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Topic : Requirements Engineering / Questions / Scenarios

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Scenario 1
A hospital management system is being developed to handle patient records, doctor appointments, billing, and insurance claims. The system should provide different access levels for doctors, patients, and administrators.

Question
What type of requirement is "the system should provide different access levels for doctors, patients, and administrators"?

Solution
This is a **functional requirement**. It specifies how the system should behave by implementing role-based access control, ensuring that users can only access the information relevant to their role.

Scenario 2
A mobile application is being designed to allow users to order food from local restaurants. The app should load available restaurants and menus within 2 seconds and process payments securely.

Question

Which type of requirements would describe the "2-second load time" and "secure payment processing"?

Solution

The **2-second load time** is a **non-functional requirement** related to performance.
The **secure payment processing** is also a **non-functional requirement**, but related to security. Non-functional requirements describe how the system should perform or behave under specific conditions.

Scenario 3

A software team is working on an e-commerce website. One of the team members suggests adding a live chat support feature, but the project manager says this is not a part of the current system requirements.

Question

What is the likely cause of this confusion, and how can it be avoided?

Solution

The confusion likely arises from an **undefined or unclear scope** in the requirements specification. This can be avoided by having a well-documented and approved **requirements specification document** that clearly lists all functionalities and features. Any new ideas should go through a formal change management process.

Scenario 4

A banking system is being designed where customers can transfer money between accounts. The system needs to verify the user's identity before allowing any transactions and provide a confirmation message once the transfer is completed.

Question

What are the two primary functional requirements in this scenario?

Solution

1. The system must **verify the user's identity** before allowing transactions.
2. The system must **provide a confirmation message** after a successful money transfer.

These are both functional requirements because they define the specific behavior of the system.

Scenario 5

An online learning platform is being developed, where users can watch video tutorials and take quizzes. One of the non-functional requirements is that the platform should support up to 10,000 concurrent users without performance degradation.

Question

What type of non-functional requirement is this, and why is it important?

Solution

This is a **scalability requirement** (a type of non-functional requirement). It is important because it ensures the system can handle a large number of users simultaneously, which is critical for maintaining performance during peak usage times.

Scenario 6

A project management tool is being developed that allows users to create tasks, assign them to team members, and set deadlines. The system should automatically send email reminders to team members 24 hours before a task deadline.

Question

What type of requirement is the "automatic email reminders 24 hours before a task deadline"?

Solution

This is a **functional requirement** because it defines a specific feature that the system must perform: sending email reminders based on task deadlines.

Scenario 7

A social media platform is under development where users can post photos, comment on posts, and send direct messages. A requirement states that any user data stored in the system must be encrypted to ensure privacy.

Question

What type of requirement does "data must be encrypted" represent, and why is it necessary?

Solution

This is a **non-functional requirement** related to **security**. Encryption ensures the privacy and confidentiality of user data, protecting it from unauthorized access or breaches.

Scenario 8

A fitness tracker app is being built to record users' daily steps, heart rate, and calories burned. One of the stakeholders requests that the app should have a feature to compare a user's activity data with friends who use the app.

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Question

What type of activity is needed to address this new request from the stakeholder?

Solution

This requires a **change in the functional requirements**. The stakeholder's request introduces a new feature (comparing data with friends), which wasn't part of the original requirements. A formal **change request process** should be followed to assess the impact of adding this feature and update the requirements accordingly.

Scenario 9

A travel booking website is being developed where users can search for flights, hotels, and car rentals. One of the requirements specifies that the system must process search queries and return results within 3 seconds, regardless of the number of users.

Question

What type of requirement does "return results within 3 seconds" represent, and why is it important?

Solution

This is a **non-functional requirement** related to **performance**. It is crucial because users expect quick responses from search queries, especially when multiple users are accessing the system simultaneously. Performance-related requirements directly impact the user experience.

Scenario 10

A library management system is being developed to track borrowed books, late fees, and inventory. A requirement states that only librarians can update the inventory and modify book records, while regular users can only borrow and return books.

Question

What is this type of requirement called, and why is it critical to the system's function?

