Peer Assessment 1

Evaluation	Group Number: 2			
Name	Contribution to team-working and motivation[1]	Contribution to PDF Report 1 [1,2]	Contribution to the Interim Game Demo Video[1,2]	**Peer Score** (Range 85 – 115) **You must fill this in as well as the other columns.**
Jane Doe [Example only - you may overwrite this row!]	*4*	*3*	*1*	*90*
Nathan Watkins	4	2	5	108
Peter Robinson	4	5	2	110
Kal Worthington	4	2	4	105
Curtis McCartney	4	3	2	107
Isaac Edmonds	5	5	2	110
Antons Bogdanovs	5	3	2	106

[1]Values for contribution: 1 = Minimal Contribution; 2 = Reasonable Contribution; 3 = Good Contribution; 4 = Very Good Contribution;
5 = Excellent Contribution

[2]This value should consider contributions in the round – direct contributions this semester to required deliverables, and contributions this semester that have made the deliverables possible.

Declaration

"I declare that I have read the Queen's University regulations on plagiarism, and that any contribution I have made to the attached submission is my own original work, except for any elements that I have clearly attributed to third parties. I understand that this submission will be subject to an electronic test for plagiarism and will also be subject to the University's regulations concerning late submission if it is received after the deadline."

Name	Date	Confirmation *(use the words shown in the example below!)*
Nathan Watkins	27/11/2024	I agree to the terms of the declaration
Peter Robinson	27/11/2024	I agree to the terms of the declaration
Kal Worthington	27/11/2024	I agree to the terms of the declaration
Curtis McCartney	27/11/2024	I agree to the terms of the declaration
Isaac Edmonds	27/11/2024	I agree to the terms of the declaration
Antons Bogdanovs	27/11/2024	I agree to the terms of the declaration

Personal Statements

Personal statement of (enter name):	*Nathan Watkins*
The following were my most significant contributions to the Semester 1 Deliverable (100 words or less):	
One of my most significant contributions was designing and coding the GUI of the game in java swing using NetBeans. This will give our team a good start next semester when we start to code the backend. I also worked with Kal to create the PowerPoint presentation used for the game demo video, where I then personally edited it together, ready for submission.	

Personal statement of (enter name):	*Peter Robinson*
The following were my most significant contributions to the Semester 1 Deliverable (100 words or less):	
Contributed to the design phase by writing detailed use case descriptions and illustrating the use case diagram using draw.io. Additionally collaborated with Curtis to illustrate the sequence diagrams and writing commentaries for diagrams 4,5,6. These documents showcase how tasks will be handled in the game and will serve as a blueprint for the game's coding phase.	

Personal statement of (enter name):	*Kal Worthington*
The following were my most significant contributions to the Semester 1 Deliverable (100 words or less):	
My most significant contribution to the project was the draft game layout. I created the board layout and the design for pop-ups on event squares. I looked at some design elements e.g. game pieces, backgrounds, UI design. I did research on the problems and evaluated solutions. I shortened the problem statement and added images. I added commentaries for use case diagrams and created half of the game demo presentation.	

Personal statement of (enter name):	*Curtis McCartney*
The following were my most significant contributions to the Semester 1 Deliverable (100 words or less):	
During this semester, my most significant contributions have been to the overall solution for our project, and taking on half of the sequence diagrams needed to describe the use-cases of this project, sharing this work equally with Peter. This also included writing the commentaries for the first 3 sequence diagrams outlined in this report. I also supported Peter on his work on the Use-Case diagram and Use-Case descriptions, ensuring they relate to our final idea for the board game over many rewrites of game rules and ideas.	

Personal statement of (enter name):	*Isaac Edmonds*
The following were my most significant contributions to the Semester 1 Deliverable (100 words or less):	

During semester 1 I focused on better outlining the problem that the team agreed on, completing the Problem Statement and Proposed Solution. I researched the consequences of potholes on a developing economy and looked for solutions to similar problems that had been implemented elsewhere, helping to put the team's goal in writing. I then worked with Antons to develop a detailed UML Class Diagram and design the overall layout of the system, writing commentary to the PDF Report to summarise the gamified solution's design.

Personal statement of (enter name):	*Antons Bogdanovs*
The following were my most significant contributions to the Semester 1 Deliverable (100 words or less):	
I've been working closely with Isaac to research and design the UML Class diagram for our solution and working with him to write the Commentary on it, in addition to this I have been assisting the other team members with carrying out research on pothole problem in Maker's Valley and coming up with solutions. I have also assisted in the creation of the board game, helping decide on the final game mechanics and conducting research on how to make the board game engaging.	

Real-world problem and proposed solution

[Principal: I.E] [Support: K.W]

The quality of roads is important to an economically developing area; infrastructure facilitates the efficient transport of both people and goods. Problems arise, then, when the quality and general state of infrastructure falls, and damage from the elements is left to accrue over time due to lack of maintenance. This is an issue that Makers Valley faces with its roads currently.

