Softwaretechnik Übung 02

Erstellt am: 27.04.2025 **von Miriam, Tuna und Rayan Ben Tanfous**
Tutor: Nils Goldmann

Matrikelnummer: 5587406

2-1)

a)
Recall the tasks of software engineering
What are they?
What does each of them deal with?
Software engineering encompasses the activities required to design, develop, control, and maintain a quality software product. To do this, an engineering approach is used (i.e., based on scientific results), which can also be quantifiable.
The fundamental activities that make up any software development process are four:
Software Specification
This is the phase in which it is decided what the software must do. Requirements (all the functionalities requested by the client and/or users) and the system's operating conditions are collected and defined.
It includes:
Gathering and analyzing requirements (“what does the client want? What is needed?”)
Formal documentation of the requirements
Validation and approval of these requirements
Software Development
Once it is clear what the software must do, the focus shifts to how to achieve it. This is the phase of design and implementation.
It includes:
Defining the system architecture and designing the modules
Writing the source code
Integrating the various components of the system
Software Validation
Of course, it is not enough to clarify how and to implement it: it is also necessary to verify that our draft does exactly what was requested. This phase deals with testing and ensuring the quality of the product.
It includes:
Tests at different levels: unit tests, integration tests, system tests, and acceptance tests
Inspections, reviews, formal verifications
Confirming that the product meets the agreed requirements
Software Evolution
Software is never static: once delivered, it may need updates, bug fixes, or adaptation to new requirements. This is the phase of maintenance and updates.
It includes:
Corrective changes to fix errors
Adaptive changes to deal with environmental or technological changes
Evolutionary changes to add new features

Planning for new versions

b)

Assign the tasks to the respective areas of software engineering.

Areas of software engineering: Quality Assurance, Design/Implementation, Requirements, Management

Quality Assurance → Software Validation

Design/Implementation → Software Development

Requirements → Software Specification

Management → Software Evolution

Note: The information was taken from the manual "Software Engineering" (10th edition) by I. Sommerville (page 23).

Aufgabe 2-2:

1. What is the application domain of the software?:

This is a mobile application within the domain of language learning and job integration support. It is specifically designed to help users learn job-specific vocabulary in different languages to integrate more easily into foreign labor markets.

2. What type of software is it and what is it used for?:

It is a cross-platform mobile app that offers vocabulary and phrase learning tools for specific professions, such as waiters, construction workers, nurses etc. It helps users learn essential terms and expressions in the language of their new country, with an initial focus on popular destination languages like French, German and Spanish.

3. Which work process will the software support/improve?:

It improves the job-seeking and onboarding process for immigrants by helping them quickly learn the professional vocabulary they need to communicate effectively in their workplace. It removes language barriers that slow down employment and productivity.

4. Which features will the software provide?:

- Profession-based vocabulary modules
- Audio pronunciations by native speakers
- Mini quizzes and interactive exercises.
- Progress tracking
- Offline mode for learning on the go.
- Optional integration with job search platforms.
- Also basic expressions in the language which are going to be used in specific jobs.

5. What is the cost-benefit ratio of the software?:

The development and maintenance cost is moderate (not that high), especially if launched with limited initial language/profession sets. The benefit is high, as it helps reduce job market entry barriers for many people, increasing employability and communication confidence.

6. Who are the clients (who gives the assignment and funding)

- The app is going to be developed as a freemium product, funded by in-app purchases or premium subscriptions.

7. Who is the target group of the software:

- Recently relocated people looking for employment in a new country.
- Migrant workers.
- Refugees.
- Language learners preparing for work abroad.

8. What problems/resistance can be expected when introducing the software?:

- Users might struggle with motivation if the interface is too complex
- Initial lack of content for specific professions or languages
- Resistance from users unfamilier with technology
- Need for high-quality translation and accurate industry-specific content.