DIT094 H22
Mini Project: Team Programming

- January 6, 2022 -

Snake Hunt

- Group 6 -

Project Members		
	Name	**Email**
1	Henrik Andrén	gusandrhe@student.gu.se
2	Vilmer Hedin	gushedivi@student.gu.se
3	Linh Pham	guslinhph@student.gu.se
4	Abdullahi Mahamed	gusmahabc@student.gu.se
5	Deba Arif Mohammed Mohammed	gusmohamde@student.gu.se
6	Piotr Ostrowski	gusostrpi@student.gu.se
7	Ionel Alejandro Pop Jara	guspopio@student.gu.se

Project Manager	Weeks 1-5	Ionel Alejandro Pop Jara
	Weeks 5-10	Linh Pham

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Section 1. Inception Phase

Our project consists of a variation of the classic snake game with prey mechanics and obstacle levels. The snake can move around in a two-dimensional grid space and get longer as it consumes things. Once the snake reaches the end of the screen, it loops around the other end if not blocked by an obstacle. The game is over if the snake hits its own tail or an obstacle. As the snake keeps consuming things, the score will increment and be stored to be displayed on the leaderboard panel.

1.1 Project Charter

<table>
<tr><th colspan="4">Project Charter</th></tr>
<tr><td rowspan="2">Project Name</td><td rowspan="2">Snake Hunt</td><td>Project Start Date</td><td>October 31, 2022</td></tr>
<tr><td>Project End Date</td><td>January 6, 2023</td></tr>
<tr><td>Description and Purpose</td><td colspan="3">A classic snake game with prey mechanics and obstacle levels that can move around in a two-dimensional grid space and gets longer as it consumes different types of food[1]. As the snake keeps consuming things, the score will increment and will be shown on the scoresheet and the score will at the end of the game be stored on a leaderboard panel. Once the snake reaches the end of the screen, it loops around the other end if not blocked by an obstacle. The game is over if the snake hits an obstacle or its own tail.

1 Different types of food. In this case it will consist of “presents”, “lollipops”, “cakes”, “mushrooms”, and a “white unidentified creature” as the prey.</td></tr>
<tr><th colspan="2">Group Members</th><th colspan="2">Key Stakeholders</th></tr>
<tr><th>Name</th><th>Role</th><th>Internal</th><th>External</th></tr>
<tr><td>Ionel Alejandro Pop Jara</td><td>Team Member
(Project Manager Week 1-5)</td><td>Team members (developers)</td><td>Competitors</td></tr>
<tr><td>Deba Arif Mohammed</td><td>Team member</td><td>Marketing team</td><td>Game users</td></tr>
<tr><td>Henrik Andrén</td><td>Team member</td><td></td><td>Swedish Laws and regulations</td></tr>
<tr><td>Piotr Ostrowski</td><td>Team member</td><td></td><td></td></tr>
<tr><td>Linh Pham</td><td>Team Member
(Project Manager Week 6-10)</td><td></td><td></td></tr>
<tr><td>Vilmer Hedin</td><td>Team member</td><td></td><td></td></tr>
<tr><td>Abdullahi Mahamed</td><td>Team member</td><td></td><td></td></tr>
</table>

Milestones	Status	Due
Getting to know the team members.	Done	2022-11-04
Finishing all the 8 tasks.	Done	2022-11-11
Finish the Requirements and specifications	Done	2022-11-18
Deliver a basic prototype	Done	2022-11-25
Deliver the base game	Done	2022-12-02
Finishing the Graphics/UI/SFX	-	2022-12-16
Week Off	-	2022-12-23
Finishing the project management report	-	2023-01-06
Finishing the project management experience report	-	2023-01-06
Finishing Snake project	-	2023-01-06

Objectives

- The *Snake Game* should be played and enjoyed by a variety of users (aged, children, adults, etc.)
- The *Snake Game* should generate income for the stakeholders
- The *Snake Game* should provide a leaderboard that stores the score of a current game
- The *Snake Game* should have the basic functionalities of a classic snake game and stand out in the market with its unique features, art style, and mechanics

Goals	Scope
To create a working *Snake Game* with unique features. Through in-game customization, we shall be able to attract people from all age groups and provide a fun time.	To develop and deliver a *Snake Game* that will run on desktops. Additional features will be added to enhance the experience of the user as well as make it easy to use for a varied range of users.

Constraints	Assumptions
• The snake game should be in accordance with the University of Gothenburg's values. • The snake game should be in accordance with Swedish law and GDPR regulations. • The project ends on January 6, 2023, which gives us 10 weeks (iterations) to finish the product • We have 20 hours per person per iteration (averaged over the duration of the project) • 7 people working on the project. • The group has decided not to work over Christmas (week 9 of the project).	• We assume that the gaming market will be popular for many years from now. • Each group member will be able to work 20 hours/week for the duration of the project. • A dedicated teaching assistant will be able to support the group throughout the course of the project. • The availability of working IT infrastructure. (Discord/GitLab/Google Drive) • The final delivery date will not be pushed forward but will stand firm on January 6th. • Group meetings will be held at a prior allotted time and shall be confirmed with each group member. • When conflicts arise, they will be solved in a professional and respectful manner.

Deliverables
• A Project Charter. • A Project Plan. • A signed team contract stating what is expected from each team member. • Weekly project management reports starting from week 2. • A working prototype. • A user manual. • Weekly Timesheet. • Potential software artifacts other than finished games. • A functional finished product. • A project presentation.

1.2 Tools

For this project, we as a group, decided to use only *GitLab* and no other extra management tool.

Update Week 4: Initially we decided to not use any other project management tool. Naturally, we soon realized that it was becoming difficult to divide and set up tasks for the members. Therefore, we opted for using *Trello*.

Important Links	
Snake GitLab Repository	Trello Board Group 6

1.3 Team Contract

Rules for cooperation

**As a team, we all agree to follow all the rules of cooperation below:*

Item	How will you handle this?
Meetings e.g. *Time and place* (how often will you meet?) *Procedures* (how will you organise the meetings?) *Presence at meetings* (are all meetings compulsory?) *Missing meetings* (what's the procedure if you have to miss a meeting for some reason?) *Late arrival* (is it ok to be late? If so, how late?)	***Time and place*** ● Meetings will be hybrid (online & campus). ● 2-3 times per week, depending on workload (including Mondays TA meetings). ● Meetings will occur on Mondays and Fridays. ***Procedures*** ● Meetings need to be planned at least one day ahead upon everyone's agreement. We are going to use a website called "when2meet" to visualise our availability. ● The Project Manager will keep track of the attendance of the meetings. ***Presence at meetings*** ● Every meeting is compulsory unless otherwise is agreed. ***Missing meetings*** ● When missing meetings (planned or accidental) you need to inform your team on why and get info on what the meeting included. ***Late arrival*** ● Late arrival longer than 20 minutes will need a valid reason.
Division and execution of work e.g. *Areas of responsibilities* (how will you divide up the work?) *Deadlines* (how will you ensure that you meet deadlines?)	***Areas of responsibilities*** ● We encourage all team members to participate in the project. ● All members need to contribute the best of their ability and take initiative in finishing the tasks that are assigned to them. ● The group tasks will be assigned to the members by the project manager and team members have responsibility to finish their tasks. ● Following the procedures that are set up by the group is essensial for the team to function effectively and smoothly. ● If a team member fails to attempt to accomplish his/her task, the team leader will assign another member to assist them. ***Deadlines*** ● Each member needs to attend a compulsory meeting with the team and teaching assistant on every Monday. ● Each member will report their process of executing the tasks to the project manager during the meeting and also should be clear when they need clarification or assistance from other members. By that way, we ensure that we meet the deadlines.

Handling of documents and files e.g. *How, who?* *How will you keep track of the process?*	***How, who?*** ● A member who promotes team actions, decisions and ideas demonstrates leadership. A leader has responsibilities to document details and process of the project as well as handling them to the person in authority. He/she also has a duty to summarise all discussed topics during the meetings and publicise it. ● Other members also have to pay attention to deadlines and the process of the project. It is team members' duty to assist the team leader at documenting files and documents. ● Each member has rights and duties to elect the project leader.
Attitudes *Working together* (how will we behave towards each other?) *Active contribution* (how will we ensure this takes place?) *Languages* (which languages are acceptable? When?)	***Working together*** ● Always treat your team with respect and keep an open mind. Always listen to what others have to say. Respect each other's schedule. ***Active contribution*** ● Assign team members different tasks. ● Each team member will report their progress of the tasks to the project manager during meetings. ***Languages*** ● English

Other	***Commitments*** ● Each group member is responsible to help each other to complete their tasks for the sake of the best outcome for the project. ● See the project through to completion. ● Be respectful towards each other, communicate in a respectful tone while sharing opinions. Everyone's voice will be equally valued. ● Any issue that occurs during the process should be discussed with the team. ***How to work on the project (on campus, online, hybrid)*** ● All members agree on hybrid work. If one can not attend the meetings due to inconveniences, working schedules, etc. he/she can attend the meeting through Zoom. Project leader takes responsibility to create a Zoom meeting. ***How to communicate (Zoom, face-to-face, other tools…) and the frequency of communication*** ● Team members communicate with each other and the teaching assistant through a social platform called Discord. ● When there is a vital announcement, the team leader will publicise it in the team's private Discord channel and every member must take initiative to check our channel daily. ● The team must keep discussions on track in Discord and during meetings. ● Our team uses Google Drive (Google doc, Google slides, etc.) to create and modify our documents. ● We use Gitlab as a VCS - Version Control System.

	What project members expect from one another regarding participation in the project work ● Those who may be struggling with the project work can expect to be guided and coached by others. ● Everyone in the team expects everyone else to do their best at each individual task to achieve the best possible outcome. ***How to handle conflicts within the project group*** ● We will take conflict as an opportunity for growth and discuss it with respectful tone as well as listen openly to others' perspectives. ● Any conflicts that occur between team members must be first, tried to be solved respectfully between the team members and if it becomes a significant issue, it must be reported to the team leader with an objective point of view. Then the leader will hold a meeting to discuss and explore the conflict. ● State the problems and opinions in a non-judgmental and non-attacking manner. ***Holidays, refers to when you (the project group) plan and agree to be on holidays, e.g., around Christmas and New Year's Eve*** ● We all agree on not working during holidays.

	How the leadership in the project group shall be done ● Team members need to take initiative and responsibility on the project as well as individual tasks. ● Team leader will engineer the team work and sub-team carefully based on each member's traits because each individual has a different motivation source and working in a healthy group increases the effectiveness of the project. ● The team will share the "leadership" e.i dynamic leadership. Every member in our team will contribute in organising and managing the team work, the process of the project as well as making decisions and sharing responsibilities for the project's outcome. ● A leader should organise the project so that everyone can contribute their best to the project. ● A leader should lead by example and be a good communicator.

Ambition

Decide on a couple of sentences about our common goal for this work:

Our common goal is to make our own unique version of the classic Snake Game. Our intention is to aim for a grade 5. We want to deliver a good quality code application that satisfy the user and stakeholders. We want to gain experience in project management as well as figure out our strengths and weaknesses. We want to show that we are making progress each week and learn from our mistakes. Our intention is to have a presentable project with a readable and well organized report.

Name	Signatures
Ionel Alejandro Pop Jara	
Vilmer Hedin	
Pham Linh	
Abdullahi Mahamed	
Deba Arif Mohammed	
Henrik Andrén	
Piotr Ostrowski	

Date : ___11/11/2022___

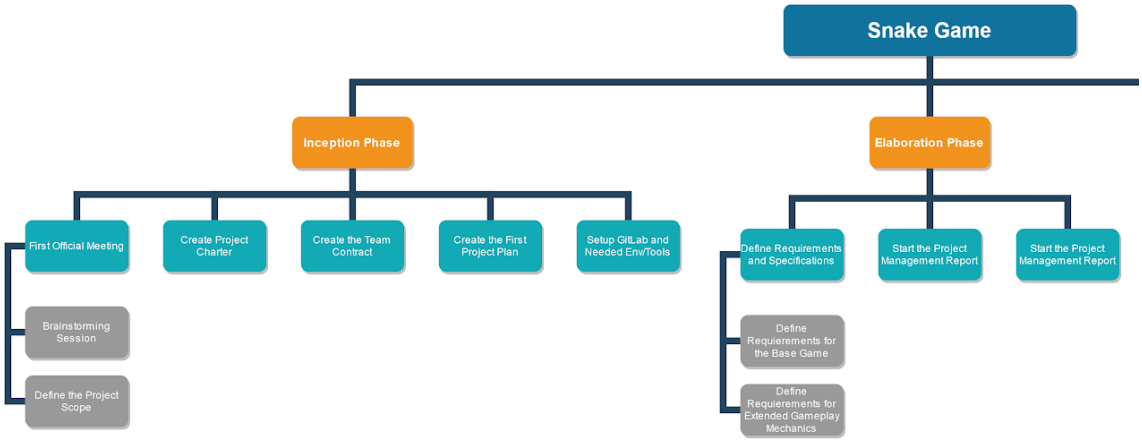
Place: ___Göteborg____

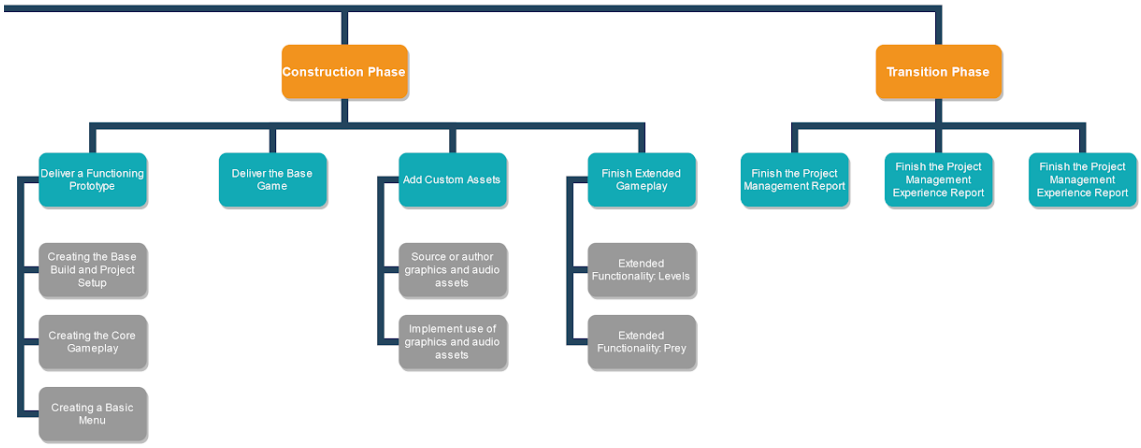
1.4 Project Plan

1.4.1 Project Scope

To develop and deliver a classic snake game that will run on desktops. Additional features will be added in order to enhance the experience of the user as well as make it easy to use for a varied range of users.