- Potholes are common in many roads and can cause damage to vehicles and danger to drivers. Regular commutes can become extremely hazardous, especially at night.
- According to Discovery Insure, one of the founders of Johannesburg's Pothole Patrol, potholes caused over R650 million (~£28.5 million GBP) in vehicle damages in 2021 alone[1]. Vehicle repairs are costly for drivers and have a social impact of reducing standard of living. Additional expenses mean less money to spend.
- Additionally, increased vehicle damage increases costs for insurance companies and makes investment in the areas with low quality infrastructure much less attractive, slowing down economic development dramatically.
- Vehicles then must drive slower to avoid this damage over unsafe streets which reduces the efficiency of the vehicle, thus leading to more fuel consumption and pollution. Some potholes can make certain roads untraversable.
- An example of the impact of untraversable roads, while not being a pothole, is the big hole on Derby Road in Maker's Valley, which is the result of pipework underneath the road not being repaired. This road is practically untraversable in one direction due to the hole. This significantly reduces the throughput of the road, slows down movement, and can also lead to drivers taking longer, alternative routes. Potholes of significant sizes can also cause these sorts of blockades on roads.

The large hole on Derby Rd. (Image: Google Maps)

- The Pothole Patrol, founded by City of Johannesburg, Avis, and Discovery Insure have been working to fill potholes across Johannesburg, filling in over 50,000 since 2021[1].
- However, the sheer number (and size) of potholes still left in Maker's Valley is evidence that there is still a problem. The people of Maker's Valley previously went out to try and fix these potholes in their local community themselves but were prevented from doing so by the city, even on minor damages to the road. They did not have training and the people who filled in the potholes would be liable for any damages caused by incorrect repair on the road.

Each member of our team has conducted research on potholes in Maker's Valley. Our solution is a result of every member's voice being heard and multiple discussions on how best we can help the people of Maker's Valley fix their roads. The overall build-up to forming our solution has been summarised below.

- A solution including specialist equipment and personnel could repair many of the roads in Maker's Valley to a very high quality, however the main problem with this solution is the procurement of funding for these expensive specialised methods, especially over an extended period.
- Looking at solutions to similar problems elsewhere, the Devon County Council in England trained volunteers in 2016 to help fill minor potholes due to budget cuts reducing the council's ability to fill in minor potholes themselves[2]. After a trial in 5 parishes, these 'Road Wardens' filled in over 200 potholes with a roadwork material from Instarmac, and the initiative is still running as of the writing of this document.

Road Warden pothole filling trials. (Image: Devon County Council)

- Larger potholes require specialist equipment to fill in safely and permanently, and it would be unfeasible to train people up to the level of professional road workers due to costs.

Inspired by the volunteering idea, our solution seeks to partner with the Pothole Patrol to bring in trained professional staff from the patrol to train volunteers from Maker's Valley in how to correctly fill in the smaller potholes and maintain the streets of their community.

- As described in the problem statement earlier, the community is willing to fix these potholes, meaning the gathering of volunteers will not be difficult.
- This will lift pressure off the Pothole Patrol and allow them to focus on larger, more demanding potholes that require specialist equipment and cannot be filled by our volunteers.

A small pothole on Millbourn Rd. that could be filled with cold asphalt. (Image: Google Maps)

- We seek to train the volunteers from Makers Valley in how to use a typical cold asphalt mix to fill in smaller potholes.
- Over time we will see the streets of Makers Valley become safer, less damaging places to drive. This will remove a big roadblock on the development of the minibus taxi service and allow greater transportation and connectivity within the community.

An abstracted, gamified representation of our solution will be developed to show how we can overtime teach volunteers from Maker's Valley to help repair their roads and create a safer space to travel.

Gamification of the real-world problem (use cases)

Use case descriptions

[Principal: P.R.] [Support: C.S.M.]

Below are a set of descriptions of our **most significant use cases** for the game:

1. Start Game Setup & Player Introduction

Flow of Events for the *Start Game Setup & Player Introduction* use-case	
Objective	Familiarise all Players with the game rules and initiate the game with random potholes on the board.
Precondition	All Players are present, and the game has been launched.
Main Flow	1. The Game System plays a tutorial showing Players how to fix potholes. 2. Players are guided through the rules, including movement and resource management. 3. Each Player rolls a die to determine playing order; the highest number goes first. 4. Players are placed at opposite corners of the grid. 5. A random number of small potholes (e.g. 4) are generated on the grid.
Alternative Flows	N/A
Post-condition	All Players are ready to play, and the initial game state is set with Players in position and potholes on the board.

2. Resolve End of Round

Flow of Events for the *Resolve End of Round* use-case	
Objective	Handle the end-of-round conditions, preparing for the next round.
Precondition	All Players have completed their turn for the round.
Main Flow	1. The Game System verifies that all Players have completed their actions for the round. 2. The Game System applies any round-based events, such as: a. Any unrepaired potholes increase in size. For example: i. Small → Medium ii. Medium → Large b. New potholes may randomly appear on the grid: i. The Game System checks if any new potholes will be added based on predefined randomness (e.g., a generated number)
Alternative Flows	• At 2, if there are no unrepaired potholes, a winner is declared, and the game concludes – **`extension point: Declare Game Winner.`** • At 2, if new potholes are to be added, they appear randomly on the grid as small potholes. • At 2, if no new potholes are added, Players continue with the existing grid state.
Post-condition	The game state is updated for the next round, with existing potholes growing larger, and new potholes potentially appearing.

3. Declare Game Winner

Flow of Events for the *Declare Game Winner* use-case	
Objective	Declare a winner when a Player reaches the target score or when all Potholes have been repaired.
Precondition	• A Player's score is close or past the winning threshold (e.g., 50 points), or there are no more potholes left on the board. • The Game System checks the Player's score and the state of the board at the end of each round.
Main Flow	1. Pause the game. 2. Announce the Player as "King of Makers Valley." 3. Display a summary of notable accomplishments (e.g., key pothole repairs)
Alternative Flows	At 2, if all potholes were repaired before someone crossed the threshold, declare the Player with the most points as the winner.
Post-condition	The game concludes with a clear winner, and the final scores are displayed.

