Experience report, group 3

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Abstract—**This report contains the activities applied in the process of producing a requirement specification for a system for providing temporary housing to international and local students in Sweden. The report will also discuss the choices behind these activities while providing the group's experience and dynamics throughout the course of the project.**

Index Terms—**requirement engineering, student accommodation, housing, ...**

I. INTRODUCTION

The first step for international students when they enter a new country is usually to find a place of residence. In Sweden, this process is significantly harder due to the existing student housing crisis and year-long queuing required to get a contract.The current housing systems for students, offer an edge to students who sign up ahead of their studies and acquire longer queue times, while students unaware of this are forced to look for temporary accommodations. This leads to students getting scammed, paying unreasonable amounts of rent or giving up altogether.

The system envisioned by the project team is to provide temporary means of accommodation to international students travelling to Sweden. In this report we discuss the techniques used and experiences gained while executing this project.

II. TECHNIQUES

In this section of the report we investigate and motivate each technique used during the project.

A. Elicitation

A key process to seeking and acquiring requirements for systems is elicitation through the stakeholders. In order to discover what expectations stakeholders put in the system, many different techniques may be applied to not only characterize the stakeholders, but also to understand and getting a deeper knowledge of their domain. This section will discuss the techniques that were applied throughout the project and their advantages as well as disadvantages.

1) Hall of fame: Hall of fame is a creativity technique for unstructured problems with open questions and answers. The goal is assuming that group members are different type of famous people who will solve our challenge of finding new requirements and instigate creativity. It'll force us to think about what will be added and edited to our system from others' perspective.

During the hall of fame workshop, our group confirmed positive outcomes that made us decide to add some extra function which will make system easy for different users to use.

One outcome was that our users might have different expectations of temporary housing. For instance, scientists might need a quiet and private space to study and work, while a soccer player Ronaldo might want a big house with a nice bathroom mirror. To achieve this, we need to add a filter when user searching for a room to cater to the user preferences. The filter is based on location, standard of accommodation, privacy, price and so on. Student can add different filter while searching in order to get their ideal temporary housing.

Another outcome is to modify our system to make it easier to communicate. Because the system might be hard for people which have limited social experience and English literacy. Therefore, in order to simplify communicate and usage of the system, we can make some guidance for users and can different language packages for owners and users communicating with each other.

The creativity workshop also brought us some new ideas of our system. Main aim of our system is to provide housing for students in Sweden. However, once developed, we can image that the system can potentially become a social platform to build connection between home owners and students. Furthermore, it can also be expanded to students and home owners outside of Sweden.

2) Creativity triggers: Creativity triggers is another creativity technique which consist of activities and behaviors that stimulate the production of new and useful ideas. Creativity triggers vary widely. Our group held a creative discussion while being focused on the various creativity triggers. Each trigger has a sudden effect to produce a new, and possibly useful, idea.

Creativity session provided many suggestions on how to build our system more simple and useful by thinking using different triggers. The most important outcomes of the creativity trigger session are listed below.

- For Adaptable: Be able to use it across different platforms (OS, Android, Web) and Offer different language packs, integrate google translate.
- For Light: Less dependencies, no unnecessary framework Minimalist and responsive design.

- For Entertainment: Social platform, Seasonal themes, and add some Special emoji.
- For Economical: Don't store unnecessary data, Use cloud hosting - less maintenance and scales accordingly to needs.

There were also a lot of suggestions that were of no use, but for the exploration of the ideas it works very well.

B. Specification

The specifications in a report offers a better understanding of the actualization of previously discovered requirements for a software system. The methods described in this section allows the for the problem (real world) domain to meet the solution (computer) domain.