1.4.2 Work Breakdown Structure





1.4.3 Gantt Chart

Project Start Mon, 31-Oct-2022

TASK	START	END
Inception Phase		
Contact project members	31-Oct-22	2-Nov-22
Decide on a project	3-Nov-22	4-Nov-22
First official meeting	7-Nov-22	7-Nov-22
Develop a project charter	7-Nov-22	11-Nov-22
Create a team contract	7-Nov-22	11-Nov-22
Create a project plan	7-Nov-22	11-Nov-22
Setup GitLab	9-Nov-22	11-Nov-22
Getting to know the team members		
Finishing the first 8 tasks		
Elaboration Phase		
Defining requirements and specifications	14-Nov-22	16-Nov-22
Define requirements for extended gameplay mechanics	16-Nov-22	18-Nov-22
Finish the requirements and specifications		
Construction Phase		
Create the base build and project setup	17-Nov-22	21-Nov-22
Create the core gameplay	21-Nov-22	25-Nov-22
Create the basic menu	21-Nov-22	25-Nov-22
Deliver a basic prototype		
Work on the base game	28-Nov-22	2-Dec-22
Deliver the base game		
Source or author graphic and audio assets	25-Nov-22	30-Nov-22
Implement use of graphics and audio assets	1-Dec-22	7-Dec-22
Finishing the Graphics/UI/SFX		
Extended functionality: Levels	5-Dec-22	16-Dec-22
Extended functionality: Prey	5-Dec-22	16-Dec-22
Transition Phase		
Polishing up the details	17-Dec-22	20-Dec-22
Week Off	21-Dec-22	25-Dec-22
Polishing up the details part 2	26-Dec-22	30-Dec-22
Finsh Project Management Report		
Finish Project Management Experience Report		
Finish the project		
Reports		
Project Management Report	14-Nov-22	6-Jan-23
Project Management Experience Report	14-Nov-22	6-Jan-23

Project Start **Mon, 31-Oct-2022**

TASK	START	END
Inception Phase		
Contact project members	31-Oct-22	2-Nov-22
Decide on a project	3-Nov-22	4-Nov-22
First official meeting	7-Nov-22	7-Nov-22
Develop a project charter	7-Nov-22	11-Nov-22
Create a team contract	7-Nov-22	11-Nov-22
Create a project plan	7-Nov-22	11-Nov-22
Setup GitLab	9-Nov-22	11-Nov-22
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Finish Project Management Experience Report		
Finish the project		
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Inception Phase		
Contact project members	31-Oct-22	2-Nov-22
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Reports		
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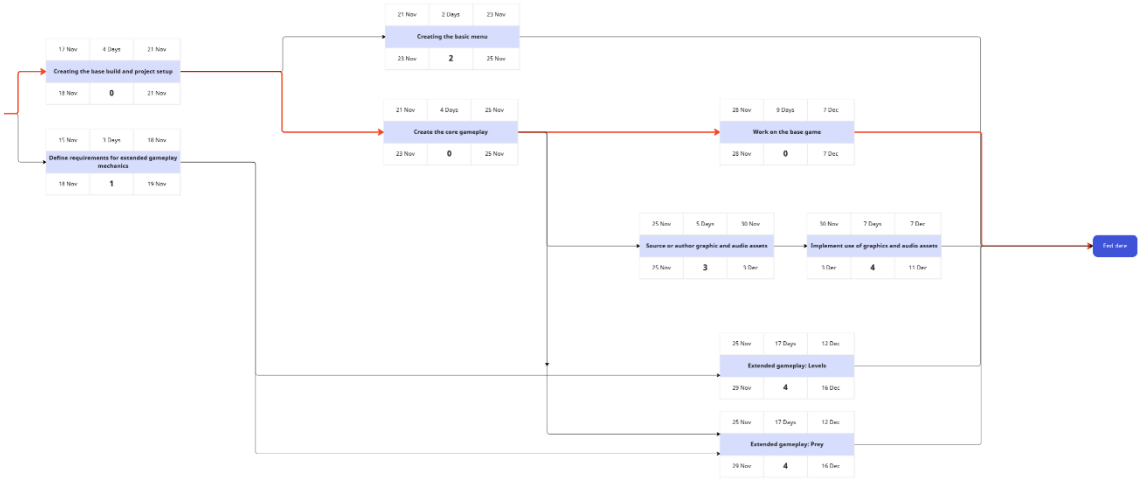
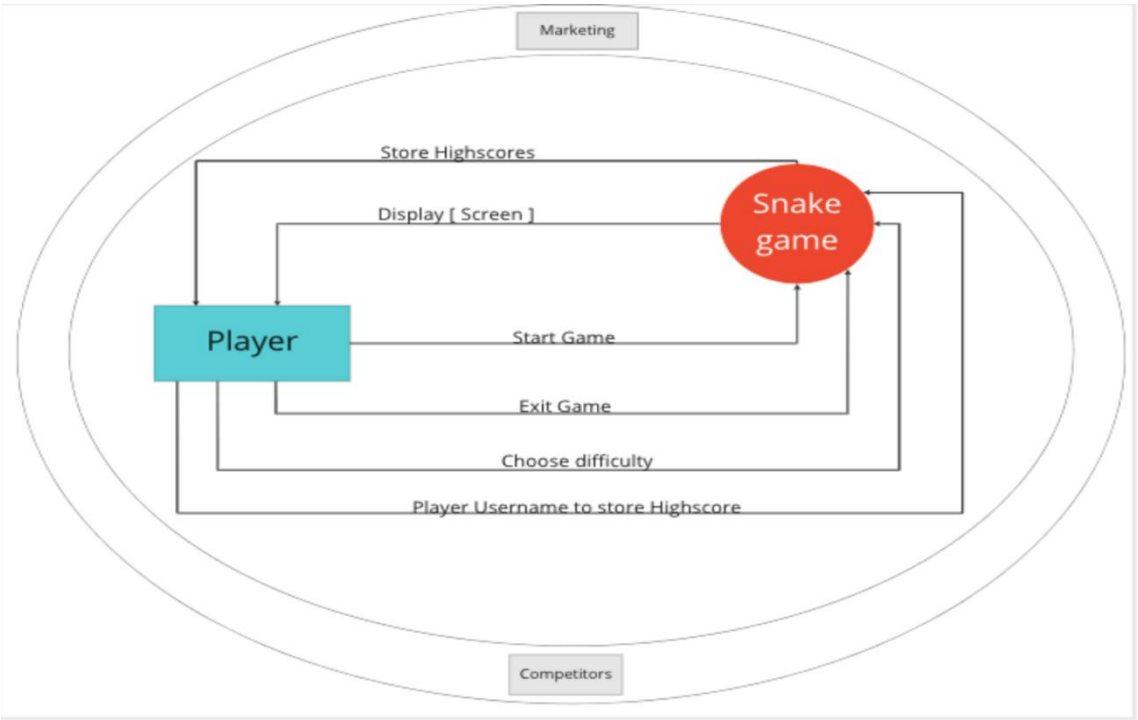
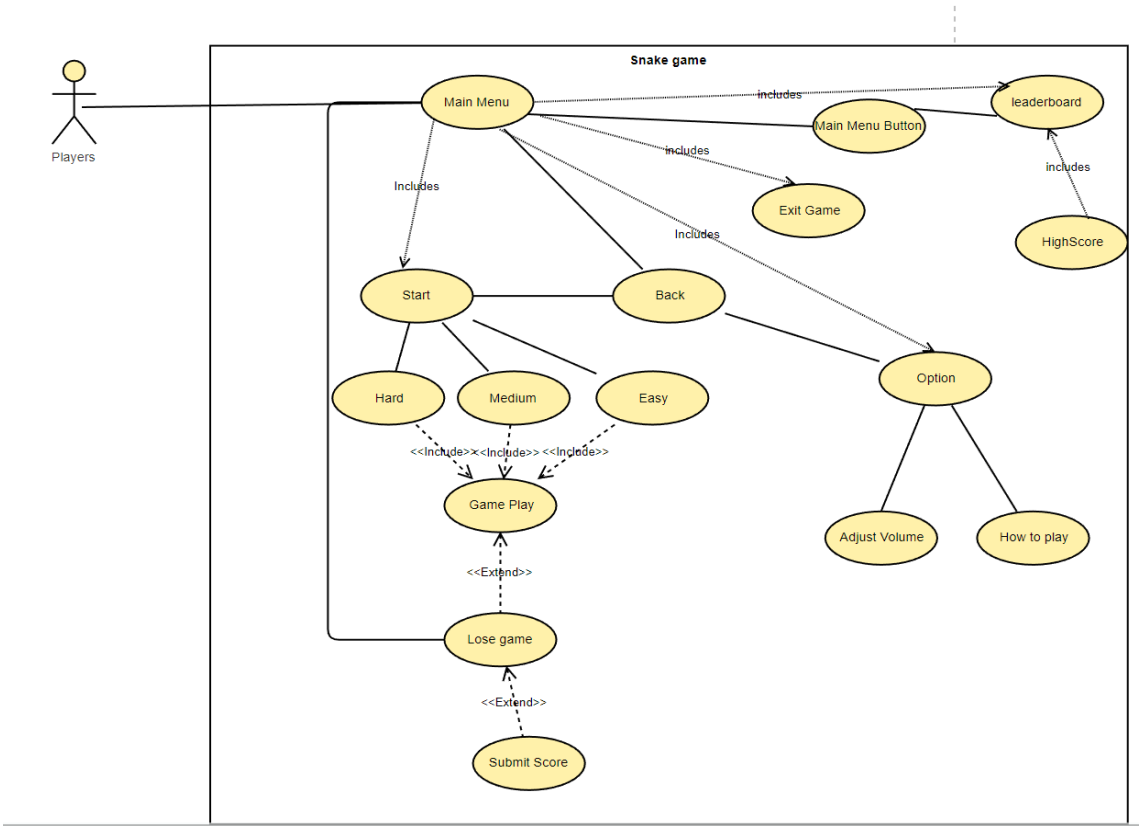
1.4.4 Critical Path Method



1.4.5 Context Diagram



1.4.6 Use Case Diagram



1.4.7 Requirements and Specifications

Snake Requirements

[High Priority]

1. The snake has to be able to move in a two dimensional grid space based on the player's input and never stop moving unless it dies
2. There will be **5 types of food**. 4 **normal** foods and a **prey**.
3. Food will randomly appear in the map
4. Max two types of food at the same time
5. The snake will grow as it eats **food**
6. The **Player's Score** will increment as the snake gets bigger
7. Once the snake reaches the end of the screen, it loops around on the other end
8. If the snake crashes against an obstacle or its own tail, then it's **Game Over**
9. The **prey** should move in the area the same way as the snake
10. The player will have a small time window (around 12 seconds) to catch the prey
11. At the end of each round, the score is registered if the player wants it
12. The 10 highest registered scores are tracked between all players on a leaderboard

Sound Effects

1. Background Music
2. Sound Effects

UI and Graphics

1. It should have a **Main Menu**
2. **Options menu** to set music and sound effects volumes.
3. Have a **High Score System** with a **leaderboard** panel
4. The leaderboard should display only the top 10 highest scores
5. The normal food will have 4 different "skins". (Cake, present, lollipop, and mushroom)

[Medium Priority]

Extended Gameplay

1. The game will have three different difficulty levels. Each one with a distinct map
2. The faster you catch the prey, the more the snake will grow

1.5 Project Budget and Inception Phase Plans

Tasks	Inception Phase		Member/s Assigned	Estimated Total Time	Estimated Individual Time	Actual Individual Time	Status
	Week 1 Iteration 1	Week 2 Iteration 2					
Lectures	✓	✓	All members of group 6**	11 hours & 15 minutes	11 hours & 15 minutes	11 hours & 15 minutes	Done
Supervision Sessions	✓	✓	All members of group 6	1 hour	1 hour	1 hour	Done
Task 1 [1]	✓		All members of group 6	8 Hours	1 hour	1 hour	Done
Task 2 [2]	✓		All members of group 6	1 hour	1 hours	0.5 hours	Done
Task 3 [3]		✓	Abdullahi, Henrik, Deba	4 hours	3 hours	3 hours	Done
Task 4 [4]		✓	All members of group 6	6 hours	2 hours	1 hour	Done
Task 5 [5]	-	-	-	-	-	-	-
Task 6 [6]		✓	Vilmer, Pham	8 hours	4 hours	4 hours	Done
Task 7 [7]		✓	Ionel, Piotr	8 hours	8 hours	8 hours	Done

Task 8 [8]		✓	All members of group 6	1 hours	1 hour	1hour	Done
Total Project Budget: 200 hours				Total Iteration Budget: 20 hours/iteration/person			

Notes:

[1:] *Task 1. Contact project group members*

[2:] *Task 2. Decide on a project*

[3:] *Task 3. Develop a Project Charter*

[4:] *Task 4. Setup Chalmers GitLab and needed environments tools*

[5:] *Task 5. Setup a project management tool. [Originally, we decided to not use any extra tool]*

[6:] *Task 6. Create a team contract*

[7:] *Task 7. Create a first project plan*

[8:] *Task 8. Answer Group Dynamic Questionnaire 1 – Individually*

[**:] *All Members of Group 6: Ionel, Vilmer, Pham, Abdullahi, Henrik, Piotr, Deba.*

1.6 End of Phase Review

Friday, 11th of November 2022.

We arranged a hybrid meeting at the building *Svea* in which every member joined.
The team displayed an excellent work dynamic. All members contributed to the project during the week and showed interest in completing every task. We decided to use a *divide-and-conquer* approach in which every task is assigned to a workgroup/unit and constant feedback is provided. After discussing and evaluating the progress of the tasks for the inception phase, we agreed on the following points relating to the team schedule:

- Meetings should be hybrid.
- We have agreed on two meetings per week. Mondays and Fridays but only one of them is mandatory. Group members can choose the best option for their schedule.
- On Mondays we have mandatory TA sessions.
- On Wednesdays before 18:00 we have “report day” where each member should give feedback about the tasks, he/she accomplished.