4. Display Player Score

Flow of Events for the *Display Player Score* use-case	
Objective	Display the Player's score after updating it based on the actions they complete during their turn, particularly after repairing potholes, or gaining knowledge or resources.
Precondition	The Player has taken a turn and completed an action that affects their score (e.g., repairing a pothole).
Main Flow	1. The Game System calculates the points gained from the completed action. 2. The Game System updates the Player's score. 3. The Game System sends the updated score to the game interface. 4. The updated score is displayed to the Player on the game interface.
Alternative Flows	N/A
Post-condition	• The Player's score is accurately updated and reflects any points gained during the turn. • The updated score is displayed on the game interface, providing immediate feedback to the Player.

5. Move Player

Flow of Events for the *Move Player* use-case	
Objective	Allow a Player to move across the grid and potentially repair potholes and advance knowledge to gain points.
Precondition	It's the Player's turn.
Main Flow	1. The Player initiates a dice roll. 2. The Game System generates a random number (based on the dice roll) to determine movement. 3. The Game System displays the result to the Player. 4. The Player moves horizontally or vertically, respecting the number rolled.
Alternative Flows	1. If all Players have completed a turn – **`extension point: Resolve End of Round`** 2. At 4, if the Player lands on a Knowledge square – **`extension point: Encounter Knowledge`** 3. At 4, if the Player lands on a Pothole square – **`extension point: Encounter Pothole`** 4. At 4, if the Player lands on a Resource square – **`extension point: Encounter Resource`**
Post-condition	The Player's turn ends, with points updated.

6. Encounter Pothole

Flow of Events for the *Encounter Pothole* use-case	
Objective	Allow the Player to encounter a pothole on the board and decide whether to repair it using their materials to earn Satisfaction points.
Precondition	• The Player has landed on a square with a pothole during their turn. • The Player has a certain number of materials available for repairs.

Main Flow	1. The Game System detects that the Player has landed on a Pothole square and displays the pothole's size (e.g., small, medium, or large).
	2. The Game System shows the Player an option to repair the pothole along with the material cost and points that would be earned:
	  ○ **Small Pothole**: Costs 1 material, awards 1 point.
	  ○ **Medium Pothole**: Costs 2 materials, awards 3 points.
	  ○ **Large Pothole**: Costs 3 materials, awards 5 points.
	3. The Player chooses whether to enact a repair.

Alternative Flows	• At 3, if the Player does not have enough resources to repair the encountered pothole, the Game System displays an error message. Then, the Player skips the repair and ends their turn. • At 3, if the Player wants to conserve resources for a future opportunity, they skip the repair and end their turn. • At 3, if the Player enacts the repair, the Game System deducts the required materials from the Player's inventory and updates their score.
Post-condition	• The Player's score and material count are updated based on their choice. • The encounter concludes, allowing the game to proceed with the next turn or action in the game loop.

7. Encounter Knowledge

Flow of Events for the *Encounter Knowledge* use-case	
Objective	Allow the Player to answer a question based on their existing knowledge for points.
Precondition	The Player has landed on a Knowledge square.
Main Flow	1. The Game System detects that the Player has landed on a Knowledge square. 2. The Game System presents a multiple-choice or true/false question to the Player, relevant to the game's themes. 3. The Player selects their answer within a set time limit. 4. The Game System evaluates the Player's response.
Alternative Flows	• At 2, if the Player decides to exit the question screen without answering, the Game System cancels the question attempt, and the Player receives no points. • At 4, if correct, the Player is awarded a set number of extra Knowledge points, which are added to their score. • At 4, if incorrect, the Player receives the regular number of Knowledge points, and feedback with the correct answer is displayed for learning purposes.
Post-condition	The Player's score is updated based on the answer received, and their turn proceeds, potentially with a better understanding of the topic from the feedback provided.

