attributes that are essential for the success of the application.

Question: As a quality assurance engineer, how would you explain the internal and external quality attributes that are important for the success of the mobile application developed for the client?  
  
  
**Solution:**

As a quality assurance engineer, I would explain the internal and external quality attributes that are crucial for the success of the mobile application developed for the client as follows:

Internal Quality Attributes:

Internal quality attributes are concerned with the internal structure, design, and implementation of the application. These attributes are not directly visible to end users but have a significant impact on the application's maintainability, performance, and reliability. Some essential internal quality attributes for the success of the mobile application are:

1. Maintainability: This attribute focuses on how easily the application can be modified, enhanced, or fixed over time. A well-maintained application allows for efficient bug fixing, future updates, and adding new features. It includes aspects such as code readability, modularity, and adherence to coding standards.

2. Testability: Testability refers to how easily the application can be tested. An application with good testability allows for effective testing processes, enabling the identification of defects and ensuring robustness. It includes characteristics such as code traceability, proper error handling, and the ability to isolate and mock dependencies during testing.

3. Scalability: Scalability is the application's ability to handle increasing user loads and data volumes without performance degradation. A scalable application can accommodate a growing user base and provide consistent performance. It involves aspects such as efficient resource utilization, load balancing, and horizontal scalability.

External Quality Attributes:

External quality attributes are directly visible and experienced by the end users. These attributes determine the overall user satisfaction and perception of the application. Key external quality attributes for the success of the mobile application include:

1. Usability: Usability measures how user-friendly and intuitive the application is. A highly usable application enhances user satisfaction and encourages user engagement. It includes factors such as ease of navigation, clear and concise interface, responsive design, and accessibility considerations.

2. Performance: Performance refers to how well the application performs in terms of speed, responsiveness, and resource utilization. A high-performance application delivers fast response times, smooth interactions, and efficient memory usage. It involves considerations such as optimized code, caching mechanisms, network efficiency, and minimizing latency.

3. Reliability: Reliability focuses on the application's ability to consistently perform its intended functions without failures or crashes. A reliable application instills trust in users and ensures uninterrupted usage. It includes aspects such as error handling, fault tolerance, graceful recovery from failures, and proper exception handling.

4. Security: Security is critical for protecting user data, preventing unauthorized access, and ensuring the confidentiality and integrity of information. A secure application safeguards user privacy and builds trust. It involves implementing secure coding practices, encryption, proper authentication mechanisms, and regular security audits.

By emphasizing these internal and external quality attributes, we can ensure that the mobile application meets the client's expectations, provides a positive user experience, and achieves long-term success in the market.