Section 2. Elaboration Phase

2.1 Iteration 3

2.1.1 Increment Plans

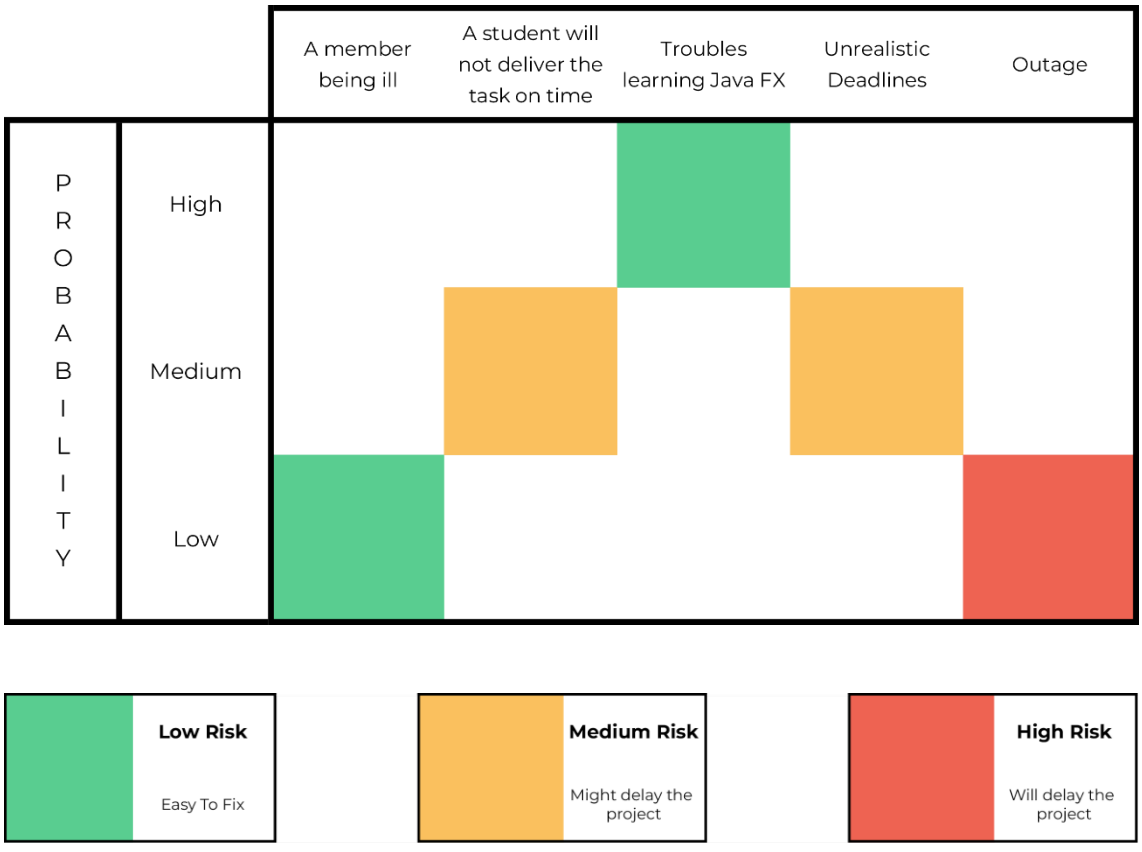
Task/s	Member/s Assigned	Estimated Individual Time	Actual Individual Time	Status
Lectures / Individual Studying	All members	11 hours	11 hours	Done
Supervision Sessions	All members	1 hour	1 hour	Done
Meetings	All members	4 hours	2 hours	Partially Finished
Update project chart	Abdullahi	2 hours	2 hours	Done
Start the Inception Phase of the Project Management Report	Deeba, Vilmer	2 hours	4 hours	Done
Design the Schedule Templates for every member of the Team	Henrik	1 hour	2 hours	Done
Help the members set up JavaFX and create the main Repository for the Project	Piotr	5 hours	5 hours	Done
Polish the requirements and specifications for the project	Linh	2 hours	2 hours	Done
Create the *PMR* Template and polish the *Gantt* chart	Ionel	3 hours	5 hours	Done
Estimated Total Iteration Time: 129 hours				
Total Budget Per Person: 20 hours		Total Iteration Budget: 140 hours		
Notes: If any members have finished their tasks by the middle of the week, they will either be reassigned to new tasks or help other members with their remaining tasks.				

2.1.2 Risk Management Plan

1. Risk Breakdown Structure

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2	RISK IDENTIFICATION TECHNIQUE USED
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Troubles learning JavaFX	Interviews
	2. MANAGEMENT RISK	2.1 A Student Will Not Deliver The Task On Time	Brainstorming
		2.2 Unrealistic Deadlines	Expert Judgement
	3. EXTERNAL RISK	3.1 A Member Being Ill	Brainstorming
		3.2 Outage	Brainstorming

2. Probability and Impact Matrix



3. Risk Monitoring and Controlling

For the first version of the Risk Management Plan on the 3rd week we encounter a few risks using different identification techniques as shown by the risk breakdown structure above. To overcome these threats one of these five strategies will be used:

Avoid	Accept	Escalate	Mitigate	Transfer

R 1.1 [Troubles learning Java FX] was added as a High Probability, Low Risk since most of the members have never worked with Java FX. We decided to mitigate the risk by assigning every member the task of studying Java FX on their own.

R 2.1 [A student will not deliver the task on time] was added as a Medium Probability, Medium Risk. We decided to mitigate the risk by creating a schedule template which every member must fill during the iteration.

R 2.2 [Unrealistic Deadlines] was added as a Medium Probability, Medium Risk. We decided to avoid this risk by delaying milestones and updating the original Gantt chart.

R 3.1 [A member being ill] was added as a Low Probability, Low Risk. We decided to accept this risk as there is no guarantee that it might happen.

R 3.2 [Outage] was added as a Low Probability, High Risk. We decided to accept this risk as there is no guarantee that it might happen.

2.1.3 Monitor and Control

For the monitor and control section, we decided to use four main methods to track the progress of the project. Meeting minutes and feedback, schedule tracking, Burndown charts, and Gantt chart tracking. During the week every member reports their progress to the project manager and fills up their schedule. Then, at the end of the iteration, the overall progress of the project is compared with the help of the Burndown charts and the Gantt chart.

1. Meeting minutes and member's feedback

Thursday, 17th of November 2022.

Every task is going as intended, all members are constantly giving feedback and updates as expected.

- The *Gantt Chart* and *Project Chart* were updated as intended
- The *Report Template* was created
- Time distribution templates are almost finished
- The members are currently working on setting up JavaFX
- The *Requirements and Specifications* are completed

All tasks should be ready by the end of tomorrow.

Friday, 18th of November 2022.

All tasks were completed as intended.

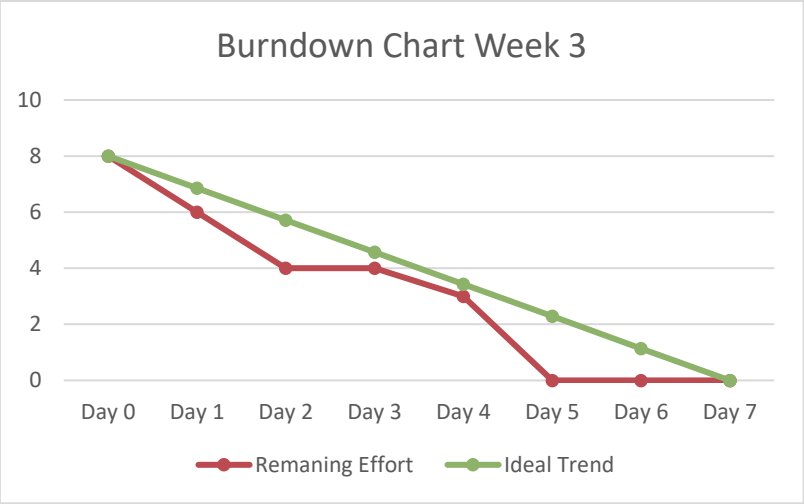
2. Schedule Tracker

Week	1	2	3
Ionel	−15	5	2
Linh	0	0	0
Vilmer	−4	1	−4
Abdullahi	−1	0	−1
Deeba	−3	1	−2
Piotr	−10	2	−12
Henrik	−10	3	−3

During this iteration, most of the team members finished their 20-hour workload or were close to completing it. However, Ionel and Linh worked the most, with Ionel putting in an additional 2 hours. This is likely due to Ionel's role as project manager, which involves organizing and planning the project. The team plans to improve task distribution in the next iteration and provide clearer instructions for each member to follow. It's worth noting that the schedule tracker may not be entirely accurate as some team members were not familiar with the concept and may have forgotten to track their work hours.

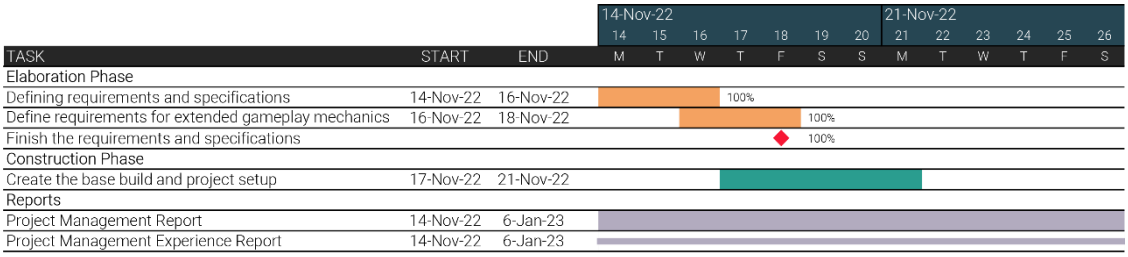
3. Burndown Chart

Burndown Chart Iteration 3								
User Stories	**Preliminary Estimation**	**14-Nov**	**15-Nov**	**16-Nov**	**17-Nov**	**18-Nov**	**19-Nov**	**20-Nov**
	Day 0	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Update Project Chart	1		1					
Update the Gantt Chart	1	1						
Create PMR Template	1	1						
Create Time Schedule Template	1					1		
Requierements and Specifications	1		1					
Write PMR's Inception Phase	1				1			
Set up JavaFX	1					1		
Set up the main repository	1					1		
Remaning Effort	8	6	4	4	3	0	0	0
Ideal Trend	8	6.857143	5.714286	4.571429	3.428571	2.285714	1.142857	0



As shown by the graph, during this iteration, we managed to finish all the tasks by Friday. Since in this week, most of the tacks were rather simple, there were not a lot of obstacles to sort as a team.

4. Gantt Chart



According to the original Gantt chart, the team was able to complete all tasks planned for the week. However, we decided to postpone the Project Management Experience Report due to a lack of information. In addition to this, the team began working on some basic coding tasks such as the game renderer.

2.1.4 Iteration Review

Friday, 18th of November 2022.

Due to scheduling conflicts, we could not arrange today's meeting. However, everything seems to be working fine and all the preparations should be completed for the next phase. However, during this week, we realized that our task distribution was not effective as we managed to finish our respective tasks relatively fast. Starting next week, we are going to change our approach and try giving more tasks to the members.

Overall, the third iteration was a success as we were able to complete all the tasks that were assigned to us and make progress on the elaboration phase of the project. The team worked effectively and efficiently, and communication was strong as we constantly provided feedback and updates on the progress of our tasks. There were no major obstacles or issues during this iteration, and we were able to set up JavaFX and begin work on basic coding tasks. However, we did realize that our task distribution was not as effective as it could be, and we plan to adjust our approach in the future to ensure that all team members have sufficient tasks to work on.

Section 3. Construction Phase

3.1 Iteration 4

3.1.1 Increment Plans

Task/s	Member/s Assigned	Estimated Individual Time	Actual Individual Time	Status
Lectures / Individual Studying	All members	11 hours	11 hours	Done
Supervision Sessions	All members	1 hour	1 hour	Done
Meetings	All members	4 hours	4 hours	Done
Create *Use Case*, and *Context Diagram*	Abdullahi, Linh	2 hours	2 hours	Done
Create first version of the *Risk Management Plan*	Deeba, Vilmer	2 hours	3 hours	Done
Polish the Schedule Template	Henrik	3 hours	5 hours	Done
Work on the Project Management Report	Henrik, Ionel	2 hours	4 hours	Done
Code the Main Menu	Henrik, Deeba, Abdullahi	6 hours	4 hours	Done
Set up a *Trello Board* and divide work into user stories	Piotr	2 hours	2 hours	Done
Work on the Snake class and the snake's movement	Linh, Vilmer	2 hours	6 hours	Done
Implement a *Game Loop*	Ionel	2 hours	5 hours	Done
Implement a *Game Renderer*	Piotr	2 hours	2 hours	Done
Help members with their coding/git problems	Piotr	6 hours	14 hours	Done

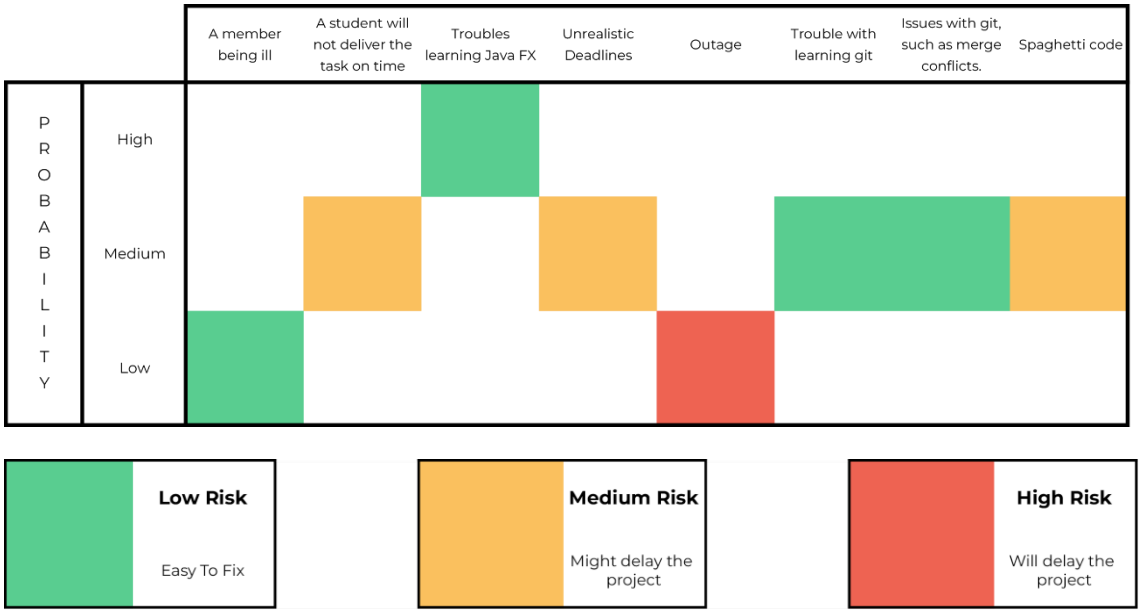
Work on the game's leaderboard	Abdullahi	4 hours	6 hours	Continue next week
Estimated Total Iteration Time: 161 hours				
Total Budget Per Person: 20 hours		Total Iteration Budget: 140 hours		
Notes: In addition to these tasks, every member should get familiarized with JavaFX. If any members have finished their tasks by the middle of the week, they will either be reassigned to new tasks or help other members with their remaining tasks.				

