



Assignment 2: Requirements

Hand-In via Moodle: Nov. 5, 10:00

- This assignment provides up to **one** bonus point.
 - This assignment must be submitted as a **group** via Moodle. One team member submits it on behalf of the team.
 - Submit **one PDF** with the solution for all tasks (font size 12).
 - The PDF must start with a **title page** that mentions all group members their names, student ids, and email addresses. Invalid submissions are desk-rejected, i.e., zero points without further checking or resubmissions.
 - Please use appropriate tools to create the solution (e.g., LibreOffice/Word for texts or draw.io for graphics). Scanned handwritten solutions will only be accepted if they are very legible.
 - If you have any screenshots/pictures, make sure they are in high resolution.
 - Provide well-formulated, but concise and specific answers to the tasks (no bulletpoints).
 - Any kind of plagiarism is prohibited, as well as the use of generative AI (e.g., ChatGPT) to create the final content of this hand-in (except for non-essential content, such as illustrative images as long as it properly credited).
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1. Requirements Analysis

You are part of a software engineering team and your project manager calls you into a meeting. A client has heard of *coding agents* that can do Automatic Program Repair (APR) and he wants one too. The agent should help the programmer to fix bugs quicker and contribute to the software quality, by automatically fixing bugs in the codebases based on reported issues. Imagine an agent, which takes a GitHub issue and automatically produces a Pull Request with the solution, e.g., some bug fix or some feature addition.

Try to find out what the client wants. To do this, start by searching through existing online documents and resources to get a general overview. For your research, consider websites related to APR-agents or coding agents, blog and news articles, or press releases about coding agents, and available projects, such as Devin, AlphaCode, GitHub Copilot, Repairnator.

Use these websites and articles as a starting point:

- Devin: The AI Software Engineer
<https://docs.devin.ai/get-started/devin-intro>
- SWE-Agent
<https://github.com/swe-agent/swe-agent>
- IEEE Spectrum "Why AI Isn't Ready to Be a Real Coder"
<https://spectrum.ieee.org/ai-for-coding>

Describe your impressions in a paragraph with around 250 words. Please focus your research only on available resources as mentioned, do not contact or interview any people. Spend no more than one hour on this research, and make sure to document all sources you used.

2. Interview Questions

Prepare for an interview with the customer by writing down at least 10 structured questions you would like to ask the client. Check the lecture slides about how to find good questions.

Note that those questions will become relevant in Tutorial 3 (November 5/6). The client will be present with multiple staff members available to answer your questions. Further, you will be asked to submit a project plan and part of the implementation in later Assignments. So, take this assignment seriously. During the meeting, take notes on the client's answers to your questions and keep these notes, as you will need them for the upcoming assignment(s).

3. Use Case Diagram

Your company was hired to develop a system to manage food orders at your local hospital. You are a requirements engineer and you already had a first customer meeting with some staff members. You will find your notes on the next page. Check these notes and perform the following tasks:

1. Create a Use Case Diagram! First, identify the actors and the use cases. Then, model the associations and relationships in the model.
2. Create a complete (tabular) use case description for the use case of a typical food order of a patient who will be discharged the next day. Describe the main flow and at least one alternative flow for this use case. Note that not all details are provided; please use your imagination to fill in the gaps.

Title: Initial requirements elicitation meeting with hospital staff

Attendees: Manager, Head of Station 1, Head of Kitchen

Overall goal (Manager): “We want a system that makes it easier and more efficient to take patients’ meal orders and forward them to the kitchen.”

Details:

- Each patient must order food from a given menu for the next day.
- The menu is provided daily by the kitchen staff and distributed to the stations so that it reaches the patients.
- All stations receive the same menu.
- Patients choose their meal for the next day from the current menu.
- Each patient chooses three meals: breakfast, lunch, and dinner.
- For security reasons, staff authentication is required to use the system.
- The station head emphasizes that the system must be user-friendly, as the nurses are not computer experts. The kitchen head agrees.
- The manager adds that it is necessary to have the system available quickly.
- What is the expected size?
 - The hospital has 7 stations; each station has a supervisor and a certain number of nurses. Each nurse works at only one station.
 - The number of patients can vary daily, but the largest station can accommodate up to 100 patients.
- Patients may only order food if they are still in the hospital the next day.
- Patients are discharged after breakfast.
- There must be a way to check whether patients will still be present.
- A mobile device for taking orders is needed so that nurses can take it with them on their morning rounds.
- Kitchen: The kitchen staff publishes a menu as soon as it is ready. Each menu should include at least one dish for each meal. After publication, the menu is available to the station’s supervisor and can be printed locally. The menu must be published before 8:00 a.m.
- The kitchen cannot handle more than four different dishes per meal.
- A patient can change their order. This change is saved, along with information about which nurse took the new order. All information about who did what must be saved.
- If errors occur, the system should inform the user what went wrong and why.
- Only one menu is available each day.
- The kitchen receives a list of all orders around 5:00 p.m. so that it can order the actual number of ingredients required. The meals are prepared on the next day.
- The meals are served the next day by the nurses at the stations.
- Orders should not be deleted while the patient is still in the hospital (so that complaints or similar issues can be traced afterwards).