

E-FARM

QUALITY ATTRIBUTES SCENARIO



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WHAT WE DO?

E-FARM serves as a direct link between *farmers* and *consumers*, offering various services:

- Agri Marketplace
- Agricultural Equipment Rental and Maintenance
- Agro Solution and Consultancy

E-FARM

QUALITY ATTRIBUTES FOR OUR SYSTEM

(Only those which are going to be discussed)

Quality Attributes:

Quality attributes are essential characteristics that define the overall quality and behavior of a software system.

Most Important Quality Attributes for our E-Farm System:

- Availability
- Reliability
- Usability
- Performance
- Security
- Scalability
- Maintainability
- Interoperability

WHAT DO THEY MEAN?

(*Quality Attributes*)

- **Availability**: Making sure the platform is **always working**, even during busy times like farming seasons or when lots of people are using it.
- **Reliability**: Making sure the platform **works well** all the time for farmers and users, especially when they're doing things like **transactions** or using services.
- **Usability**: Making the platform **easy to use** for farmers and users, so it's simple to do things like buy, rent equipment, or get advice.
- **Performance**: Making the platform **fast and efficient**, especially when lots of people are using it for things like **transactions** or booking services.

CONTINUE... ...

(*Quality Attributes*)

- **Security**: Keeping all the important information safe, especially when people are making payments or sharing personal details.
- **Scalability**: Making sure the platform can handle more users without getting slower or having problems.
- **Maintainability**: Making it easy to update and fix the platform without stopping it from working.
- **Interoperability**: Making sure the platform works well with different tools and systems that farmers use, so everything can work together smoothly.

QUALITY ATTRIBUTE SCENARIO

(six elements)

A quality attribute scenario is composed of six elements

1. Source:

Where the issue or change affecting the system comes from – either inside the system (internal) or from outside factors (external).

2. Stimulus:

The specific event or pattern that causes a reaction in the system, like a certain type of user action, data flow, or requests that impact how the system works.

3. Artifact:

The particular parts or services within the system that are impacted by the event or pattern. It could be different functions or areas affected by what's happening.

CONTINUE... *(six elements)*

4. Environment:

Describes the **condition of the system** when the event occurs. It could be running normally or facing extra demand or stress due to increased usage or other reasons.

5. Response:

What the system does or **changes because of the event**. It could involve adjusting how things work, allocating resources differently, or activating backup plans.

6. Measure:

The specific things used to **check how well the system is handling the event** or change. It includes things like **response time**, how well deadlines are met, **how much data can be processed**, and **if there are issues like data loss or delays**.

AVAILABILITY SCENARIO: HIGH TRAFFIC PERIOD

Scenario	A surge in user activity during the planting season
Source of Stimulus	Surge in user activity
Stimulus	Increased user activity during the planting season
Artifact	Server processors, communication channels
Environment	Normal operation
Response	Auto-scaling of server resources, load balancing
Measure	Uptime maintained at 99.9%, with minimal impact on transaction speed

RELIABILITY SCENARIO: EQUIPMENT RENTAL

Scenario	Farmer requests equipment rental
Source of Stimulus	Farmer requests equipment rental
Stimulus	Equipment rental request
Artifact	Rental booking system, equipment availability database
Environment	Normal operation
Response	Immediate confirmation of booking, accurate equipment availability information
Measure	Zero booking errors, timely and accurate equipment delivery

USABILITY SCENARIO: USER INTERFACE NAVIGATION

Scenario	New consumers exploring the platform for produce purchase
Source of Stimulus	New consumers exploring the platform for produce purchase
Stimulus	Consumer exploring platform
Artifact	User interface, navigation menus
Environment	Normal operation
Response	Clear and intuitive interface, easily navigable categories for produce selection
Measure	Low learning curve, successful purchase within 5 minutes

PERFORMANCE SCENARIO: CONSULTATION SERVICE

Scenario	High concurrent consultation requests
Source of Stimulus	High concurrent consultation requests
Stimulus	Concurrent consultation requests
Artifact	Consultation scheduling system, server response time
Environment	Normal operation
Response	Swift scheduling and connection with consultants, minimal wait time
Measure	Average response time below 10 seconds, no service disruptions

SECURITY SCENARIO: FINANCIAL TRANSACTION

Scenario	Consumer purchasing produce using a payment gateway
Source of Stimulus	Consumer purchasing produce using a payment gateway
Stimulus	Purchase transaction via payment gateway
Artifact	Consultation scheduling system, server response time
Environment	Normal operation
Response	Secure payment processing, encryption of sensitive data
Measure	No reported security breaches, encrypted data transmission maintained

SCALABILITY SCENARIO: RAPID USER GROWTH

Scenario	Increased user registrations
Source of Stimulus	Increased user registrations
Stimulus	Increase in user registrations
Artifact	Server infrastructure, user database
Environment	Normal operation
Response	Auto-scaling of server resources, seamless onboarding of new users
Measure	Platform performance maintains stability, and no degradation despite an increased user base

MAINTAINABILITY SCENARIO: SYSTEM UPDATE

Scenario	Introduction of a new feature set for equipment monitoring
Source of Stimulus	Introduction of a new feature set for equipment monitoring
Stimulus	New feature introduction
Artifact	Software architecture, update deployment process
Environment	Normal operation
Response	Seamless deployment of updates, minimal service disruption
Measure	No downtime during the update, and successful feature integration

INTEROPERABILITY SCENARIO: INTEGRATION WITH FARMING EQUIPMENT

Scenario	Farmer attempts to link personal monitoring equipment to the platform
Source of Stimulus	Farmer attempts to link personal monitoring equipment to the platform
Stimulus	Integration of personal farming equipment
Artifact	API, equipment compatibility
Environment	Normal operation
Response	Successful integration, and data synchronization between equipment and platform
Measure	No data discrepancies, real-time and <u>e equipment</u> data displayed accurately



THANK
YOU!



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