3.1.2 Risk Management Plan

1. Risk Breakdown Structure

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2	RISK IDENTIFICATION TECHNIQUE USED
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Troubles learning JavaFX	Interviews
		1.2 Trouble with learning git	Interviews
		1.3 Issues with git, such as merge conflicts	Brainstorming
		1.4 Spaghetti code	Expert Judgement
	2. MANAGEMENT RISK	2.1 A Student Will Not Deliver The Task On Time	Brainstorming
		2.2 Unrealistic Deadlines	Expert Judgement
	3. EXTERNAL RISK	3.1 A Member Being Ill	Brainstorming
		3.2 Outage	Brainstorming

2. Probability and Impact Matrix



3. Risk Monitoring and Controlling

During the 4th iteration we encounter a few risks using different identification techniques as shown by the risk breakdown structure above. To overcome these threats one of these five strategies will be used:

Avoid	Accept	Escalate	Mitigate	Transfer

R 1.1 [Troubles learning Java FX] was not changed. So far, every member has put hours into studying Java FX.

R 1.2 [Trouble with learning git] was added as a Medium Probability, Low Risk since most of the group members had never worked with git before. We decided to mitigate the risk by assigning one of our members, Piotr, as a "support" for the team due to his experience as a developer.

R 1.3 [Issues with git] was added as a Medium Probability, Low Risk since most of us never worked with git before, thus, making it difficult to deal with issues such as merge conflict or problems with configuration. We decided to mitigate the risk by using the same strategy established above.

R 1.4 [Spaghetti code] was added as a Medium Probability, Medium Risk as the size of the project grows, it might become difficult to follow every change and stick to the SOLID principles. We decided to avoid the threat by scheduling weekly or bi-weekly refactoring sessions.

R 2.1 [A student will not deliver the task on time] was not changed. The schedule template is working as a solution for now.

R 2.2 [Unrealistic Deadlines] was not changed. The new changes in the Gantt chart planning are currently beneficial for the team.

R 3.1 [A member being ill] was not changed.

R 3.2 [Outage] was not changed.

3.1.3 Monitor and Control

1. Meeting Minutes and member's feedback

Thursday, 24th of November 2022.

All the management tasks have been completed and we have now shifted our focus to our coding tasks.

Completed Tasks

- The use cases and context diagram have been completed
- The risk management plan has been created
- The schedule template is finished
- The Trello board has been set up and 'user stories' have been clarified

Tasks to be completed

- Create a basic main menu
- Create the basic Snake class
- Code the Game Loop
- Design and implement a draft for the leaderboard
- Work on the snake's movement
- Code the *Food*, and *FoodSpawner* classes.

All tasks should be started by the end of tomorrow.

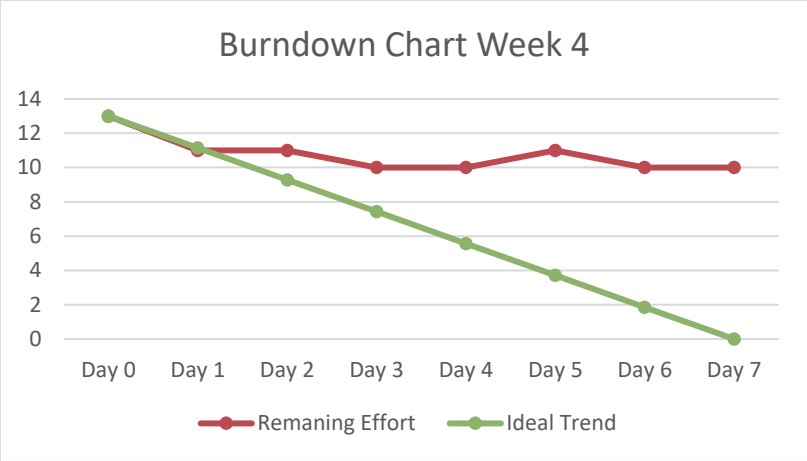
2. Schedule Tracker

Week	1	2	3	4
Ionel	−15	5	2	5
Linh	0	0	0	2
Vilmer	−4	1	−4	2
Abdullahi	−1	0	−1	3
Deeba	−3	1	−2	1
Piotr	−10	2	−12	4
Henrik	−10	3	−3	3

During this iteration, all the members ended with overwork hours. This is mainly because the learning curve for JavaFX was rather steep.

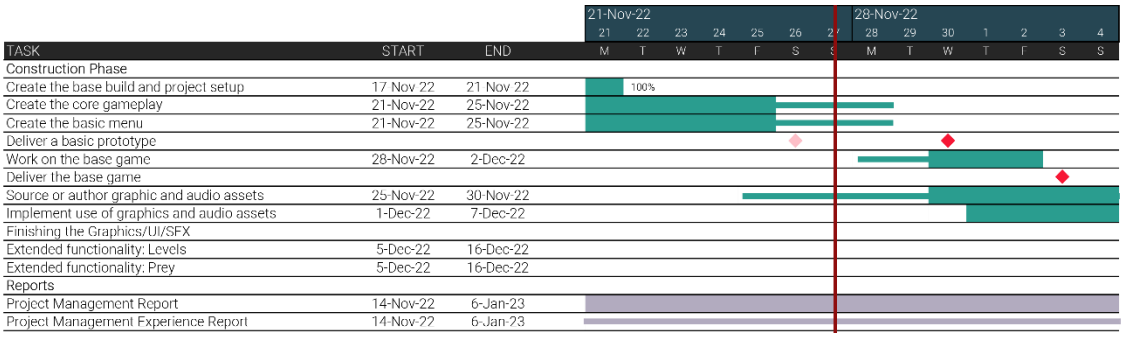
3. Burndown Chart

Burndown Chart Iteration 4								
User Stories	**Preliminary Estimation**	**21-Nov**	**22-Nov**	**23-Nov**	**24-Nov**	**25-Nov**	**26-Nov**	**27-Nov**
	Day 0	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Create Use Cases Diagram	1	1						
Create Context Diagram	1	1						
Create Risk Management Plan	1			1		1		
Setting up the Trello Board	1			1		1		
Code Main Menu	3					-2		
Code Game Renderer	1					1		
Code Game Loop	1			-1			1	
Code the Snake class	1					-1		
Code the basic Snake Movement	1					-1		
Implement FoodSpawner	1						1	
Set up the Leaderboard layout	1						-1	
Remaning Effort	13	11	11	10	10	11	10	10
Ideal Trend	13	11.14286	9.285714	7.428571	5.571429	3.714286	1.857143	0



As we can see by the burndown chart, this week we did not manage to finish our tasks on time. In fact, we were quite behind the schedule. In contrast to the previous week where we did not assign enough tasks, this week we assigned more tasks that we should have.

4. Gantt Chart



For this iteration, we had a delay in some tasks. In this case, “Create the core gameplay” and “Create the basic menu” took longer than we anticipated. As we mentioned previously, learning JavaFX was a more complicated process than we originally thought. Therefore, we decided to also delay some of the future tasks such as “Work on the base game”, and “Source or author graphic and audio assets. We also moved the “Deliver a basic prototype” milestone for next week.

3.1.4 Iteration Review

Friday, 25th of November 2022.

Iteration 4 was filled with challenges, most of which were related to JavaFX and the group's inexperience with the tool. However, these hurdles were not easily overcome as tutorials on the internet felt outdated and were poorly explained. In these cases, we sought the help of our teammates, and we were able to navigate through the issue together. Piotr, in particular, was of great assistance with most problems the other members encountered. This led to him working 8 hours more than he expected when it came to helping others with their problems.

The very same inexperience was found while working with GitLab. However, these problems were more easily dealt with as information is more up-to-date and more readily accessible.

One issue that was encountered during the iteration was the difficulty in determining the best starting point for tasks. Certain tasks had a prerequisite of another being completed before the next could begin. When we encountered this, we moved that member to help the person working on the prerequisite task in order to improve efficiency.

During this iteration, we also realized that we need to find a balance in our task distribution. Starting next week, we are going to be more conscious of our own inexperience and assign tasks in a realistic way.

There are several improvements that can be made to the monitor and control process for this iteration. One key area to focus on is time management, as the team has consistently been working overtime. Reviewing the task estimation process and ensuring that tasks are accurately accounted for in terms of the time they will take to complete can help to reduce the workload and prevent burnout. Additionally, it may be helpful to review the task assignment process to ensure that the team has a reasonable workload each week. Improved communication among team members can also help to identify and address any issues or challenges that may arise, and ensuring that the risk management process is robust and effective can help to mitigate risks and keep the project on track. Overall, these improvements can help to ensure that the project stays on schedule and achieves its goals successfully.

Overall, the fourth iteration had its fair share of challenges, particularly with regards to the team's inexperience with JavaFX and some issues with git. However, the team was able to work together and seek help when needed to overcome these challenges. While there were some delays in completing tasks and the team had to adjust their schedule, they were able to make progress on several important tasks such as creating the use cases and context diagram, setting up a Trello board and dividing work into user stories, and starting work on the main menu and Snake class. It's important for the team to continue to review their progress and adjust their plan as needed to ensure that they are on track to meet their goals.

3.2 Iteration 5

3.2.1 Increment Plans

Task/s	Member/s Assigned	Estimated Individual Time	Actual Individual Time	Status
Lectures / Individual Studying	All members	11 hours	11 hours	Done
Supervision Sessions	All members	1 hour	1 hour	Done
Meetings	All members	4 hours	2 hours	Partially Done
Work on the game's leaderboard	Abdullahi	6 hours	8 hours	Done
Create the *Burndown Chart* template	Deeba, Henrik	1 hour	3 hours	Done
Modify the Main Menu layout	Deeba	2 hours	2 hours	Done
Work on the Snake class and check snake collisions	Vilmer	5 hours	10 hours	Done
Work on the *Score System*	Henrik	2 hours	4 hours	Continue next week
Work on the Project Management Report	Ionel, Henrik	2 hours	3 hours	Done
Implement *Prey* prototype	Piotr	1 hour	1 hour	Done
Add the Risk Management Plan to the PMR	Ionel, Piotr	2 hours	3 hours	Done
Work on the Snake's eating mechanic	Linh	4 hours	5 hours	Done
Work on the game's leaderboard	Abdullahi	4 hours	8 hours	Done
Estimated Total Iteration Time: 144 hours				

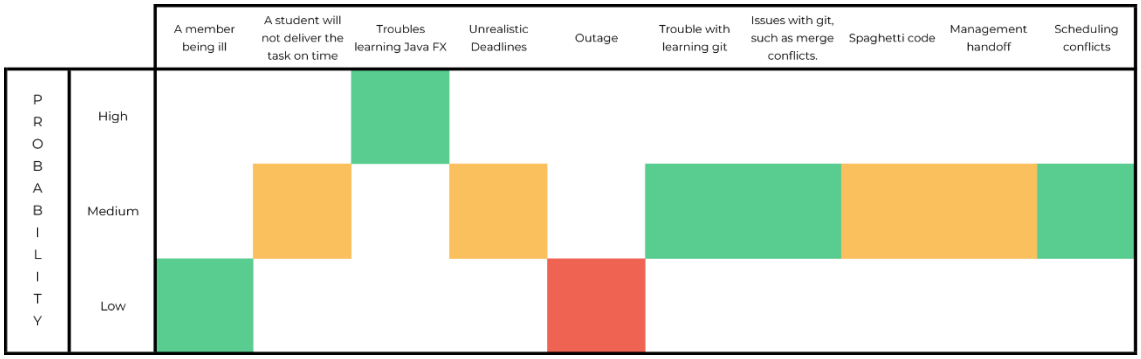
Total Budget Per Person: 20 hours	Total Iteration Budget: 140 hours
Notes: Group members will be allocated extra managerial and coding tasks throughout the course of the week. If a task is completed ahead of schedule, the group member is to take on a new task or help other group members whenever possible. Aside from that, as it is Ionel's last week as our project manager, he will give instructions and guidance to the new project manager.	

3.2.2 Risk Management Plan

1. Risk Breakdown Structure

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2	RISK IDENTIFICATION TECHNIQUE USED
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Troubles learning JavaFX	Interviews
		1.2 Trouble with learning git	Interviews
		1.3 Issues with git, such as merge conflicts	Brainstorming
		1.4 Spaghetti code	Expert Judgement
	2. MANAGEMENT RISK	2.1 A Student Will Not Deliver The Task On Time	Brainstorming
		2.2 Unrealistic Deadlines	Expert Judgement
		2.3 Management handoff	Brainstorming
	3. EXTERNAL RISK	3.1 A Member Being Ill	Brainstorming
		3.2 Scheduling Conflicts	Interviews
		3.3 Outage	Brainstorming

2. Probability and Impact Matrix



3. Risk Monitoring and Controlling

During the 5th iteration we encounter a few risks using different identification techniques as shown by the risk breakdown structure above. To overcome these threats one of these five strategies will be used:

Avoid	Accept	Escalate	Mitigate	Transfer

R 1.1 [Troubles learning Java FX] was not changed.

R 1.2 [Trouble with learning git] was not changed.

R 1.3 [Issues with git] was not changed.

R 1.4 [Spaghetti code] was not changed. The refactoring sessions are helping to maintain an organized structure.

R 2.1 [A student will not deliver the task on time] was not changed.

R 2.2 [Unrealistic Deadlines] was not changed.

R 2.3 [Management handoff] was added as a Medium Probability, Medium Risk since the current workflow might be affected by the sudden change of Project Manager. We decided to mitigate this risk by asking our current project manager to give instructions and provide guidance to the new project manager.

R 3.1 [A member being ill] was not changed.

