Project Task: MV* and Ice-Cream Particulate

One Use Case and Concrete Quality Attribute Scenarios

Note:

The scenarios aren't related to the general scenarios (according to [Bass et.al. 04, Chapter 4])

The customer's priorities are given with "less important", "important" and "very important".
Before starting the description of the quality attribute scenarios the project task "Add Station" is described as a use case. This should help to better understand this requirement. Additionally, it should help to distinguish use cases (requirements for the functionality) and quality attribute scenarios (quality requirements).

1   Use Case: Add Station

Table 1: Use Case Add Station

Name of the use case	Add Station
Short description	When a new station was added to the system, this is indicated on the GUI.
Primary actors	System (Logic)
Secondary actors	-
Stakeholder	-
Trigger	A new station is available
Precondition	The system is running in normal mode.
Result	The new station will be displayed and values may be entered.
Postcondition	New station is integrated like any other station in the overall system
Basic flow	1. The system creates randomly a new station. 2. The system is notifying all display components of the new station 3. The user can select new station and 4. can use it.
Extensions:	-

2   Concrete Quality Attribute Scenarios: Usability

Table 2: Concrete Quality Attribute Scenario "Usability variance I"

Usability

Source	After adding a new value a user wants to
Stimulus	estimate the variance
Environment	at runtime.
Artifact	Presentation, system
Response	Variance is highlighted so that
Response Measure	the user can detect deviations and their type (positive or negative) in < 0.5 seconds.

Priority: very important

Table 3: Concrete Quality Attribute Scenario "Usability variance II"

Usability

Source	A user
Stimulus	wants to detect the type of deviation (positive or negative) and to assess the amount of deviation easily
Environment	at runtime
Artifact	Presentation, system
Response	The user can view the variance and assess its nature of the deviation and / or amount of deviation
Response Measure	in which he can choose between at least two different presentations (e. g. highlighting values, diagrams, ...).

Priority: very important

Usability

Source	The systems
Stimulus	signals a new station
Environment	at runtime.
Artifact	System, presentation
Response	The user can view the new station / use it
Response Measure	within <1 second.

Priority: very important

3   Concrete Quality Attribute Scenarios: Modifiability

Modifiability

Source	The developer or maintenance developer
Stimulus	wishes to create a new GUI
Environment	during implementation phase, maintenance phase.
Artifact	Presentation and interaction
Response	The new GUI is developed, documented, tested and ready for use
Response Measure	without changing the logic within one day.

Priority: very important

Modifiability

Source	The developer or maintenance developer
Stimulus	wishes to create a new GUI on a new device
Environment	during implementation phase, maintenance phase.
Artifact	Presentation, device and interaction
Response	The new GUI is developed, documented, tested and ready for use
Response Measure	without changing the logic of interfaces within two days.

Priority: very important

Modifiability

Source	The developer or maintenance developer
Stimulus	wants to deploy a new GUI
Environment	at runtime
Artifact	System
Response	The new GUI can be used
Response Measure	within half an hour. The system continues to operate normally. There is no impact to other GUIs.

Priority: very important

Modifiability

Source	The developer or maintenance developer
Stimulus	wants to implement and add a new functionality
Environment	during implementation phase, maintenance phase.
Artifact	System logic
Response	The new functionality is developed, documented, tested and ready for use
Response Measure	within one day. There is no impact to the GUI or the other functionalities of the system.

Priority: very important

4   Concrete Quality Attribute Scenarios: Availability

Table 9: Concrete Quality Attribute Scenario "Availability GUI"

Availability

Stimulus	A GUI has failed
Source	by operator, software errors or hardware failure
Environment	during normal operation
Artifact	Presentation and interaction
Response	GUI is available again
Response Measure	within one business day. The system continues to operate normally and other GUIs can be used.

Priority: important

Table 10: Concrete Quality Attribute Scenario "Availability System"

Availability

Stimulus	The system has failed
Source	by operator, software errors or hardware failure
Environment	during normal operation
Artifact	Logic
Response	The system is available again
Response Measure	within half a day.

Priority: less important

5 Concrete Quality Attribute Scenarios: Performance

Table 11: Concrete Quality Attribute Scenario "Performance Station"

Performance

Source	The system
Stimulus	adds a new station
Environment	during normal operation with 200 users
Artifact	System, GUI
Response	All Users can see the new station
Response Measure	within <2 seconds.

Priority: very important

Table 12: Concrete Quality Attribute Scenario "Performance variance"

Performance

Source	A user
Stimulus	adds a value
Environment	during normal operation with 200 users
Artifact	System, GUI
Response	The variance is presented
Response Measure	within < 0.5 seconds. All presentations are up to date.

Priority: very important

6 Concrete Quality Attribute Scenario: Testability

Table 13: Concrete Quality Attribute Scenario "Testability GUI"

Testability

Source	The developer or maintenance developer
Stimulus	wishes to test a new GUI
Environment	during implementation phase, maintenance phase.
Artifact	GUI
Response	The developer can develop unit tests for the GUI and run the tests
Response Measure	within one day. The tests can be run automatically.

Priority: very important