1) Context diagram: Context diagrams are a very useful tool generally used to illustrate to the reader how the system interacts with external entities and their relationship in regards to its data flow, found in Figure 1. By visualizing the system as one single high-level process, and avoiding to overflow the reader with various technical details, the design of a system, along with its scope and boundaries, can easily be communicated to a wider audience, such as stakeholders, data analysts, etc.
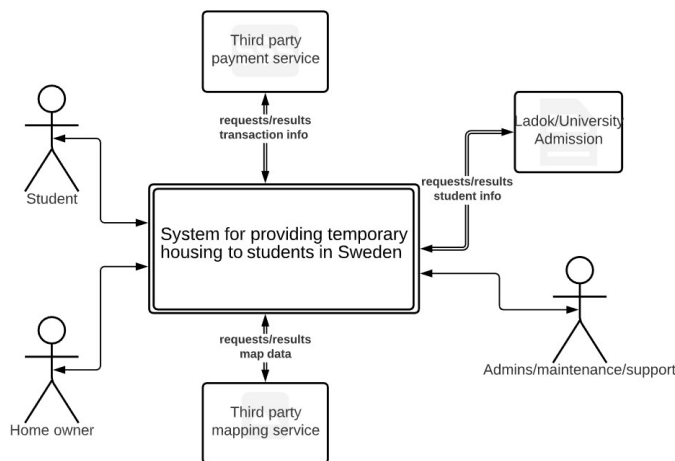

Fig. 1. Context diagram of proposed system

If any negative aspects were to be mentioned, it would be that they are always vulnerable to errors and limited in term of how much knowledge that can be gained from the diagram alone.

2) Task description: Task descriptions is a way of specifying user requirements that describes what the user and system do to fulfill a necessary function. As they are focusing exclusively on the user's understanding of the domain, no thought had to be put into the product design.

We found task descriptions to be an easy way of describing user requirements in a way that would be easy to verify. Grouping the tasks under work areas also added an increased understanding of the interconnected parts of the system.

III. LEARNING OUTCOMES

1) Elicitation: In software systems development, elicitation is one of the very beginning stages that is used to collect requirements from different sources and with techniques to make the system more compatible and meet user requirements.

In our discussion, we learned how to establish a structure and process for gathering information through different techniques. Some of the techniques that was used were interviews, questionnaires, brainstorming and prototyping. We chose brainstorming and hall of fame creativity methods to collect requirements since as students, we are also the primary users for the proposed system.

Brainstorming technique and hall of fame are used to conduct a successful eliciting session. We were able to identify and collect requirements which is a building block for the development of the system. We made a lot of fruitful discussions, through that we identified problems and meet the requirements to avoid unwanted and/or unnecessary assumptions made by the developers. During the hall of fame workshop, our group came up with their famous person and what question should be asked and how we can apply our creative thinking to get the best out of them in a harmonious way. This would help us to transfer ideas, knowledge, experience, and integrate them into our proposed system.

Finally, we found that the elicitation method plays a great role in any software development. We can easily track user requirements and easily be able to understand what the system will do and what problems should be solved to meet these requirements.

2) Specification: The specification's primary goal is to give an overview of the entire system and a description of the included requirements. To know what methods to use and how, we had to learn about which were most suitable in our case and how to apply them.

As the specification changed as the project progressed, we also learned how it could be used as a tool for future changes to the included requirements.

3) Group dynamics: Group meetings were held frequently during weekdays with the timing communicated and organized in advance. All meetings were held remotely with project members attending from different corners of the world. The meetings were well structured and tasks were properly divided among the group members. The group always supported each other and strove to meet deadlines throughout the duration of the project.

Initially, there were problems with coordination; some of the group members were connecting from different time-zones. This was resolved by allocating a specific time-frame from the free time available specifically for the project. All the group members came from different backgrounds and were versatile in their methodology, but all approached the project objectively with the singular aim of making a

great system. This approach enabled the team to focus on completing the project and allocating tasks.

The team got to know each other on a personal level by communicating outside of the project allocated time. As all meetings were online, there were multiple platforms of communication enabled in case a member wasn't reachable on a singular platform.

IV. CONCLUSION

Requirements engineering plays a great role in the development of software products. It is a very intensive and time-consuming process, but it provides many benefits. We have learned about different methods and techniques used to gather information, ideas, requirements, and collaborate them with our creative thinking to produce very constructing requirements that must be set as the preeminent stage of any software product. The elicitation approach is used to understand the stakeholders, the scope, and the participant of the product. We would apply the same method as we have done it before but we will add more techniques to gather information and to have the best out of them.