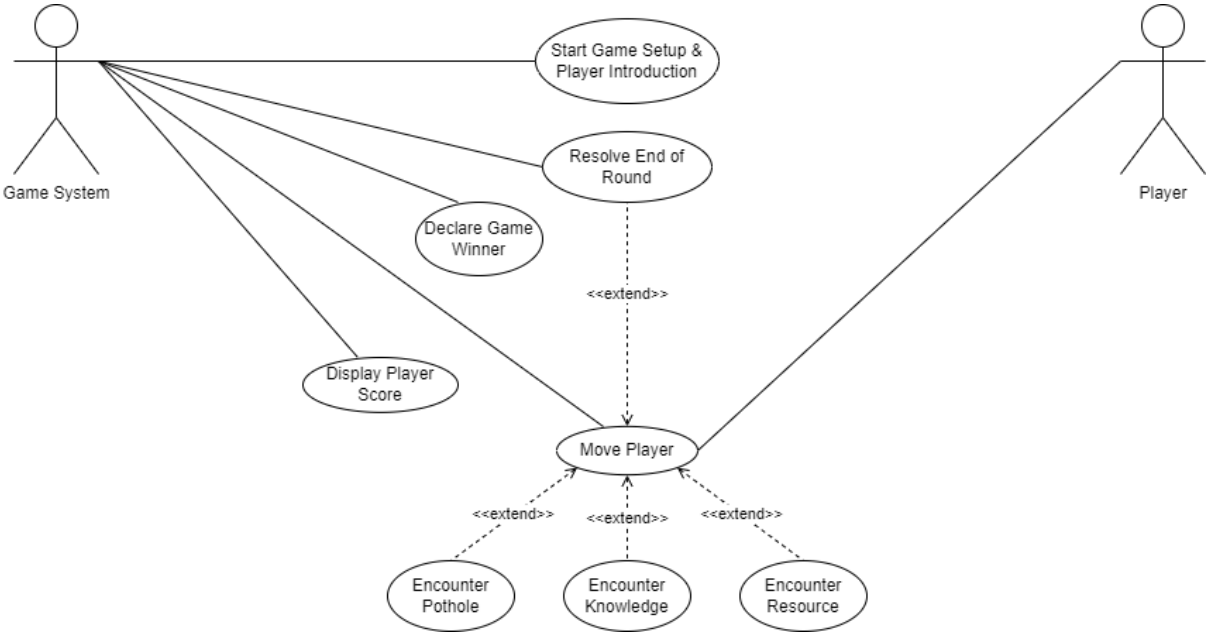
8. Encounter Resource

Flow of Events for the *Encounter Resource* use-case	
Objective	Allow the Player to replenish their materials by landing on a Resource square, with the quantity of materials received based on their accumulated knowledge points.
Precondition	• The Player has landed on a Resource square during their turn. • The Player has an existing score of knowledge points (tracked by the system) to determine the number of materials they will receive.
Main Flow	1. The Game System detects that the Player has landed on a Resource square and displays a notification of the event. 2. The Game System calculates the number of materials to be awarded to the Player based on their current knowledge points: a. **Low Knowledge** (0–5 points): 1 material awarded. b. **Moderate Knowledge** (6–10 points): 2 materials awarded. c. **High Knowledge** (11+ points): 3 materials awarded. 3. The Player's material inventory is updated by adding the awarded materials. 4. The Game System displays the updated material count to the Player. 5. The Player is notified of the quantity of materials they received and reminded that knowledge points improve material rewards.
Alternative Flows	N/A
Post-condition	• The Player's material inventory is replenished based on their knowledge points. • The encounter concludes, allowing the game to proceed with the next turn or action in the game loop.

UML use case diagram

[Principal: P.R.] [Support: C.S.M.]

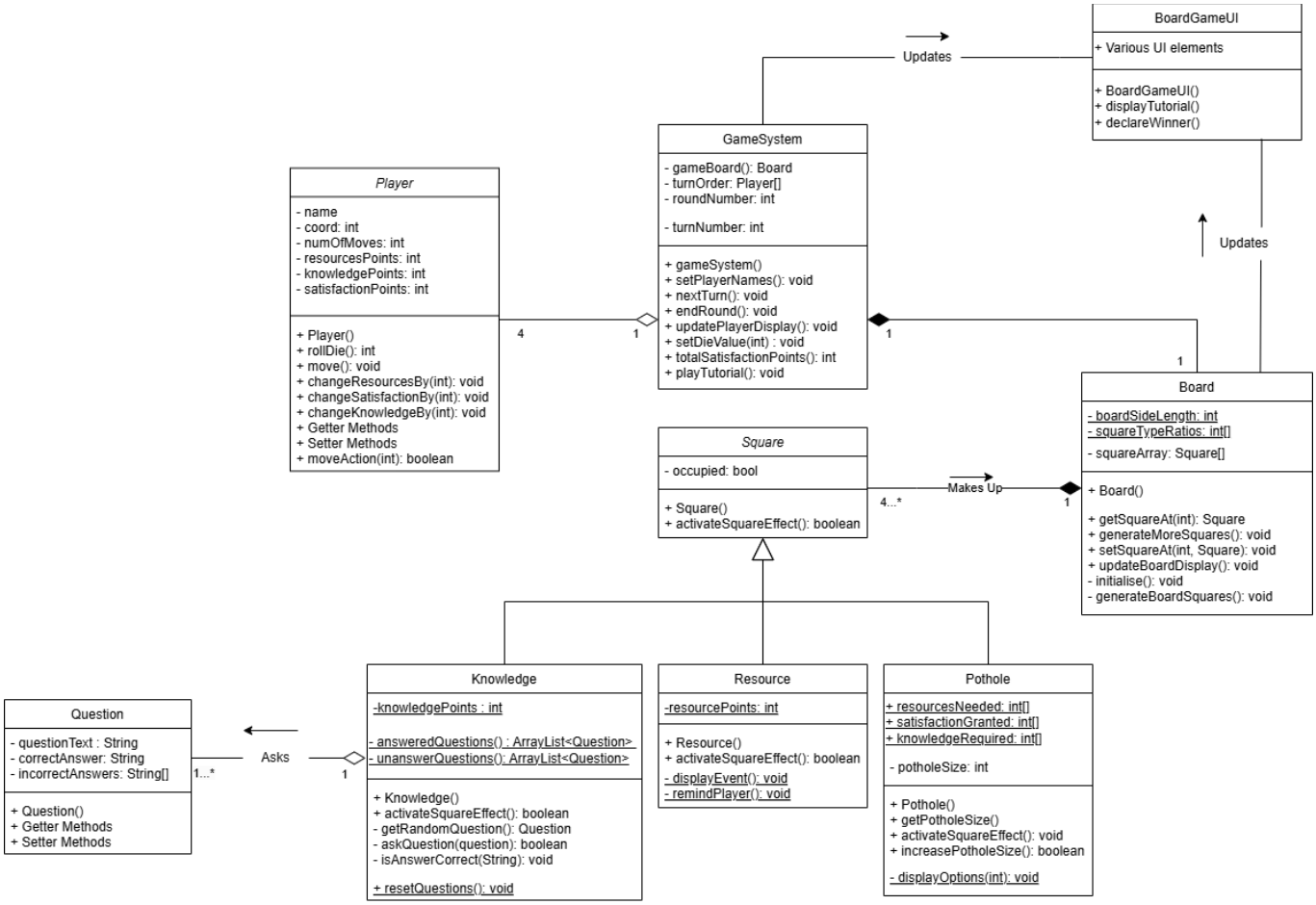
Below is our diagram showing the **most significant use cases** that we propose for our game. The diagram illustrates the primary interactions within the game system, focusing on the Player's journey and key game functionalities. It provides a clear, structured representation of the system's use cases and their relationships:



