**Lesson 4 - SDLC and STLC. Software development methodologies**

Level 1

**Give short examples of requirements (3-5) for any item from your environment that would meet each of the following quality assessment criteria:**

* **Atomic**
* **Consistent**
* **Testable**
* **Traceable**

For this exercise, I chose as an example a TV.

*Atomic Requirements:*

* The TV shall have a screen size of 55 inches.

*Consistent Requirements:*

* The remote control shall include volume up and volume down buttons.
* The TV shall support HDMI, USB, and Bluetooth connectivity options.

*Testable Requirements:*

* The TV power button on the remote control shall turn the TV on or off within 3 seconds.
* The TV picture settings shall allow users to adjust brightness, contrast, and colors with changes immediately visible on the screen.

*Traceable Requirements:*

* The sound output should be traceable back to audio performance specifications.
* Bluetooth pairing should be traceable back to connectivity and user interface features.

These requirements should be specific, clear, and well-structured, making them atomic, consistent, testable, and traceable. They help ensure the development of a high-quality TV that meets user expectations and can be effectively validated through testing.

Level 2

**In your opinion, which of the requirements testing techniques guarantees the highest possible quality of the final result? Support your answer (3-5 sentences).**

The requirement testing technique that guarantees the highest possible quality of the final result combines multiple techniques, including Functional Testing, Usability Testing, Regression Testing, Performance Testing, and so on.

While no single testing technique guarantees the highest quality, a comprehensive testing strategy that combines these techniques thoroughly assesses the software from various angles, addressing functional, usability, performance, security, and regression aspects.

This approach helps identify and rectify various issues, ultimately leading to a higher-quality final result that meets user expectations and industry standards.

Level 3

**You are the founder of a startup planning to launch a mobile application for sharing cat photos.**

**Come up with functional (5-7) and non-functional (also 5-7) requirements for the application.**

Functional Requirements

1. *User Registration and Authentification:*

* Users must be able to create accounts with a username and password.
* Users should have the option to log in through social media accounts.

1. *Photo Uploading and Sharing*

* Users can upload cat photos from their device gallery or take new photos.
* Users can add captions and tags to photos before sharing them.
* Users can share photos publicly or privately with specific individuals or groups.

1. *User Profile and Following:*

* Users can view and edit their profiles, including profile pictures.
* Users can follow/unfollow other users and see a feed of photos from users they follow.

1. *Notifications:*

* Users receive notifications for new followers, likes, comments, and mentions.
* Users can adjust notification settings.

1. *Interactions:*

* Users can like, comment on, and share photos.
* Users can send direct messages to other users.
* Users can report inappropriate content.

1. *Privacy and Security:*

* Users can set their photo and account privacy preferences.
* Passwords and user data are securely encrypted.
* Inappropriate content and users are promptly reviewed and moderated.

Non Functional Requirements

1. *Performance:*

* The application must load photos, and user feeds quickly, even during peak usage.
* Response times for user interactions (liking, commenting) should be near-instantaneous.

1. *Scalability:*

* The system must handle a growing number of users and cat photos over time.

1. *Security:*

* User data, including passwords and personal information, must be stored securely.
* The application must protect against common security threats like data breaches and unauthorized access.

1. *Usability:*

* The user interface should be intuitive, visually appealing, and user-friendly.
* The application should support multiple mobile platforms (iOS, Android).

1. *Reliability:*

* The application must be available and reliable 24/7 with minimal downtime.
* It should have automated backup and recovery mechanisms.

1. *Accessibility:*

* The application should be accessible to users with disabilities, adhering to accessibility standards.