"NON FUNCTIONAL REQUIREMENT TRACEABILITY AUTOMATION-AN MOBILE MULTIMEDIA APPROACH" by J. Selvakumar and M. Rajaram

The authors present a non-functional requirement traceability automation approach for mobile multimedia applications.

The approach focuses on traceability of non-functional requirements such as performance, security, and usability, among others.

The authors propose the use of multimedia techniques and mobile technologies to improve the efficiency and effectiveness of non-functional requirement traceability.

The proposed approach includes the development of a mobile multimedia application to provide an interactive and visual representation of the non-functional requirement traceability information.

The authors evaluate the proposed approach using a case study and demonstrate its effectiveness in tracing non-functional requirements in mobile multimedia applications.

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1. What are user requirements and what are system requirements?

User requirements are the needs, expectations, and desired features that a user has for a product or system. These requirements are typically gathered through communication with the user, market research, and other methods. User requirements specify what the product or system should do and what the user needs it to do.

System requirements, on the other hand, are the specific specifications and functionalities that a product or system must have in order to meet the user requirements. System requirements define how the product or system should operate, including technical details such as performance, security, reliability, and compatibility. System requirements form the basis for the design and development of a product or system and help ensure that the end product meets the user's needs and expectations.

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2. What is the distinction between functional and non-functional requirements?

Functional requirements describe what a system or product should do. They define the specific features and functionalities that the end product should have, such as the ability to input data, search for information, or generate reports. Functional requirements are usually described in terms of inputs, processes, and outputs.

Non-functional requirements, on the other hand, describe how well a system or product should do what it does. They define the quality attributes of the end product, such as performance, reliability, usability, security, and compatibility, among others. Non-functional requirements specify the desired level of performance, security, and other quality attributes that the end product must meet.

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3. What is the distinction between the term ”shall” and ”should”, in requirements document, which is written in natural language?

The term "shall" is used to indicate a mandatory requirement. When a requirement is stated with "shall," it means that it must be fulfilled for the product or system to meet the specified requirements. "Shall" is used to indicate a hard constraint or a requirement that must be satisfied without any exceptions.

The term "should" is used to indicate a recommendation or a desirable but not mandatory requirement. When a requirement is stated with "should," it means that it is a desirable requirement, but it is not strictly necessary for the product or system to meet the specified requirements. "Should" is used to indicate a soft constraint or a requirement that is desirable, but can be relaxed or modified if necessary.

The use of "shall" indicates a mandatory requirement, while the use of "should" indicates a desirable but not mandatory requirement.

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4. List the 3 types of non-functional requirement?

Performance: This includes requirements related to the speed, scalability, and responsiveness of the system. For example, a requirement that the system should be able to handle a certain number of concurrent users or process a certain amount of data within a specific time frame.

Security: This includes requirements related to the protection of the system and its data from unauthorized access, as well as the ability to detect and recover from security breaches.

Usability: This includes requirements related to the ease of use and understandability of the system for the end-users.

Reliability: This includes requirements related to the system’s ability to function correctly and consistently under normal and abnormal conditions.

Maintainability: This includes requirements related to the ease of maintaining the system, including testing, debugging, and modifying the system.

Portability: This includes requirements related to the ability of the system to be easily transferred to different hardware or software environments.

Compliance: This includes requirements related to adherence to laws, regulations, industry standards, or company policies.

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5. Discuss the scientific article: what is the problem and how the scientists solved it?

The problem being addressed is that, in the development of mobile multimedia systems, it can be difficult to keep track of non-functional requirements and ensure that they are properly fulfilled. This can lead to problems such as poor performance, low usability, and security vulnerabilities.

The authors propose a solution to this problem through the use of automated non-functional requirement traceability. This involves the use of a traceability tool that can track the implementation of non-functional requirements from the requirements gathering stage to the final product. The tool can be integrated into the development process and used to ensure that all non-functional requirements are properly implemented and tested.

The authors also propose a mobile multimedia approach for the automation of non-functional requirement traceability. This approach involves the use of mobile devices and multimedia technologies to gather requirements and implement the traceability tool. This allows for the integration of multimedia information, such as images and video, into the requirement gathering and tracking process.