System Analysis for the Game

Initial UML Class Diagram

[Principal: I.E., A.B.]



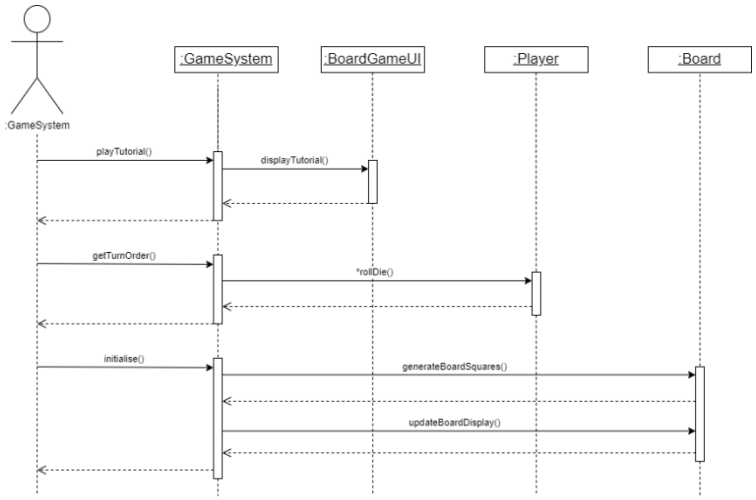
The main 3 objects in the gamified solution are Players, the Board, and the Squares composing the board. Because of this, the Square and Board classes naturally have a composite relationship. A central GameSystem class was created to manage communication between the Players and the Board and to display information via a UI class (BoardGameUI). This separate BoardGameUI class abstracts most of the UI implementation from the rest of the design. GameSystem has a composite relationship with Board as it needs a Board to function.

Three subclasses inherit from Square, the resource, knowledge and pothole classes, which represent the different types of squares that the players can land on. The Knowledge class has an aggregate relationship with a Question class to provide a more convenient implementation of asking random questions to the players.

Use case realisations/UML sequence diagrams

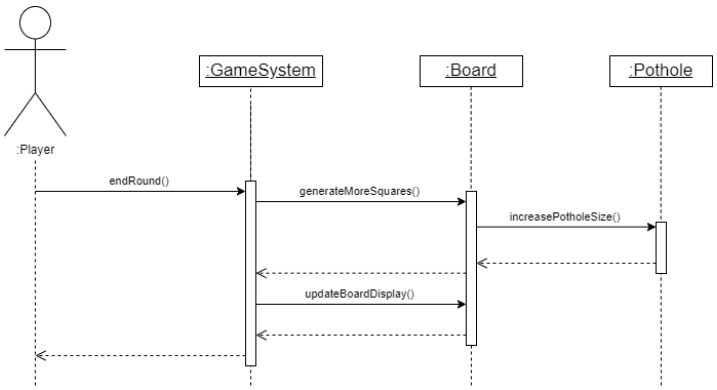
[Principal: P.R., C.S.M.] [Support: K.W.]

1. Start Game Setup & Player Introduction



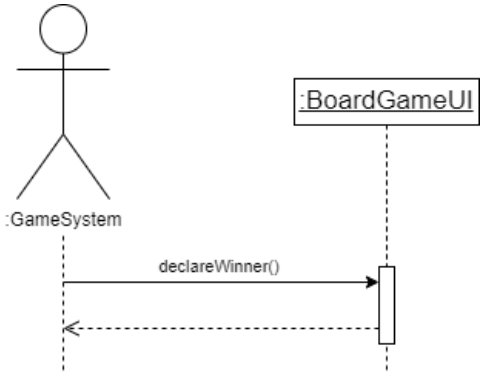
This sequence diagram takes all players through a shared tutorial, makes all players roll a die individually to get their turn order based on a descending order of results from rolling the die. It then initialises the board and each player to the default values and generates the first set of squares on the board to start off the game.

2. Resolve End of Round



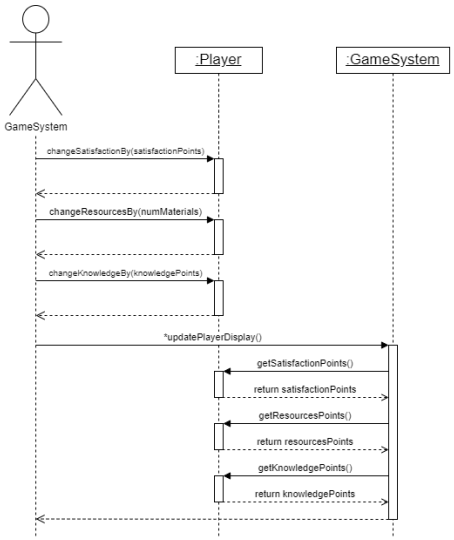
At the end of the round (after all players have had their turn), generate new squares on the board and increase the size of any potholes that haven't been repaired yet.

