Group 02

Project Plan

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# 1. Introduction

The aim of the project is to create a UML diagram animation and simulation tool. The main scenario in which the tool will be deployed takes place in a classroom. The students and teachers will be actors in this scenario. The teachers will be able to create a room with restricted access and invite the students, to showcase the communication between different parts of the system in real-time. For the main task, three different diagrams are required to be animated; system sequence diagram, class diagram and deployment diagram. The team intends to animate diagrams in 3D using C# and unity, as well as can import and export JSON files.

# 2. Project Organization

Individual team members will take responsibility for their assigned tasks by acting both as developers and testers aiming towards ensuring a high quality deliverable. Due to the size of the group, six developers, the team will also practice collective code ownership. With this practice team members will be able to alter others’ code and take responsibility for the changes made. The goal of this is to use the members’ individual knowledge and abilities improve the quality of the source code as well as reducing the risk related to member absence. To further improve their understanding of code, the team will practice code reviews, during which the group will discuss and analyze code.

User stories will be created collectively and assigned effort estimations. At each sprint’s initial scrum meeting, the members will pick their user story. They are encouraged to pick additional user stories in case they finish their initial story before it is due. Trello will be used as a product backlog and be accompanied by percentage indicators with which the completion rate for user stories will be indicated. GitHub Issues will be used a defect backlog.

Each team member will take upon developer and tester roles. Besides these, several special roles exist. A project manager role will be taken by Elaine Qvarnström. The project manager will act as the leading voice throughout the project meetings. It will be their responsibility to settle disputes amongst team members and to maintain order and productivity throughout the meetings.

# 3. Project Practices

## 3.1 Meetings

The team utilizes iterative development and will work in two week long iterations. Iterations will begin with an initial sprint plan during which the team will decide which user stories and task to tackle. At this point the team will engage in a discussion surrounding acceptance criteria and what is desired from the tasks. Throughout the iteration the team will aim to have 6 face-to-face meetings, 3 each week, as it is believed that these are most productive. Additionally, daily scrum meetings will be held during workdays. The team will also utilize Trello as a mean of tracking progress while not on meetings. In particular, it was decided to use percentage indicators for tasks to indicate progress. The last meeting of the sprint will be spent on sprint retrospectives, to find possible improvement that could be incorporated.

## 3.2 Teamwork

During the face to face meetings the team will also have time to program. If any member has difficulties with their assigned tasks for if they are rather large, the members are free to ask for aid. At which point aid will be provided in the form of pair programing. This is done in order to get fresh eyes on the task on to hopefully help the developers improve. Additionally, the team members use group programming, because it is believed that this will cause an increase in productivity. When producing documentation a similar practice to pair programing will be used, to hopefully improve the quality and readability of the project’s documentation.

## 3.3 Communication amongst Stakeholders

The group will meet at least three times in person in one of the study room at Patricia building or Science Park.  Daily Scrum meetings will take place on every workday, weekends will be excluded. The team will meet on Mondays 10:00-12:00, Tuesday 13:00-15:00 and Fridays 12:00 - 15:00.

The team will use Slack for communication between themselves and teaching assistants acting like product owners. Trello will be used for planning and assigning user stories to the team members.

Several ground rules have been established that are geared towards improving and maintaining the communication quality. The ground rules act like a “Social Contract” amongst the team members and can be found under documentation.

# 4. Risk Management

## 4.1 Identified Risks

Several risks that may occur throughout the course of the project have been identified. These risks are of varying types, such as planning and resource management, technical as well as communicatory.

The identified risks relating to the relationships of stakeholders include***disagreement amongst stakeholders.*** This risk focus on the possible disagreements that may occur between the project’s stakeholders, such as team member disputes on which feature takes priority or even disagreement on the features necessity. Another identified risk of this type includes ***team members not being committed to the project****,* meaning that possibly some team members may experience distractions taking away their focus from the project and leading them to accomplish less than expected.

Risks relating to planning and resource management that have been identified is ***developers lacking key skills****.* The team’s lack of knowledge and skills pertaining to distributed systems and its handling, which could cause an array of problems leading to lower quality product and customer value. Additionally, ***developers quitting the project*** was identified as a resource risk. This risk has occurred in the past and it can be rather detrimental, since it would cut the human resource part of the project by a sixth.

Lastly, technical risks include ***unfamiliar tools***and ***unfamiliar system software****.* The team decided to use unfamiliar software systems and languages to develop their project. This include Unity and Erlang. The unfamiliarity will require a lot of time to be allocated towards acquiring knowledge and experience with these tools. This time will clash with the time spent on developing the system, resulting in lower customer value.

## 4.2 Probability and consequences

The team discussed the probability and consequences of the before identified risks throughout the project planning. Unfortunately, none of the identified risk had low probability of occurrence. It was decided that ***users not committed to the project and developers quitting the project***had a medium probability of occurrence i.e. between 25% and 50%. The rest of the identified risks, ***unfamiliar tools,* *unfamiliar system software, developers lack key skills***and***stakeholders disagree*** had a high probability to occur, which is over 50%.

User commitment decreasing was considered to have moderate probability of occurrence based on the fact that several team members currently being employed and thus cannot spend as much time with the project as the others. It was also based on the length of the project and basic human needs, such as rest and relaxation, which leads to fatigue. Although the consequences are not catastrophic they are definitely moderate. This risk can lead to lower productivity and a lower overall velocity of the team as the project progresses. This could cause easily avoidable errors as well as lower the value of the deliverable. Overall, these risks would result in lowering the delivered customer value.

Throughout the project plan discussion it was agreed that disagreements will take place and that it is inevitable, therefore a high probability was assigned to this risk. However, it was thought that the consequences stemming from this risk would be tolerable. It would result in some more time spent during the meetings and work deviation phase and possibly lower the team’s synergy. Moreover, unfamiliar tools and software system were also assigned a high probability to occur. This was based on the team’s current familiarity with the tools and systems. It was mutually agreed that there is not enough of time to familiarize with them before the first sprints. These risks shall cause a portion of time allocated to learning the software at the start of the development phase. However as time progresses, knowledge of these tools will be acquired diminishing the effects of the risks, therefore it is believed that these risks will produce tolerable consequences. Finally, developers lacking key skills were assigned high probability based on the team’s knowledge and skills. However, the team has access to several teaching assistants specifically for this purpose as well as numerous guides online; therefore this risk was deemed to possess consequences of tolerable nature.

## 4.3 Risk handling

Risks assigned with a high probability of happening are not avoidable, for example there will always be disagreements amongst the stakeholders and there is not enough time left to familiarize enough with the tools used before the sprints begin, although the effects of these risks can be diminished. The team attempted to obtain as much knowledge as possible about these tools before the developments phase began. The team will also continue using these tools throughout the project and thus improve with their handling significantly. This will diminish the severity of the risks as the project progresses. Moreover, the team has accesses to two teaching assistants, both of which can be used to compensate for team members lacking key skills. User commitment faulting can possibly be avoided. This risk depends specifically on the team members and their approach towards the project. There is not much that can be done if the reason for members not committing enough is work related. People have responsibilities and commitments and it would be wrong to expect them to abandon or postpone them for the project benefit. However, the team will have a discussion with the problem member if it becomes apparent that they are not committing due to laziness. Currently, the agreed approach of handling risk is use the resources provided to us, for example lectures, TAs and online guides, to solve technical and resource related risk or challenges. The team will attempt to focus on communication and improved planning as well as have civil discourse for problems relating to relationship and planning challenges. It is agreed that if aforementioned risks cannot be solved within the team, the teaching assistance will be asked for guidance.