Solution

This is a **functional requirement** involving **role-based access control**. It is critical because it ensures that users have permissions appropriate to their roles, which maintains the integrity of the library's inventory data and ensures only authorized personnel can make changes.

Scenario 11

A healthcare application is being developed to allow patients to book appointments with doctors. A requirement states that patients should receive an SMS reminder 24 hours before their appointment.

Question

What type of requirement is the "SMS reminder 24 hours before the appointment," and how does it impact the system?

Solution

This is a **functional requirement**. It defines the specific action that the system must perform — sending SMS reminders. This impacts the system by requiring integration with an SMS service and scheduling functionality.

Scenario 12

A weather forecasting website allows users to search for the weather in different cities. A non-functional requirement specifies that the website must support different languages, including English, Spanish, and French.

Question

What type of non-functional requirement is described here, and why is it important?

Solution

This is a **usability requirement** related to **internationalization**. Supporting multiple languages ensures that users from different regions can access the service in their preferred language, improving the platform's accessibility.

Scenario 13

A video streaming platform is being developed. The system should allow users to watch videos in different resolutions (480p, 720p, 1080p, and 4K) based on their internet speed.

Question

What type of requirement is this, and what would be a potential challenge in implementing it?

Solution

This is a **functional requirement**. It specifies that the system must offer different video resolutions. A potential challenge is ensuring the system can dynamically adjust video quality based on varying internet speeds, requiring efficient bandwidth detection and adaptive streaming.

Scenario 14

A company wants to implement an employee attendance tracking system. The system must maintain a log of employee check-ins and check-outs, and generate reports at the end of each month.

Question
What is the primary functional requirement for this system?

Solution
The primary **functional requirement** is that the system should track employee check-ins and check-outs. It must store this information in a log, which can then be used to generate reports.

Scenario 15
An e-learning platform allows students to submit assignments and teachers to grade them. A requirement states that the system should notify the student via email when a grade is posted.

Question
What type of requirement is this, and why is it necessary?

Solution
This is a **functional requirement**. It is necessary because students need timely feedback on their assignments, and notifications ensure they are aware when a grade is posted, enhancing communication and usability.

Scenario 16
A retail company is building an online store where users can browse products, add items to a cart, and complete purchases. One of the requirements is that the system must be able to handle up to 10,000 simultaneous users during peak sales events.

Question
What type of non-functional requirement is this, and what challenge might it present?

Solution
This is a **scalability requirement** (non-functional). The challenge here is ensuring that the system can handle high traffic volumes without performance degradation, requiring load balancing, efficient database management, and server optimization.

Scenario 17
A ride-sharing app is under development where users can request rides, and drivers can accept ride requests. A requirement specifies that the app should use GPS to automatically detect the user's current location when they request a ride.

Question
What type of requirement is this, and what system component would be involved?

Solution
This is a **functional requirement** that involves integrating with a GPS system. The app must accurately detect the user's location and pass it on to the server to match them with nearby drivers.

Scenario 18
A university is developing a portal for students to check their grades and download transcripts. A requirement specifies that the system must be available 24/7, with an expected uptime of 99.9%.

Question
What type of non-functional requirement is this, and how could it be implemented?

Solution
This is a **reliability requirement**. It can be implemented through server redundancy, regular backups, and monitoring tools to ensure the system remains available, even during high traffic or server failures.

Scenario 19
A banking application allows customers to transfer funds between accounts and pay bills. One of the requirements states that users must log in using two-factor authentication (2FA).

Question
What type of requirement is two-factor authentication, and why is it critical?

Solution
This is a **security requirement** (non-functional). It is critical for ensuring that only authorized users can access sensitive banking information, providing an extra layer of protection against fraud and unauthorized access.

Scenario 20
A government agency is developing a system to manage citizen data. One of the requirements specifies that all data stored in the system must be encrypted both in transit and at rest.

Question
What type of requirement is data encryption, and why is it necessary?

Solution
This is a **non-functional requirement** related to **security**. Data encryption is necessary to

protect sensitive information from being accessed or stolen during transmission or while stored in the system, ensuring compliance with data privacy laws.

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