3. Declare Game Winner



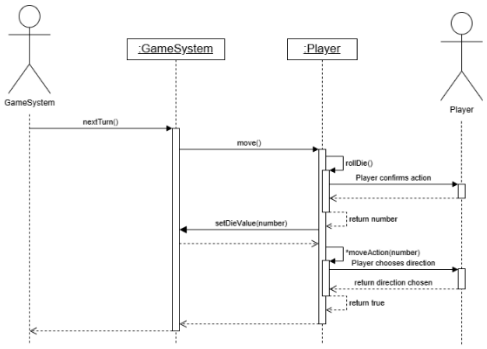
Once a player has reached a win condition, the UI will correctly respond to this information with a pop-up showing who is the winner.

4. Display Player Score



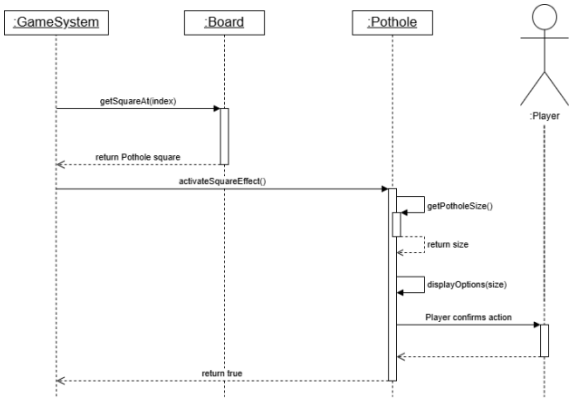
After a Player completes their turn, the Game System updates the Player's inventory using the change methods (changeSatisfactionBy, changeResourcesBy, changeKnowledgeBy). It then calls updatePlayerDisplay to reflect these updates on the game interface. The Game System retrieves the updated satisfaction, resources, and knowledge points using the respective get methods. These values are displayed to the Player, ensuring their score is updated in real-time. This provides immediate feedback based on the Player's actions during their turn.

5. Move Player



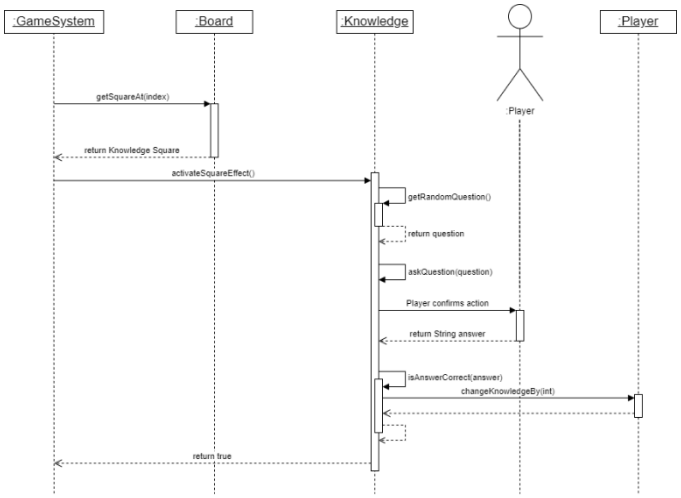
For each turn, the Game System moves the Player on the board. First, the Player is asked to roll a die. The result is reflected in the game interface by the setDieValue method. The player then moves a set number of times, each time choosing the desired direction (up, down, left, right). The moveAction method returns true if no obstacles are encountered e.g. reaching the edge of the grid.

6. Encounter Pothole



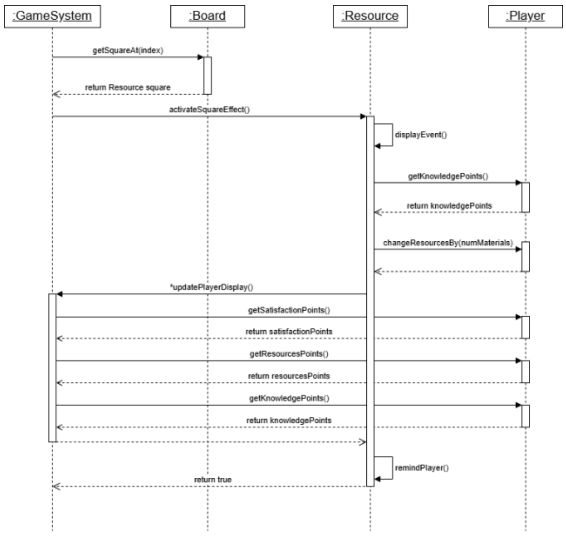
Once a player has landed on a Pothole square, the Game System retrieves the Pothole instance, which is then assessed. The Player is given information to act upon, including the current pothole's size and whether they'd like to repair the pothole or conserve materials for a future opportunity. The activateSquareEffect method returns true if everything functions as expected.

7. Encounter Knowledge



When the player lands on a Knowledge square, the Game System retrieves the Knowledge instance, which gets a random question and asks it to the player. If the player enters the correct answer, this instance of the player will have its knowledge changed by a predetermined value.