R 3.3 [Scheduling conflicts] was added as a Medium Probability, Low Risk. As the project progressed, we found it increasingly more difficult to schedule meetings. One common reason for that would be deadlines for assignments in the other course. We decided to accept the risk for now and work on improving our communication as a team as a backup strategy.

R 3.3 [Outage] was moved from [R 3.2] to [R 3.3] because we thought it made more sense to have it at the end since it is the most unrealistic threat.

3.2.3 Monitor and Control

1. Meeting Minutes and member's feedback

Wednesday, 30th of November 2022.

Completed Tasks

- Deeba completed a burndown chart.
- The risk management plan has been updated

- Preventing the snake from going 180° in on itself.
- Implement an input buffer for the snake.
- Solved merge conflicts in GitLab

Tasks to be completed

- Begin coding on a live score counter.
- Begin coding on the snake.
- Update Gantt Chart.
- Update risk management plan.
- Implement a method that deletes eaten food.
- Implement a method that ends the game when the snake has hit itself.

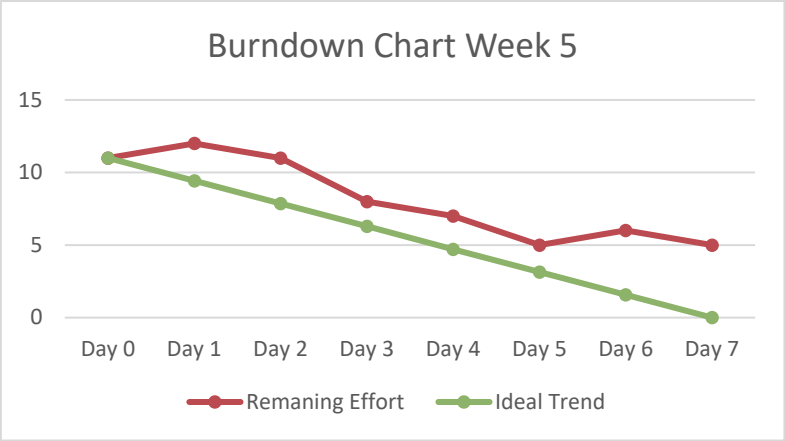
2. Schedule Tracker

Week	1	2	3	4	5
Ionel	−15	5	2	5	1
Linh	0	0	0	2	4
Vilmer	−4	1	−4	2	0
Abdullahi	−1	0	−1	3	2
Deeba	−3	1	−2	1	−2
Piotr	−10	2	−12	4	2
Henrik	−10	3	−3	3	−1

During this iteration, most members achieved the 20-hour workload. This chart also shows that our task distribution has become more effective, as the mean between workhours is close to 0. Since we are still new to this tool, some members might miscalculate how many hours they worked.

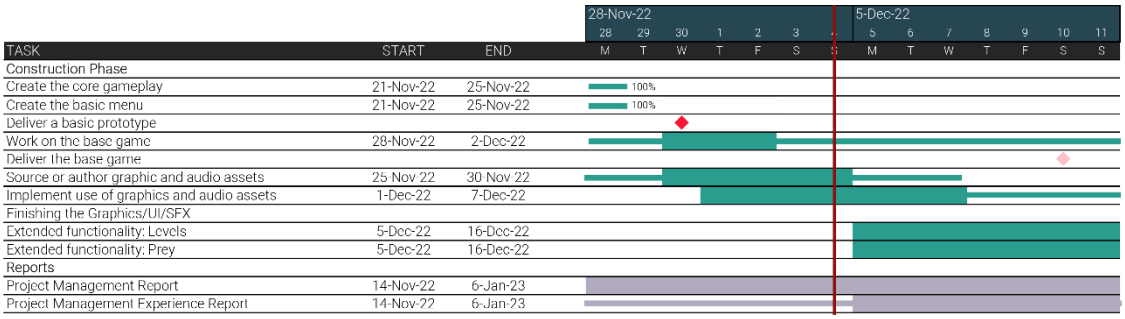
3. Burndown Chart

Burndown Chart Iteration 5								
User Stories	**Preliminary Estimation**	**28-Nov**	**29-Nov**	**30-Nov**	**1-Dec**	**2-Dec**	**3-Dec**	**4-Dec**
	Day 0	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Set up the Leaderboard layout	2							
Create Burndown Chart Template	1		1					
Update gantt chart	1					1		
Modify Main Menu Layout	1			1				
Implement collision detection in the Snake class	1			1				
Implement an input buffer	1	-1		1				
Code prey prototype	1				1			
Implement the snake's eating mechanic	1							1
Implement score system	1						-1	
Implement placeholder assets	1					1		
Remaning Effort	11	12	11	8	7	5	6	5
Ideal Trend	11	9.428571	7.857143	6.285714	4.714286	3.142857	1.571429	0



We can see so far that we are running a little behind our stablished weekly schedule. Some tasks such as Setting up the leaderboard and implementing the score system, have not been finished by the end of this week. Despite all those challenges, we are making good progress with the project itself since we managed to implement and modify a couple of core features of the game.

4. Gantt Chart



As shown by the Gantt Chart, we managed to complete the first two tasks “Create the core gameplay” and “Create the basic menu” with a couple of days of delay. We also achieved our milestone set by the 30th of November. Other tasks such as “Work on the base game” and “Source or author graphics and audio assets” have been delayed since we realized that we needed more time to prepare.

3.2.4 Iteration Review

Iteration 5 has been tough as it has constantly been in a competition for time with the UI & UX course assignment. This led the group to not having a group meeting on Friday the 2nd as many members were in a time crunch to complete the aforementioned assignment. However, we still feel that we are good for time and are still on schedule to complete this project.

Our inexperience with JavaFX has once again caused slight confusion for some of the group members. However, it has not been something we haven’t been able to overcome.

We also realized that our original deadlines might have been too optimistic. Therefore, for next iterations we decided to establish realistic and achievable goals.

Scheduling conflicts have been a challenge for the group, leading to difficulties in coordinating meetings. This has also affected task completion, as the group is running behind schedule according to the burndown chart. To address these issues, it might be helpful to establish a more consistent meeting time that works for everyone and to review and reassess workload and task assignments. In addition, it is important to continue to regularly review and update the risk management plan to ensure that potential risks are being effectively mitigated. Effective

communication is also crucial, so establishing clear communication channels and protocols can help ensure that all group members are informed of progress, changes, and any issues that arise.

3.3 Iteration 6

3.3.1 Increment Plans

Task/s	Member/s Assigned	Estimated Total Time	Actual Total Time	Status
Lectures / Individual Studying	All members	11 hours	11 hours	Done
Supervision Sessions	All members	1 hour	1 hour	Done
Meetings	All members	4 hours	4 hours	Done
Finish the game's leaderboard	Abdullahi	1 hours	1 hours	Done
Manage the *Trello* board and plan the next tasks	Piotr	1 hour	1 hour	Done
Update *Burndown* Chart	Deeba	1 hour	1 hours	Done
Work on the PMER	Ionel	2 hours	3 hours	Done
Link the *sub-menus* to the *Main Menu*	Deeba	2 hours	4 hours	Done
Fix the food spawning on top of the snake	Vilmer	5 hours	10 hours	Done
Implement *Game Over* screen	Vilmer, Ionel	3 hours	5 hours	Done
Work on the Project Management Report	Henrik	2 hours	2 hours	Done
Work on the Score System	Henrik	2 hours	2 hours	Continue next week
Help members with their coding/git problems	Piotr, Ionel	2 hours	2 hours	Done

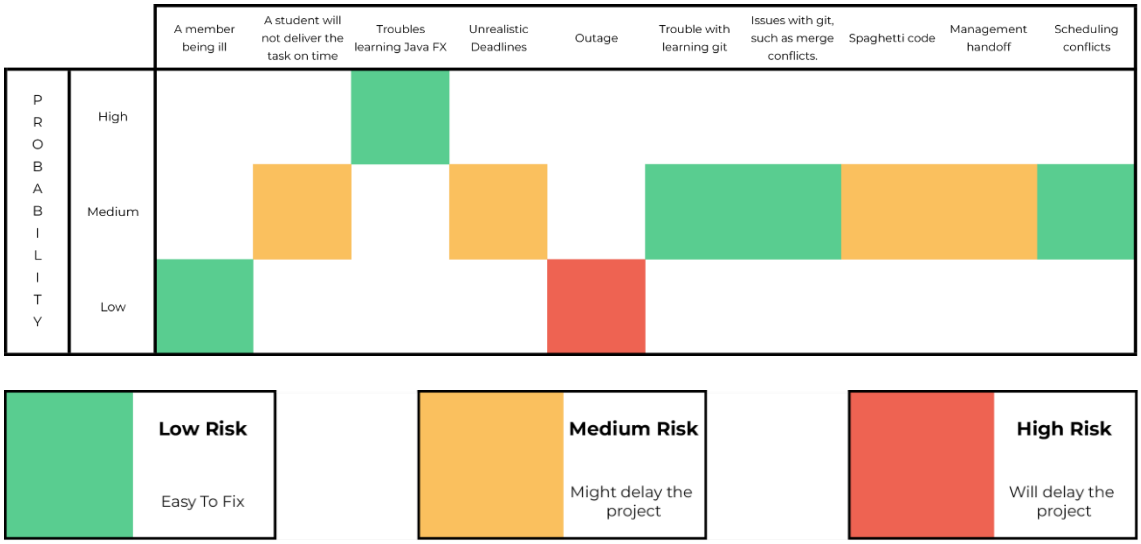
Refactor the code	Piotr, Ionel	3 hours	7 hours	Done
Work on the *Prey* behavior	Piotr	2 hours	2 hours	Done
Implement snake and food graphics, as well as the sound effects	Linh	3 hours	4 hours	Done
Manage merge requests and merge conflicts	Ionel, Piotr	1 hour	1 hour	Done
Implement pause button	Henrik	2 hours		Moved to next iterations
Estimated Total Iteration Time: 149 hours				
Total Budget Per Person: 20 hours		Total Iteration Budget: 140 hours		
Notes: Group members will be allocated extra managerial and coding tasks throughout the course of the week. If a task is completed ahead of schedule, the group member should take on a new task or assist their peers with their work.				

3.3.2 Risk Management Plan

1. Risk Breakdown Structure

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2	RISK IDENTIFICATION TECHNIQUE USED
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Troubles learning JavaFX	Interviews
		1.2 Trouble with learning git	Interviews
		1.3 Issues with git, such as merge conflicts	Brainstorming
		1.4 Spaghetti code	Expert Judgement
	2. MANAGEMENT RISK	2.1 A Student Will Not Deliver The Task On Time	Brainstorming
		2.2 Unrealistic Deadlines	Expert Judgement
		2.3 Management handoff	Brainstorming
	3. EXTERNAL RISK	3.1 A Member Being Ill	Brainstorming
		3.2 Scheduling Conflicts	Interviews
		3.3 Outage	Brainstorming

2. Probability and Impact Matrix



3. Risk Monitoring and Controlling

During the 6th iteration no changes were made to the risk management plan.

R 1.1 [Troubles learning Java FX] was not changed.

R 1.2 [Trouble with learning git] was not changed.

R 1.3 [Issues with git] was not changed.

R 1.4 [Spaghetti code] was not changed.

R 2.1 [A student will not deliver the task on time] was not changed.

R 2.2 [Unrealistic Deadlines] was not changed.

R 2.3 [Management handoff] was not changed. Since the guidance from our previous manager seems to have been fruitful, we might close it on next iteration.

R 3.1 [A member being ill] was not changed.

R 3.3 [Scheduling conflicts] was not changed.

R 3.3 [Outage] was not changed.

3.3.3 Monitor and Control

1. Meeting Minutes and member's feedback

Thursday, 8th of December 2022.

Completed Tasks

- Deeba completed a burndown chart.
- Prevent prey from spawning on top of the snake.

- Solved merge conflicts in GitLab

Tasks to be completed

- The risk management plan to be updated.
- Begin coding a back button.
- Update Gantt Chart.
- Update risk management plan.
- There is a need to refactor a lot of the code we have so far.
- Prepare a template for the project management experience report (PMER).
- Finish code for the live score.
- Finish code for pause function.

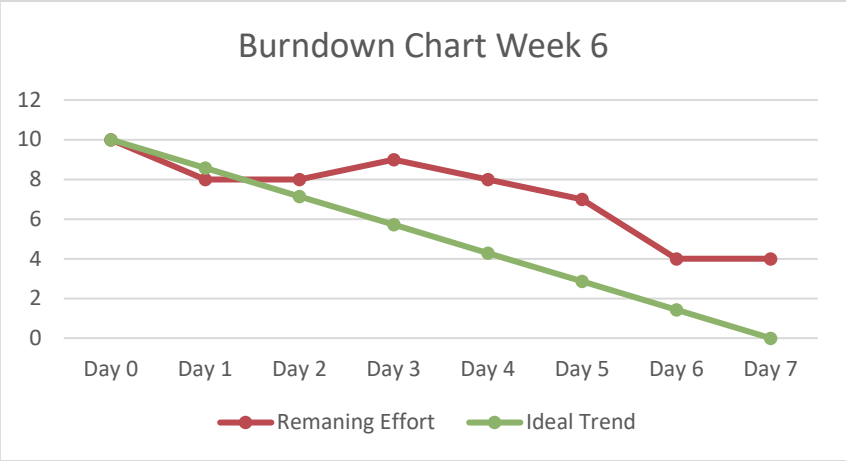
2. Schedule Tracker

Week	1	2	3	4	5	6
Ionel	−15	5	2	5	1	-4
Linh	0	0	0	2	4	0
Vilmer	−4	1	−4	2	0	-4
Abdullahi	−1	0	−1	3	2	-5
Deeba	−3	1	−2	1	−2	-4
Piotr	−10	2	−12	4	2	-4
Henrik	−10	3	−3	3	−1	-4

A negative trend has begun where most group members are not meeting their assigned number of hours. This may be a result of a lack of tasks that need to be completed or could be that the workload in the parallel class has increased.

