Team:- SSD17

ProjectNo:- 6

Problem Statement

To build a virtual lab which helps the user learn about Requirement analysis phase in software engineering. The goal is to make the user familiarize with basic concepts of requirement gathering by interactively following through the experiments which should be both transparent and informative.

Along with the interface, the site would also consist of brief information, theory and procedure regarding requirement gathering

The problem statement would be provided to the user. He/she will have to analyze the requirements, identify errors (inconsistency, ambiguity) while performing the given tasks

Solution approach

- User would be provided with 2 problem statements - guided and non-guided. In the 1st (guided) one, the user will be taken through the requirement analysis activities step by step.
- In the guided test case, the user will be given a case study/problem statement, the user will read the case study and then:
    I. Identify the various stakeholders of the system from the case study and input it to the system by copy pasting text from the case study given.
    II. Identify the various functional and non-functional requirements by copy pasting the text from the problem description.
    III. Identify the requirements that need clarification, I.e. requirements which are ambiguous, incomplete and inconsistent and choose the correct ones from the provided options.
    IV. Identify the main tasks/modules of the system and group the requirements accordingly.
    V. For each task/module identify the inputs and files required and the output to be produced and identify different scenarios.
    VI. Arrange the tasks and build relationships between its elements to generate a flowchart for the task. Then combine the flowcharts to demonstrate the flow of entire system.
    VII. Create use case diagrams for each task and then combine them
    VIII. Answer a few cross questions (MCQs) about the required non-functional requirements to get their context clear.

- While identifying the stakeholders and requirements from the problem description, we would evaluate if the selected text has the correct keywords.
- For drawing flow charts and use case diagrams, the elements would be already provided, among which the user must choose the correct ones and drag and drop them into the canvas and link them to create the diagram.
- The simulation won't move forward unless the user has performed each task correctly.
- For each task, if the user is stuck, hints would be made available according to what the user is finding difficult.
- For the 2nd case study (non-guided) the user will have to perform all the activities on his own and will be evaluated at the end.
- The user can challenge the solution provided for the 2nd case study by providing appropriate explanation which will be checked manually by the concerned team.

System Requirements

The following techstack will be involved while designing our solution

- **ReactJS**:- There would be a lot of reusable UI components in our solution, so handing them using a SPA framework like react would make things simpler. Also there are other advantages offered by react which we can make use of
- **GoJS**:- Diagram library used for making flowcharts. One advantage is that it has built in support with react as well.
- **MaterialUI**:- For building the UI components

System Requirements

- **Browsers**:- IE10+ / Any modern chrome/firefox/safari versions will do
- **NodeJS and npm**:- To run the development server and to generate the built. Would not be required in production

Constraints

--The choices that the users will input will be fixed

--Resource related constraints (Would need to learn the tech in the first place)

Timeline

12-17 October

Exploring React javascript framework which is used for building User interfaces., exploring basic topics in react like components, component life cycle, sharing data between components, context API

Look at the basics of go javascript library, integration of goJs with React. Emphasis on advanced features for user interactivity like drag and drop, copy and replace, modelling diagrams.

18-24 October

Structuring the basic template of the project, identify the exact functionalities required to be able to draw diagrams and boxes, drag and drop them etc. . Dry run it and see if our current tech stack is enough to do complete our task. Implement functionality to.....

25-31 October

Implement the functionality for the user to be able to draw use case diagrams, edit them as required. This would also involve completing the functionalities which use the said use case diagram.

1-7 November

Implement the parts which involve taking textual information as input. For example Identifying the various stakeholders and functional/non-functional requirements. Giving hints to user if he gets stuck. Ability to ask for clarifications on requirements. Build flow diagrams for various scenarios.

8-15 November

Build webpages for Minor modules like intro, theory, procedure and testing. Explain the important stages of requirement analysis, difference between functional and non-functional requirements, goals of implementation, classification of different requirements and documenting them.