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Softwaretechnik/Software Engineering

https://swt.informatik.uni-freiburg.de/teaching/SS2024/swtvl

Exercise Sheet 4

Submission: Wednesday, 2024-05-15, 15:59

Exercise Sheet 4 contains two tasks to be submitted. The exercise on *Requirements Elicitation* belongs to Exercise Sheet 5. You have two weeks to work on it. The elicitation task requires communication between you and a *customer* via email. Please be aware that answering questions may take some time. Expect a worst-case response time of two working days.

Exercise 1 – Software Development Models (6/10)

Assume the following scenario: The University of Fantasyland wants to develop a new e-learning platform for their students. The platform should include features such as providing course materials, recordings, submission and correction of assignments, and discussion forums. The university has a deadline of 10 month in order to launch the e-learning platform before the start of the next summer term.

1.1) Give a short description of the V-Model and an agile model like SCRUM. Describe one main advantage and one main disadvantage of each model. (4)

1.2) Argue in favour of using the V-Model for the development process in the given scenario. (1)

1.3) Argue in favour of using an agile model like SCRUM for the development process in the given scenario. (1)

Exercise 2 – Risk Management (4/10)

The Fachschaft of the University of Fantasyland is planning a two hour waffle sale at the end of June in front of building 101, where they will offer normal and vegan waffles using two household waffle irons.
As a member of the Fachschaft and a student of the Software Engineering course, your task is to perform risk management for the waffle sale.

2.1) Identify three plausible risks that could impact the success of the project. For each risk, give a description including its impact on the project in case of occurrence. (1.5)

2.2) For each of the risks identified in Task 2.1, choose plausible values for the probability of occurrence and the cost in case of occurrence. Explain your choices and calculate the corresponding risk values.

Hint: For the cost value, you may argue in terms of loss of expected sales. That is, you may assume that without the occurrence of any of the identified risks, the Fachschaft would sell all waffles (cost value of 0). If none of the waffles would be sold, the cost value is 1. (1.5)

2.3) For the risk with the highest risk value, describe how the risk can be mitigated. (1)

This task needs to be submitted on Exercise Sheet 5 only.
Please contact the right customer depending on the sum of the last digit of both of your team members matriculation number:

- **If it is even: FelixCJFalk+exercise5@gmail.com**
- **If it is odd: elicitation@quantentunnel.de**

Exercise Sheet 5: Exercise 1 – Requirements Elicitation (7/? + 5 Bonus)

Recall the video game from Exercise Sheet 2. One of the requirements read:

> The game must have either 2D or 3D graphics (no ASCII).
> ("Das Spiel muss entweder 2D oder 3D Grafik (kein ASCII) haben.")

1.1) Clarify the meaning of the terms that the requirement directly depends on as intended by the customer.[1] Present the results in form of a dictionary.

For at least 3 terms in your dictionary, complement the entry by a plausible interpretation that was *not* intended by the customer and state (for traceability) on which customer information you base your conclusion. (3)

Real-world example: On your way out to the supermarket, the new flatmate says "Oh, could you get me some milk from the supermarket?" As an RE-person, you would start to work on the dictionary entry 'milk' by asking "What do you mean by 'milk'? Cow, sheep, camel, almond, soy, anything else...?" All these options are plausible to the RE-person. The purpose of the question is to find out which ones the flatmate would accept (and pay) and which ones not.

1.2) Use the terms from the dictionary and prepare, with input from the customer[1], a specification of which products are considered to satisfy the given requirement and which ones not. Work on this task may include refining entries in the dictionary, identifying aspects or terms that the requirement indirectly depends on, and putting terms into relations. (3)

If cow-milk is it and 'some' means between 1 and 3 litres, the RE-person would continue to ask "Fat-degree? UHT or fresh or . . . ? Bottle or . . . ? Brand? Any bio-label?". Prompted by the questions, the flatmate may add "Oh, good that you mention 'brand': If they have the 0.5l bottles of Breisgau-Milch, please bring two of those; I'd like to use these bottles as flower vase in my room."

1.3) Summarise your findings from the previous tasks in a comprehensible, one-sentence specification that describes your understanding of the set of all solutions accepted by the customer. (1)

[1] *For this exercise, you need to interact with a real customer from the domain of student-developed video games. The task is to analyse what* this customer *accepts or does not accept. The customer wants to stay anonymous during this early stage of contract negotiations, hence your only way of communication with the customer is through your software engineering tutor. That is, any enquiries you send to your tutor by mail (forum enquiries will not be considered) will be forwarded to the customer and you will receive the customer's reply. Note that, as a true customer, the person may actually not yet exactly know what is accepted, may misunderstand your questions, may give answers which you do not understand, may get annoyed by impolite questions, etc. In that case, just continue to send further questions: Do not give up easily. Note that, in the end, it is* your *job to clarify the requirements, not the customer's. Please be aware that answering questions may take some time. Expect a worst-case response time of two working days outside the holiday period.*

Fine print: This exercise is not related in any way to previous, current, or future Softwarepraktikum courses: Similarities are purely coincidental. The customer who you communicate with is anonymous; it may be a person from the Softwarepraktikum team or somebody completely unrelated. For this exercise, only the information received from the customer through your software engineering tutor is authoritative for the intentions of this customer (and you document the information for traceability).

1.4) Examples can be an effective means for the validation of a specification. Describe three existing (or made up) products such that one is clearly not accepted by your understanding of the requirement, one clearly is, and one could be a corner-case, that is, one that could, on first sight, be considered to (not) satisfy the requirement while it actually does (not). In particular of the corner-case, state and argue your expectation and point out why the first sight could be misleading. (5 Bonus)