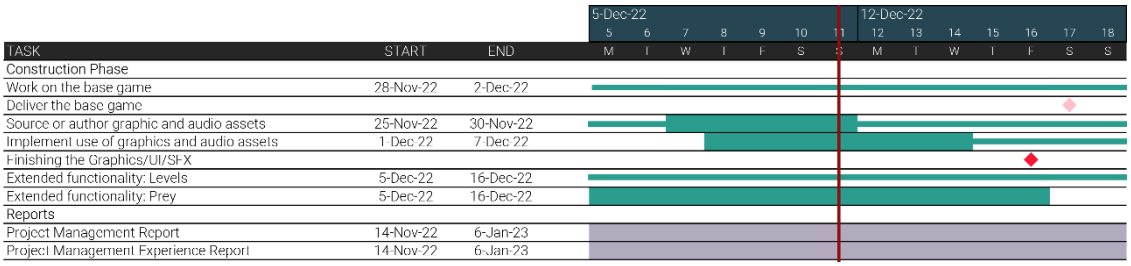
3. Burndown Chart

Burndown Chart Iteration 6								
User Stories	**Preliminary Estimation**	**5-Dec**	**6-Dec**	**7-Dec**	**8-Dec**	**9-Dec**	**10-Dec**	**11-Dec**
	Day 0	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Set up the Leaderboard layout	1	1						
Implement score system	1						-1	
Update burndown chart	1	1						
Work on the PMER template	1						1	
Fix prey spawning	1			1		1		
Set up Game Over	1				1	-1	1	
Design the snake's and food's sprites	3			-2			2	
Implement sound effects	1					1		
Remaning Effort	10	8	8	9	8	7	4	4
Ideal Trend	10	8.571429	7.142857	5.714286	4.285714	2.857143	1.428571	0



We can see that tasks such as the leaderboard and the score system have been carried out from the previous iteration, as we could not finish them last week. So far, we managed to finish the leaderboard, but the score system still has some work to be done. On the other hand, the rest of the tasks were done without many complications. The only exception being the design of the game's sprites. As our team is not experienced in graphic design, this took longer than we anticipated.

4. Gantt Chart



This iteration, most of the tasks went according to the updated plan. We started the implementation of the sound effects and graphics, but it is going to take longer than we anticipated. For a similar reason, working on the game levels has been delayed since we decided to focus on one extra feature for now. The rest of the tasks have gone according to the schedule.

We originally set "Deliver the base game" as a milestone for the 17th of December, but following our progress, the best course of action was to delay it a couple of days. Even with all the changes in the schedule, we still managed to make good progress this iteration and overall, we are approximately one week behind schedule. This should not be a big problem since we established earlier deadlines for the delivery of the final product.

3.3.4 Iteration Review

We have met iteration 6 with little friction. Linh has taken over the mantle of manager and the group members have found that it fits her well. Every member has taken responsibility for their allotted task and is asking for help when they are in need of it.

Even though the iteration has gone smoothly, JavaFx is still proving itself to have a steep learning curve. Some things aren't quite as intuitive as we would have hoped. However, with guidance from other members, we have been able to fix the issue swiftly.

Good communication has played an important role during the whole project. Allowing us to distribute tasks effectively and reassign deadlines and milestones to fit our current progress.

Despite all the challenges that we have faced, the project is looking good, and the small delay that we have should not cause any significant damage to the finishing product.

Overall, the previous iteration seems to have gone smoothly, with each group member taking responsibility for their assigned tasks and seeking help when needed. The group has made good progress and has encountered some challenges in implementing graphics and sound effects but has established earlier deadlines for the delivery of the final product. There have been some issues with scheduling conflicts and miscalculations of work hours, but the group has made an effort to address these issues by adjusting the meeting time. It will be important to continue to review and assess the group's progress and identify areas for improvement in order to complete the project efficiently and effectively.

3.4 Iteration 7

3.4.1 Increment Plans

Task/s	**Member/s Assigned**	**Estimated Total Time**	**Actual Total Time**	**Status**
Lectures / Individual Studying	All members	11 hours	11 hours	Done
Supervision Sessions	All members	1 hour	1 hour	Done
Meetings	All members	4 hours	4 hours	Done
Work on the Score System	Abdullahi	1 hours	1 hours	Done
Work on the *User Manual*	Vilmer, Deeba	3 hours	4 hours	Done
Work on the *PMR* and *PMER*	Henrik, Ionel	4 hours	7 hours	Done
Update *Use Case* and *Context* Diagrams	Linh, Abdullahi	2 hours	2 hours	Done
Work on the *Main Menu*	Linh, Abdullahi	1 hour	1 hour	Done
Implement bonus points for catching a *prey*	Vilmer	2 hours	4 hours	80% Done
Update the leaderboard layout	Ionel	4 hours	6 hours	Done

Task planning for current and next iterations	Piotr, Linh	2 hours	2 hours	Done
Upgrade *Prey* movement	Piotr	1 hours	1 hours	Done
Implement sound effects and refactoring the *Sound* class	Linh	3 hours	4 hours	Done
Manage merge requests and merge conflicts	Piotr	2 hours	2 hours	Done
Estimated Total Iteration Time: 149 hours				
Total Budget Per Person: 20 hours		Total Iteration Budget: 140 hours		

Notes:

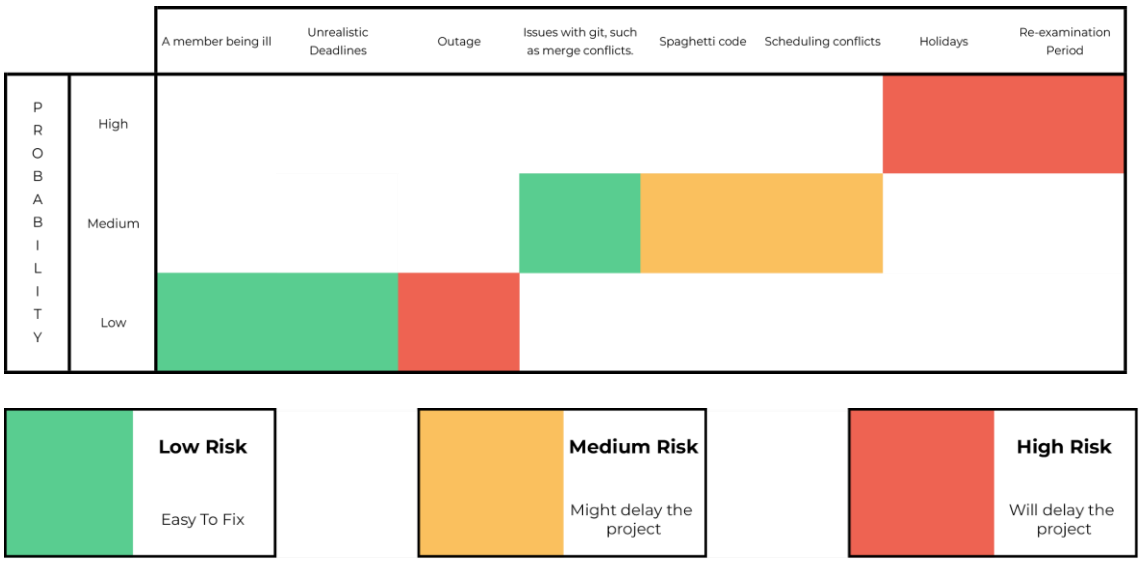
- Starting from iteration 7, the group has unanimously decided that for the remaining 4 iterations of this project, team members will now dedicate their time to one of the following: coding or documentation.
- Similar to iteration 5, this week will also be vying for the same amount of time as the UI&UX course where group members are working on their third and final assignment.
- We also agreed to get started on the project management experience report (PMER) so that we stay on top of things before the Christmas break.
- On the coding front, we have decided to focus on the most essential features of the game. These features include but are not exclusively fixing up the main menu and finishing the scoring system and a leaderboard.
- If any members have finished their tasks by the middle of the week, they will either be reassigned to new tasks or help other members with their remaining tasks.

3.4.2 Risk Management Plan

1. Risk Breakdown Structure

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2	RISK IDENTIFICATION TECHNIQUE USED
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Troubles learning JavaFX	Interviews
		1.2 Trouble with learning git	Interviews
		1.3 Issues with git, such as merge conflicts	Brainstorming
		1.4 Spaghetti code	Expert Judgement
	2. MANAGEMENT RISK	2.1 A Student Will Not Deliver The Task On Time	Brainstorming
		2.2 Unrealistic Deadlines	Expert Judgement
		2.3 Management handoff	Brainstorming
	3. EXTERNAL RISK	3.1 A Member Being Ill	Brainstorming
		3.2 Scheduling Conflicts	Interviews
		3.3 Outage	Brainstorming
		3.4 Holidays Period	Interviews
		3.5 Reexamination Period	Brainstorming

2. Probability and Impact Matrix



3. Risk Monitoring and Controlling

During the 7th iteration we encounter a few risks using different identification techniques as shown by the risk breakdown structure above. To overcome these threats one of these five strategies will be used:

Avoid	Accept	Escalate	Mitigate	Transfer

We also closed and updated some risks according to our current state of the project.

R 1.1 [Troubles learning Java FX] was closed since it was no longer applicable.

R 1.2 [Trouble with learning git] was closed since it was no longer applicable.

R 1.3 [Issues with git] was not changed.

R 1.4 [Spaghetti code] was not changed. The refactoring sessions are helping to maintain an organized structure.

R 2.1 [A student will not deliver the task on time] was closed since all the members have proven to be reliable.

R 2.2 [Unrealistic Deadlines] was changed to Medium Probability, Low Risk, since by this point, we've realized our mistakes and acknowledge our capabilities, thus, making it possible to set realistic expectations for the project.

R 2.3 [Management handoff] was closed since the handoff didn't affect the workflow of the team.

R 3.1 [A member being ill] was not changed.

R 3.3 [Scheduling conflicts] was changed to Medium Probability, Medium Risk since the Holiday/Re-examination period is getting closer

R 3.3 [Outage] was not changed.

R 3.4 [Holidays] was added as new High Probability, High Risk. We decided to mitigate this risk by increasing the workload slightly these next two weeks.

R 3.5 [Re-examination Period] was added as new High Probability, High Risk. We decided to mitigate this risk by increasing the workload slightly these next two weeks.

3.4.3 Monitor and Control

1. Meeting Minutes and member's feedback

Sunday, 18th of December 2022 (No mid-week update meeting)

Completed Tasks

- Created a back button and slider in the options menu.
- Highscore feature is complete with loading and saving functions working.
- The Leaderboard has a similar layout as the rest of the screens.
- Use cases we updated.
- Music and sound FX was implemented into the game.

Tasks to be completed

- The user manual is almost done. Rephrasing is needed.
- Bonus points when consuming prey.

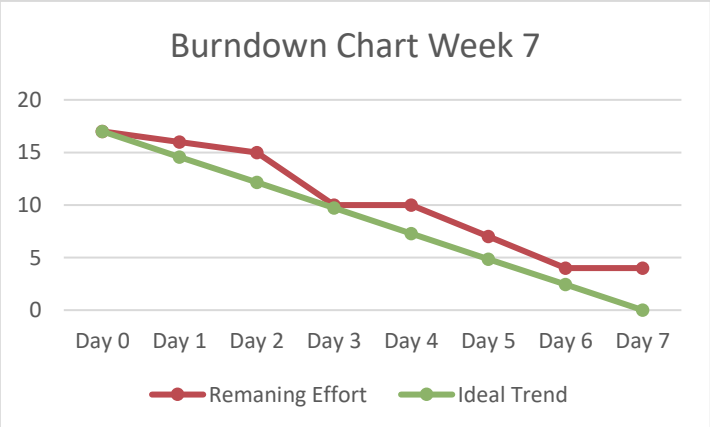
2. Schedule Tracker

Week	1	2	3	4	5	6	7
Ionel	−15	5	2	5	1	-4	0
Linh	0	0	0	2	4	0	1
Vilmer	−4	1	−4	2	0	-4	-5
Abdullahi	−1	0	−1	3	2	-5	-4
Deeba	−3	1	−2	1	−2	-4	-2
Piotr	−10	2	−12	4	2	-4	0
Henrik	−10	3	−3	3	−1	-4	-7

The negative trend from last week has continued into iteration 7. This is a direct result of a deadline in the UI/UX class. Additionally, sickness struck this week as Henrik fell ill toward the end of the iteration. As this week was the first week without any lectures, it has left a void in the amount of time we spend on this project.

3. Burndown Chart

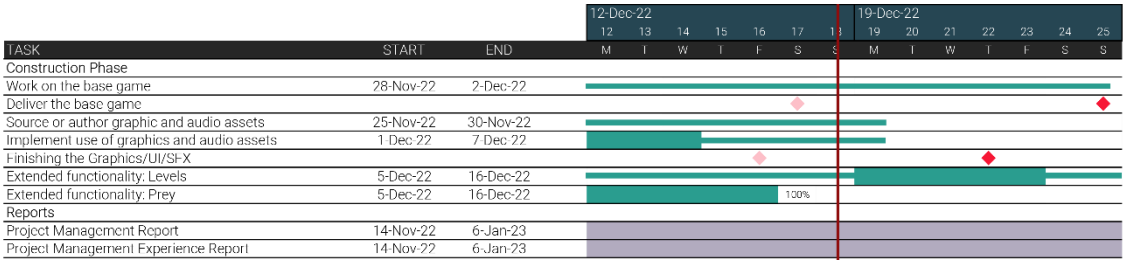
Burndown Chart Iteration 7								
User Stories	**Preliminary Estimation**	**12-Dec**	**13-Dec**	**14-Dec**	**15-Dec**	**16-Dec**	**17-Dec**	**18-Dec**
	Day 0	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Finish leaderboard layout	2		1	1				
Implement score system	1			1				
Refactoring the code	2	1			1			
JSON Implementation	2			1		1		
Create SoundManager class	1			-1		1	1	
Refactor Sound class	2			1		1		
Implement prey bonus	1					-1		
Implement 3 difficulties	2			1			1	
Implement Options Panel	1				-1			
Upgrade prey movement	1					1		
Writing User Manual	2			1			1	
Remaning Effort	17	16	15	10	10	7	4	4
Ideal Trend	17	14.57143	12.14286	9.714286	7.285714	4.857143	2.428571	0



For this iteration, we managed to finish the leaderboard layout and the score system which had been carried out from previous iterations. We also implemented the *SoundManager* class and the JSON reading/writing functionality. On the other hand, the “Options Menu” has had some troubles with its implementation.

Even though we did not manage to finish every task we established for this week, it will not affect the overall progress since we assigned more tasks to compensate for future obstacles that we might encounter.

4. Gantt Chart



Looking at the Gantt Chart we can see that we are on time with the updated version of our schedule. This week we managed to finish the prey mechanic, and we are ready to start working on the next extended feature. On the other hand, we decided to move the “Finishing the Graphics/UI/SFX” to next week as we realized that we would not be able to finish in this iteration. We also thought that we should leave it as a soft milestone since it is possible that we will still need to add more graphics and sounds during the Transition Phase.