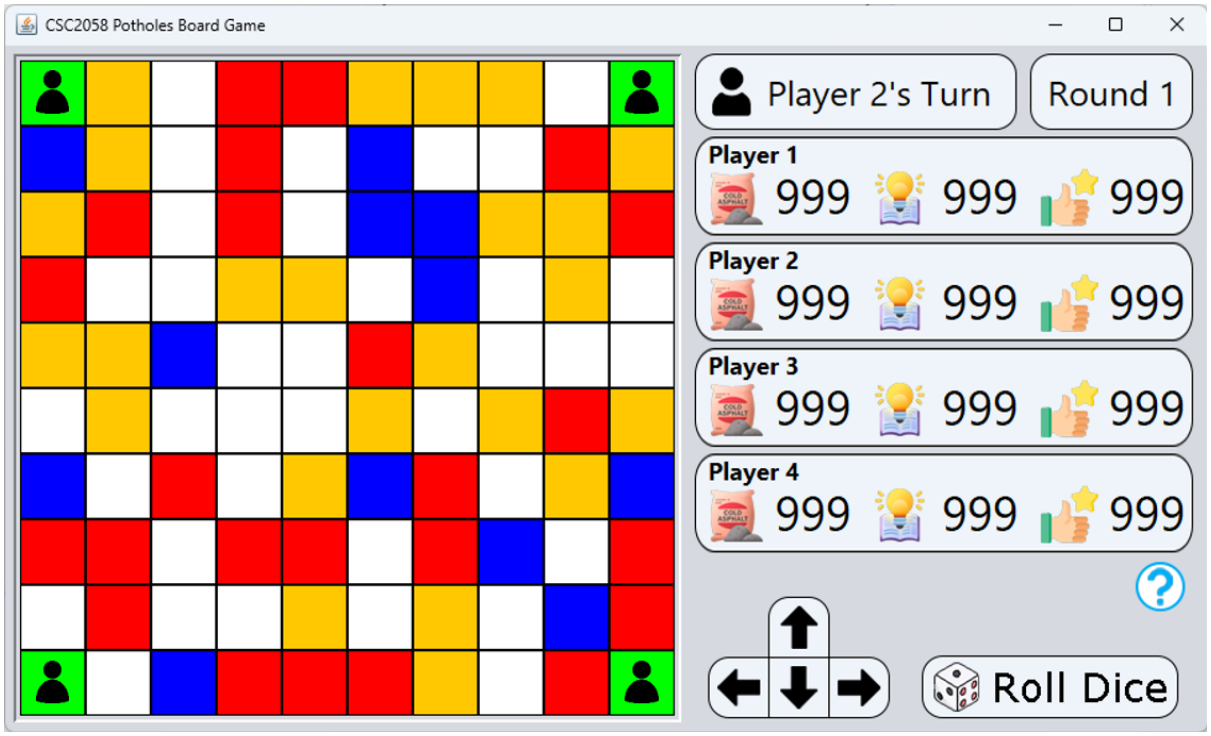
8. Encounter Resource



When a player lands on a resource square, the Game System retrieves the resource instance which displays context to the player and increases their resources dependent on their Knowledge. The Game System then retrieves this player's satisfaction, resources and knowledge and displays it to the player.

Draft game layout

[Principal: N.W, K.W]



Example 10x10 board (red represents Pothole, blue represents Knowledge, orange represents Resource and green represents Spawn). As players are free to move in the 4 cardinal directions, there is no square flow.

Square 4C **Knowledge Square** Q: X? 1. A 2. B 3. C 4. D	**Square 1D** **Small/Medium/Large Pothole** Age: x Days Knowledge to Repair: y Cost to Repair: z Resource A damaged part of road which could cause issues for road users.	**Square 15A** **Spawn Square** Player: X Free Parking. You're safe here. You can view the opening tutorial from this square.	**Square 3F** **Empty Square** A sign of good work. A pothole or knowledge square can develop on this square. You can view your resources here or plan your next move.

References (Appendix)

[1] - According to Discovery Insure, over R650 million in vehicle damage caused by potholes in South Africa in 2021 alone. Since the Pothole Patrol initiative was launched over 50,000 potholes have been repaired in Johannesburg. - https://www.discovery.co.za/corporate/good-driving-pothole-patrol-driving-change

[2] - Devon County Council's initiative to have volunteer Road Wardens fix minor potholes - https://www.transport-network.co.uk/Council-uses-volunteers-to-fill-in-potholes-citing-cuts/13368

Team Minutes (Appendix)

October 2nd 2024

Location (Room No. and/or Teams): CSB 01/020

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	R	NW
Peter Robinson	R	PR
Curtis McCartney	R	CSM
Isaac Edmonds	R	IE

Task Reporting

N/A - Week 1, following week deliverables discussed instead.

Actions Planned

Peter:

- Conduct further research on the **Transport** challenge area and come up with solution/s and read the relevant case studies.

Isaac:

- Research the **Energy** challenge area and come up with solution/s and read the relevant case studies.

Nathan:

- Research the **Digital** challenge area and come up with solution/s and read the relevant case studies.

Curtis:

- Research the **Food** challenge area and come up with solution/s and read the relevant case studies.

Kal & Antons:

- Not Present, will discuss actions during the week.

Obstacles

All Team Members:

- O.K

October 7th 2024

Location (Room No. and/or Teams): Teams

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	T	NW
Peter Robinson	T	PR
Kal Worthington	T	KW
Curtis McCartney	T	CSM
Isaac Edmonds	T	IE
Antons Bogdanovs	T	AB

Task Reporting

Nathan:

- Researched into the digital challenge area and found no worthwhile solutions.