3.4.4 Iteration Review

As stated in this week's iteration plan, group members had their hands full with both working on this project as well as an assignment for the UI&UX course. Thus, we decided to not to have a midweek or Friday meeting but left the group members to keep working on their parts and simply updating Linh, the group manager, on our progress.

We encountered several problems this week. Among them were long travel days with members leaving Göteborg for the holidays, illness, and as mentioned, working on a deadline for our other course. However, the current workflow and environment has proven to be very effective since even with little communication we are able to tackle and finish complex tasks together.

For next iterations, we agreed on not changing the current dynamic as we all think it is beneficial for the project and all the members.

In this iteration, the team focused on coding and documentation tasks and made progress on several key features of the game, including the scoring system, main menu, and leaderboard layout. They also worked on the user manual and implemented music and sound effects into the game. However, the implementation of the options menu faced some challenges and was not completed. The team also faced scheduling conflicts and a member falling ill, which may have impacted their progress. Overall, while the team made progress on important tasks, there may be some areas that need additional attention in order to meet their goals for the project.

3.5 Iteration 8

3.5.1 Increment Plans

Task/s	Member/s Assigned	Estimated Total Time	Actual Total Time	Status
Lectures / Individual Studying	All members	11 hours	11 hours	Done
Meetings	All members	4 hours	2 hours	Done
Work on the *User Manual*	Vilmer, Deeba	3 hours	4 hours	Done
Work on the *PMR* and *PMER*	Henrik, Ionel	4 hours	7 hours	Done
Update *Use Case* and *Context* Diagrams	Linh, Abdullahi	2 hours	2 hours	Done
Work on the *Options Menu*	Abdullahi	3 hours	4 hours	Continue next iteration
Implement bonus points for catching a *prey*	Vilmer	4 hours	4 hours	Done
Refactor the code	Piotr	5 hours	6 hours	Done
Task planning for current and next iterations	Piotr, Linh	1 hours	1 hours	Done
Come up with the final snake designs	Linh, Ionel	2 hours	3 hours	Done
Implement the *SoundManager* class	Linh	3 hours	4 hours	Done
Manage merge requests and merge conflicts	Piotr	2 hours	2 hours	Done
Implement pause button	Linh	2 hours	6 hours	Skipped
Estimated Total Iteration Time: 148 hours				

Total Budget Per Person: 20 hours	Total Iteration Budget: 140 hours

Notes:

- Since we managed to finish all the core coding parts for the project during the previous week, for this iteration we are going to focus on polishing and fixing some features as well as working on the documentation and making sure that the code fulfills the corresponding evaluation criteria.
- This week being the last week before our established break, we decided to work as much as possible so that we can compensate for the time lost during previous iterations.

3.5.2 Risk Management Plan

1. Risk Breakdown Structure

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2	RISK IDENTIFICATION TECHNIQUE USED
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Troubles learning JavaFX	Interviews
		1.2 Trouble with learning git	Interviews
		1.3 Issues with git, such as merge conflicts	Brainstorming
		1.4 Spaghetti code	Expert Judgement
	2. MANAGEMENT RISK	2.1 A Student Will Not Deliver The Task On Time	Brainstorming
		2.2 Unrealistic Deadlines	Expert Judgement
		2.3 Management handoff	Brainstorming
	3. EXTERNAL RISK	3.1 A Member Being Ill	Brainstorming
		3.2 Scheduling Conflicts	Interviews
		3.3 Outage	Brainstorming
		3.4 Holidays Period	Interviews
		3.5 Reexamination Period	Brainstorming

2. Probability and Impact Matrix

3. Risk Monitoring and Controlling

During the 8th iteration no changes were made to the risk management plan.

R 1.1 [Troubles learning Java FX] was not changed.

R 1.2 [Trouble with learning git] was not changed.

R 1.3 [Issues with git] was not changed.

R 1.4 [Spaghetti code] was not changed.

R 2.1 [A student will not deliver the task on time] was not changed.

R 2.2 [Unrealistic Deadlines] was not changed.

R 2.3 [Management handoff] was not changed.

R 3.1 [A member being ill] was not changed.

R 3.3 [Scheduling conflicts] was not changed.

R 3.3 [Outage] was not changed.

R 3.4 [Holidays] was not changed.

R 3.5 [Re-examination Period] was not changed.

3.5.3 Monitor and Control

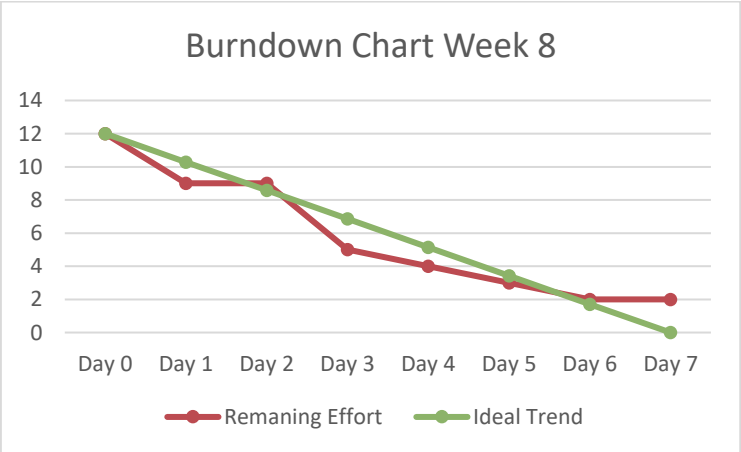
1. Schedule Tracker

Week	1	2	3	4	5	6	7	8
Ionel	−15	5	2	5	1	-4	0	-2
Linh	0	0	0	2	4	0	1	1
Vilmer	−4	1	−4	2	0	-4	-5	-6
Abdullahi	−1	0	−1	3	2	-5	-4	-6
Deeba	−3	1	−2	1	−2	-4	-2	-5
Piotr	−10	2	−12	4	2	-4	0	-5
Henrik	−10	3	−3	3	−1	-4	-7	-16

This is the first iteration without any lectures or any deadlines in parallel classes meaning that there was a lot of free time at hand. With Christmas just a few days away, we decided to get tasks done early in the iteration to leave room for celebrations towards the end. Unfortunately, Henrik's illness carried on from last iteration and this obviously put a spoke in his wheel.

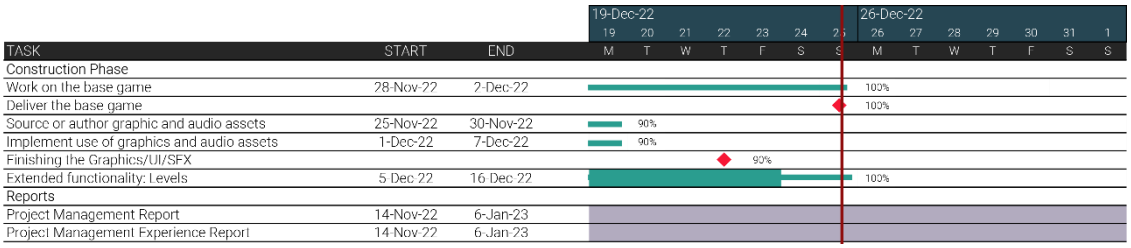
2. Burndown Chart

Burndown Chart Iteration 8								
User Stories	**Preliminary Estimation**	**19-Dec**	**20-Dec**	**21-Dec**	**22-Dec**	**23-Dec**	**24-Dec**	**25-Dec**
	Day 0	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Implement prey bonus	1			1				
Design snake's final sprites	1	1						
Update PMER	1	1						
Update SoundManager class	1				1			
Code pause function	1				-1			
Update user manual	2			1			1	
Fix snake movement	1	1						
Merge branches	1				1			
Refactoring	2			1		1		
Update diagrams	1			1				
Remaning Effort	12	9	9	5	4	3	2	2
Ideal Trend	12	10.28571	8.571429	6.857143	5.142857	3.428571	1.714286	0



For this iteration, all the tasks went as planned with the exception of the “Pause function”. However, we decided to skip this feature as it is not a fundamental part of the project. Other tasks such as implementing the prey bonus and designing the final snake sprites have been finished without any major trouble.

3. Gantt Chart



Looking at the Gantt Chart for this week, we can see that we finished all the tasks and achieved all the milestones planed. We decided to leave the audio and graphics tasks as 90% finished since we will probably add more sounds and designs during the last phase of the project.

3.5.4 Iteration Review

This week being the last one before the established break, was filled with challenges and tasks. However, our performance as a team was impeccable. This is greatly due to the ongoing dynamic that we have had for the past weeks. We constantly give feedback and communicate to other members about the progress of our tasks which facilitates our ability to achieve our deadlines and milestones.

Since at this point the project is around 90% finished, we are planning to not work on many tasks next week so that our members can spend time with their families during the holidays.

This iteration was a productive one for the team, as they were able to complete all tasks and milestones as planned. They focused on polishing and fixing features, as well as working on documentation to ensure that the code met the evaluation criteria. The team's strong communication and feedback practices contributed to their success. Despite some challenges, such as a member falling ill and scheduling conflicts, they were able to make progress on the project. It's good to see that the team is considering taking a break during the holiday season to spend time with their families and recharge. Taking breaks and managing workload is important for maintaining productivity and avoiding burnout.

3.6 Iteration 9

3.6.1 Increment Plans

Task/s	**Member/s Assigned**	**Estimated Total Time**	**Actual Total Time**	**Status**
Lectures / Individual Studying	All members	11 hours	11 hours	Done
Meetings	All members	4 hours	4 hours	Done

Work on the *User Manual*	Vilmer, Deeba	3 hours	4 hours	Done
Work on the *PMR* and *PMER*	Ionel	6 hours	11 hours	Done
Fix the *SoundManager* class	Piotr	1 hours	1 hours	Done
Work on the *Options Menu*	Abdullahi	3 hours	4 hours	Continue next week
Refactor the code and fix bugs	Linh, Piotr	3 hours	7 hours	Done
Estimated Total Iteration Time: 127 hours				
Total Budget Per Person: 20 hours		Total Iteration Budget: 140 hours		

Notes:

- Even though we are still in the Construction Phase, because of our progress so far has gone well, we decided to start working on some of the tasks for the Transition Phase. Also, since this week is defined as holiday break, we opted for specify a few tasks and any member can work on them if they have enough time to do that.

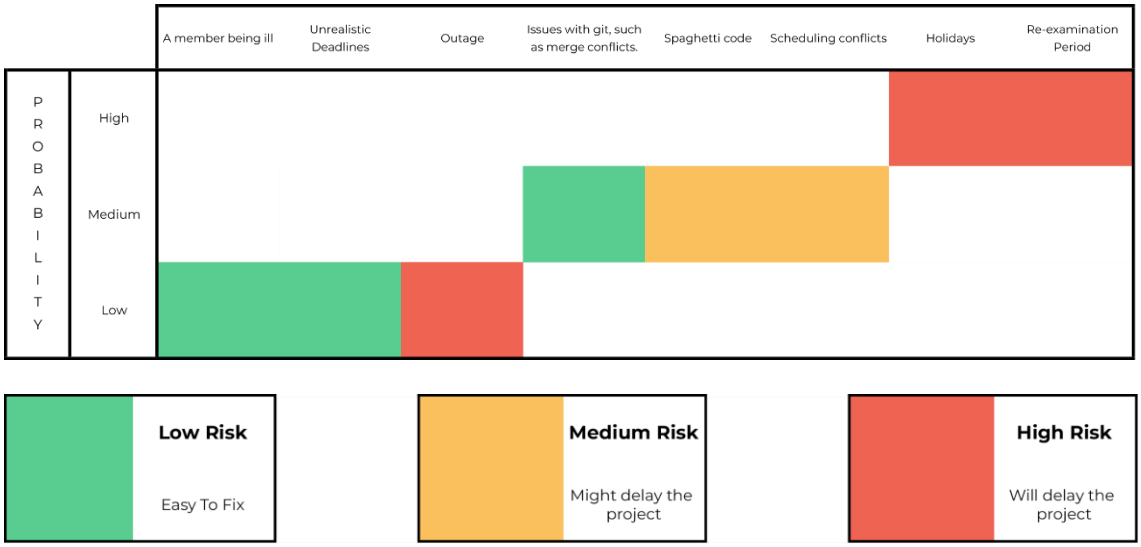
- Judging by our progress in the previous iterations we are in no rush, and we should still be on time to deliver the project if we take things slower this week.

3.6.2 Risk Management Plan

1. Risk Breakdown Structure

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2	RISK IDENTIFICATION TECHNIQUE USED
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Troubles learning JavaFX	Interviews
		1.2 Trouble with learning git	Interviews
		1.3 Issues with git, such as merge conflicts	Brainstorming
		1.4 Spaghetti code	Expert Judgement
	2. MANAGEMENT RISK	2.1 A Student Will Not Deliver The Task On Time	Brainstorming
		2.2 Unrealistic Deadlines	Expert Judgement
		2.3 Management handoff	Brainstorming
	3. EXTERNAL RISK	3.1 A Member Being Ill	Brainstorming
		3.2 Scheduling Conflicts	Interviews
		3.3 Outage	Brainstorming
		3.4 Holidays Period	Interviews
		3.5 Reexamination Period	Brainstorming

2. Probability and Impact Matrix



3. Risk Monitoring and Controlling

During the 9th iteration no changes were made to the risk management plan.

R 1.1 [Troubles learning Java FX] was not changed.

R 1.2 [Trouble with learning git] was not changed.

R 1.3 [Issues with git] was not changed.

R 1.4 [Spaghetti code] was not changed.

R 2.1 [A student will not deliver the task on time] was not changed.

R 2.2 [Unrealistic Deadlines] was not changed.

R 2.3 [Management handoff] was not changed.

R 3.1 [A member being ill] was not changed.

R 3.3 [Scheduling conflicts] was not changed.

R 3.3 [Outage] was not changed.

R 3.4 [Holidays] was not changed.

R 3.5 [Re-examination Period] was not changed.

3.6.3 Monitor and Control

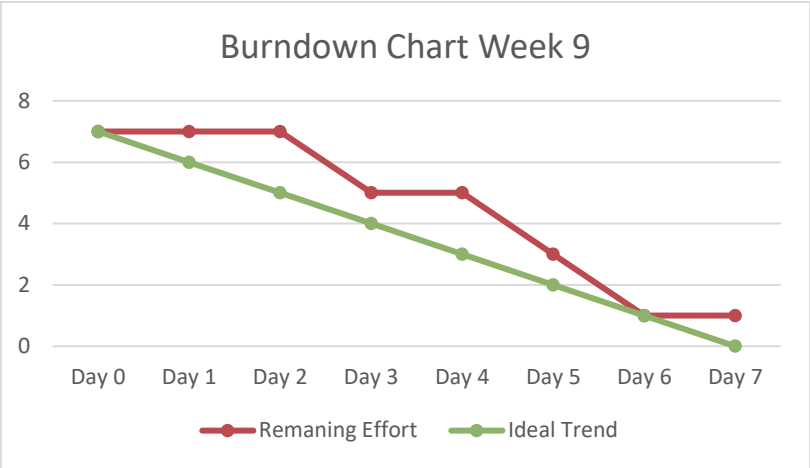
1. Schedule Tracker

Week	1	2	3	4	5	6	7	8	9
Ionel	−15	5	2	5	1	-4	0	-2	-8
Linh	0	0	0	2	4	0	1	1	-10
Vilmer	−4	1	−4	2	0	-4	-5	-6	-10
Abdullahi	−1	0	−1	3	2	-5	-4	-6	-14
Deeba	−3	1	−2	1	−2	-4	-2	-5	-14
Piotr	−10	2	−12	4	2	-4	0	-5	-11
Henrik	−10	3	−3	3	−1	-4	-7	-16	-12

As iteration 9 is the week we agreed to have our holiday and we are up to date with our Gantt chart, not many work hours were registered. This we see as normal.

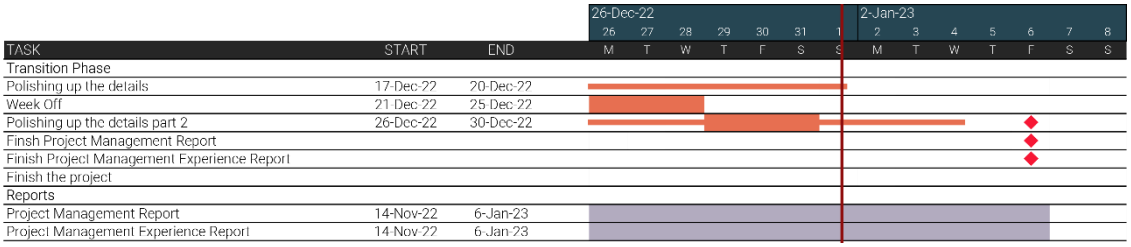
2. Burndown Chart

Burndown Chart Iteration 9								
User Stories	Preliminary Estimation	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec	31-Dec	1-Jan
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Fix leaderboard	1					1		
Fix the SoundManager	1					1		
Refactoring	2			1			1	
Implement Options Menu	1							
Fix PMR and PMER formatting	1						1	
Work on the User Manual	1			1				
Remaning Effort	7	7	7	5	5	3	1	1
Ideal Trend	7	6	5	4	3	2	1	0



As we can see we managed to finish almost every task established for this week. The only exception being the Options Menu which we are still unsure about how to implement it.

3. Gantt Chart



Judging by the Gantt Chart, we are up to date with the schedule. No major adjustments have been made since the previous iterations. This week we also started working on polishing up the details for the final submission since some of our members will not be able to work that much during the next week due to reexaminations.

3.6.4 Iteration Review

This week has been quite relaxed in comparison to the previous ones. This is due to the holiday break that we established since the beginning of the course. However, the project is going just as planned. Most of the features are finished by now and the only things remaining are finishing up the documentation and refactor a bit. All those tasks can be accomplished during the final phase of the project with no problem.

During the Construction Phase we encountered many challenges, but we managed to solve all the problems due a solid workflow and communication. We are right on track to start the Transition Phase next week.

This iteration was a relaxed one for the team, as they were able to take a holiday break as planned. Despite the reduced workload, they were still able to make progress on several tasks, including fixing the leaderboard, sound manager, and working on the PMR and PMER. They also started preparing for the final submission by polishing details and refactoring code. Overall, the team has had a productive and successful project so far, thanks to their strong communication and workflow. They are on track to move into the Transition Phase and complete the project on time. It will be important to continue these practices in the final phase of the project.

Section 4. Transition Phase

4.1 Iteration 10

4.1.1 Increment Plans

Task/s	**Member/s Assigned**	**Estimated Total Time**	**Actual Total Time**	**Status**
Meetings	All members	4 hours	2 hours	Done
Finish the *User Manual*	Vilmer, Deeba, and *AAM*[1]	3 hours	7 hours	Done
Work on the *PMR* and *PMER*	Ionel, Henrik, and *AAM*	6 hours	10 hours	Done
Update *Use Case* and *Context* diagrams	Linh	2 hours	3 hours	Done
Polish the graphics	Linh	1 hours	2 hours	Done
Work on the *Options Menu*	Linh, Ionel	5 hours	2 hours	Done
Refactor the code	Linh, Piotr, Ionel, and *AAM*	3 hours	5 hours	Done
Choose final sound effects	Ionel	1 hour	1 hour	Done
Work on the individual reflection report	Everyone	2 hours	2 hours	Done
Estimated Total Iteration Time: 83 hours				
Total Budget Per Person: 20 hours		Total Iteration Budget: 140 hours		

Notes:

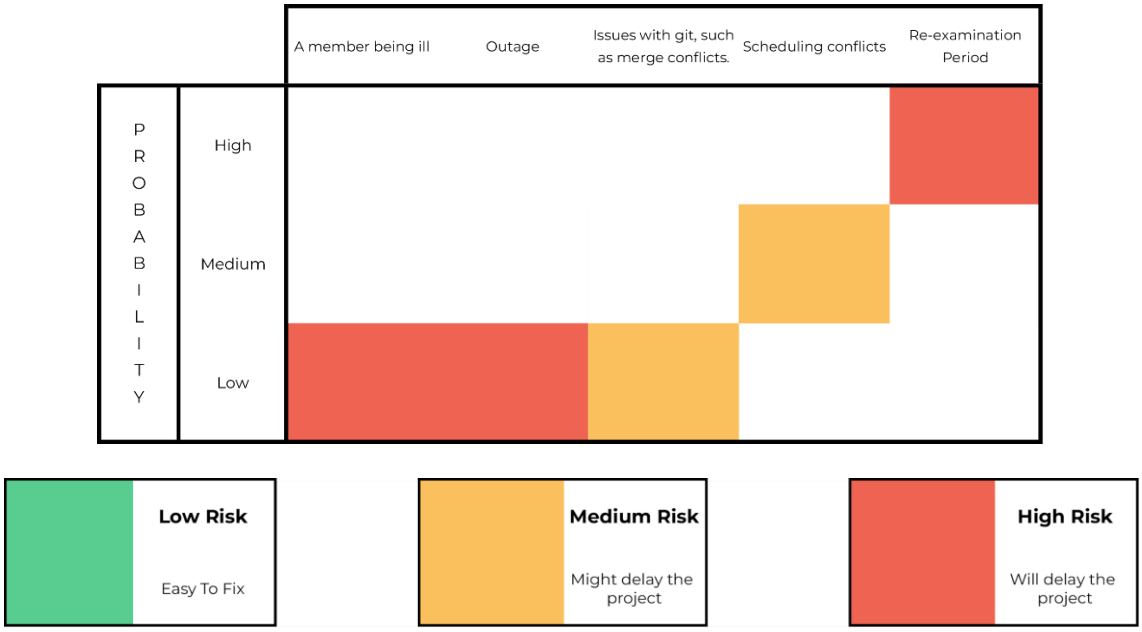
- During this final iteration of the project most of our members have a re-examination schedule. Therefore, we decided to assign very few specific tasks which the team can work on if they have enough time.
- 1: AAM stands for “Any Available Member”

4.1.2 Risk Management Plan

1. Risk Breakdown Structure

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2	RISK IDENTIFICATION TECHNIQUE USED
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Troubles learning JavaFX	Interviews
		1.2 Trouble with learning git	Interviews
		1.3 Issues with git, such as merge conflicts	Brainstorming
		1.4 Spaghetti code	Expert Judgement
	2. MANAGEMENT RISK	2.1 A Student Will Not Deliver The Task On Time	Brainstorming
		2.2 Unrealistic Deadlines	Expert Judgement
		2.3 Management handoff	Brainstorming
	3. EXTERNAL RISK	3.1 A Member Being Ill	Brainstorming
		3.2 Scheduling Conflicts	Interviews
		3.3 Outage	Brainstorming
		3.4 Holidays Period	Interviews
		3.5 Reexamination Period	Brainstorming

2. Probability and Impact Matrix



3. Risk Monitoring and Controlling

Tuesday, 3rd of January 2023

During the 10th iteration we decided to close and update some of the previous risks that we had in our risk management plan.

R 1.1 [Troubles learning Java FX] was not changed

R 1.2 [Trouble with learning git] was not changed

R 1.3 [Issues with git] was changed to Low Probability, Medium Risk since we are in a crucial state of the project.

R 1.4 [Spaghetti code] was closed since the team has managed to maintain a readable and organized code throughout all the iterations.

R 2.1 [A student will not deliver the task on time] was not changed

R 2.2 [Unrealistic Deadlines] was closed since this is the last iteration of the project.

R 2.3 [Management handoff] was not changed.

R 3.1 [A member being ill] was changed to Low Probability, High Risk since we are a in a crucial state of the project.

R 3.3 [Scheduling conflicts] was not changed.

R 3.3 [Outage] was not changed.

R 3.4 [Holidays] was closed since it was no longer applicable.

R 3.5 [Re-examination Period] was not changed.

Thursday, 5th of January 2023

After finishing the project all the risks were closed.

4.1.3 Monitor and Control

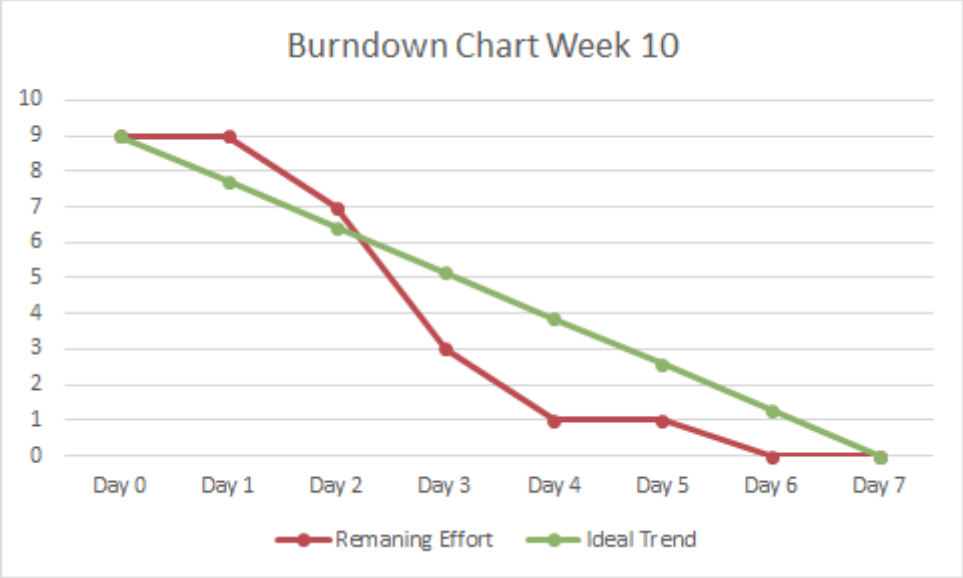
We head into the 10th and final iteration of this project full of confidence and a sense of determination. As we discussed at the inception of the project, a majority of the members had at least one reexamination this week. Therefore, we planned this into our schedule when laying out our Gannt chart. Everything has gone according to plan. Only a few smaller tasks remained. The following tasks were on the to-do list: updating the user manual to reflect changes in the game, updating PMER and PMR diagrams once the questionnaire results were in, updating the use case and context diagrams with the latest version of the game, worked on the option button, polishing the graphics, and refactoring and checking merge requests. When these tasks were completed, we had a presentable product and the relevant documentation to go with it.

1. Schedule Tracker

As most group members attended exams this week, and the fact that we had carefully planned out this last week from the start, we did not think that the schedule tracker was a relevant tool to show and control the work we did this final iteration. Everyone was assigned a task to complete, and some tasks were larger than others.

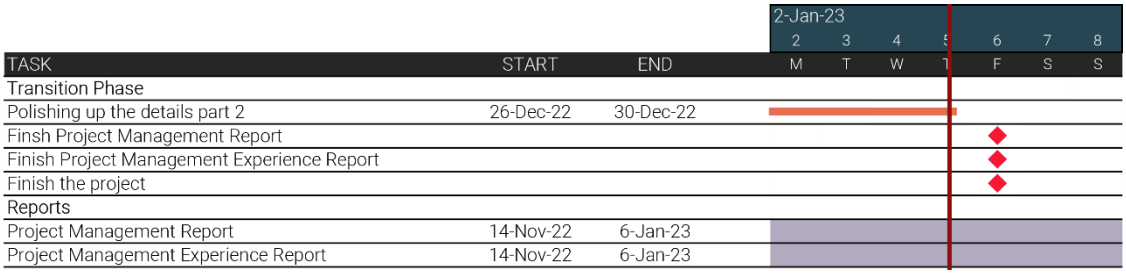
2. Burndown Chart

Burndown Chart Iteration 10								
User Stories	Preliminary Estimation	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan	7-Jan	8-Jan
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Finish the User Manual	1				1			
Finish the PMR and PMER	2		1	1				
Finish the diagrams	1			1				
Polish the graphics	1			1				
Finish the Options Menu	1			1				
Refactor and coment the code	2		1		1			
Finish sound effects and UI	1			1			1	
Remaning Effort	9	9	7	3	1	1	0	0
Ideal Trend	9	7.714286	6.428571	5.142857	3.857143	2.571429	1.285714	0



All the tasks were finished according to the plan.

3. Gantt Chart



According to the chart we can see that we sticked to our final plan without delays.

4.1.4 Iteration Review

Overall, the 10th and final iteration of this project was a success. Despite the challenges posed by the reexamination period for many team members, we were able to complete all of the tasks on our to-do list, including updating the user manual, PMER and PMR diagrams, use case and context diagrams, and working on the options menu, graphics, and code refactoring. Thanks to careful planning and efficient execution, we were able to deliver a presentable product with all the necessary documentation. Moving forward, we move our focus to preparing for our interviews as well as our presentation.