Peter:

- Researched case studies relevant to Transport - Stefan Neubig and James Mason (Sonnenglas), Christinah Ngoy & Desiree Beukes.
- Also researched case study for Chidi Maponya and Innocent Jiyane.
- No new Transport solutions derived. Didn't research further into the Transport challenge area itself; was focusing on an assignment for CSC2065.

Curtis:

- Researched into the food problems and possible solutions.

Isaac:

- Looked into the issues surrounding energy infrastructure in Johannesburg
- Formulated a basic solution outline to help keep places powered using batteries during power cuts

Kal & Antons:

- No tasks were discussed for Antons in the previous meeting.

Actions Planned

Nathan:

- Create GitLab repository when workspace is made available.

Curtis:

- Look into how extra power will benefit farmers and the people's pantry.

Isaac:

- Create a skeleton of the PDF report to guide future work in the coming weeks.

Peter, Antons & Kal:

- No actions planned.

Obstacles

All Team Members:

- O.K

October 9th 2024

Location (Room No. and/or Teams): CSB 01/020

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	R	NW
Peter Robinson	R	PR
Kal Worthington	R	KW
Curtis McCartney	R	CSM
Isaac Edmonds	R	IE
Antons Bogdanovs	R	AB

Task Reporting

Nathan:

- GitLab repository was created for us by QUB academics, so nothing to be done.

Peter, Kal, Curtis & Antons:

- No tasks were discussed.

Isaac:

- Created a word document for the PDF report to be written into.

Actions Planned

Nathan:

- Research the costs of solar panels and space needed for community buildings.

Peter:

- Research how Hydroponic Farming can be adapted to the community needs of Maker's Valley.

Kal:

- Research how hydroponic farming functions and the equipment necessary for it.

Curtis:

- No tasks were discussed for Curtis.

Isaac:

- Look into solar power generation in makers valley.

Antons:

- Research how hydroponic farming can be made more affordable for the people of makers valley.

Obstacles

Nathan, Kal, Curtis, Isaac & Antons:

- O.K

Peter:

- Hydroponic farming is expensive - £499.50 for a Hobbyist 600w Standard Tent Kit – 120x240x200cm.
- Discover if costs can be reduced.

October 14th 2024

Location (Room No. and/or Teams): Teams

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	T	NW
Peter Robinson	T	PR
Kal Worthington	T	KW
Curtis McCartney	T	CSM
Isaac Edmonds	T	IE
Antons Bogdanovs	T	AB

Task Reporting

Nathan:

- Researched into solar power systems (panels, inverters, batteries) and gave example prices

Peter:

- Did some research on how Hydroponic Farming can be adapted to the community needs of Maker's Valley. Recorded in notebook.
- Consulted different hydroponic solutions: DWC (for a DIY route) and NFT (for an industrial-scale route). Leaning towards DWC as the more viable route.
- Researched more in DWC/DIY Hydroponics to see how it could be made affordable for the community of Maker's Valley.
- Noted required equipment, assembly and plant-growing steps, and costs.

Kal:

- Researched into simple hydroponics methods on a small scale and investigated growing determinate vegetables on a large scale.

Curtis:

- No tasks mentioned.

Isaac:

- Researched the power output of a 100W solar panel in Johannesburg
- Researched what appliances consume the most electricity in the average south african home

Antons:

- Researched how hydroponic farming could be made more affordable

Actions Planned

Nathan & Isaac:

- No tasks, waiting for input from advisors.

Peter:

- Investigate spaces (preferably small/medium size) that can be regenerated to use community hydroponic farms.

Kal:

- Create a small sketch of a hydroponics at home mechanism.

Curtis:

- Research into other places that could use solar panels as The People's Pantry already has solar panels.

Antons:

- Research how to reduce resource consumption of hydroponic farming

Obstacles

Nathan:

- The people's pantry already has solar panels

Peter, Kal, Curtis, Isaac & Antons:

- O.K.

October 16th 2024

Location (Room No. and/or Teams): CSB 01/020

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	R	NW
Peter Robinson	R	PR
Curtis McCartney	R	CSM
Isaac Edmonds	R	IE
Antons Bogdanovs	R	AB

Task Reporting

Nathan & Isaac:

- No tasks were discussed

Peter:

- Found 4 locations of interest that could be regenerated into community hydroponic farms.
- Noted address, size of area, satellite and Street view image and anything else to consider.

Curtis:

- Found new pothole solution.

Antons:

- Researched how to reduce resource consumption of hydroponic farms

Actions Planned

Nathan:

- Work up ideas for the app such as content, technologies etc.

Peter:

- Consult how materials are transported in Makers Valley.
- Discover hardware stores to see if the materials can be sourced locally.

Curtis:

- Look into different ways to fill potholes.

Isaac:

- Look into the “Pothole Patrol” in Johannesburg, and see what resources for reporting and seeing potholes they have available to the public

Antons:

- No planned tasks

Obstacles

Nathan, Peter, Curtis, Isaac & Antons:

- O.K.

October 21st 2024

Location (Room No. and/or Teams): Teams

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	T	NW
Peter Robinson	T	PR
Kal Worthington	T	KW
Curtis McCartney	T	CSM
Isaac Edmonds	T	IE
Antons Bogdanovs	T	AB

Task Reporting

Nathan:

- Researched different ideas and features for the software solution (i.e., Pothole app)

Peter:

- Scouted hardware stores that could allow the community to source the supplies (like cold asphalt mix) locally. Noted address and images of each store.
- Added map with a legend and noted issues to consider with these stores.
- Researched how pothole filling supplies can be transported around Makers Valley: Noted supplies required, the weight of asphalt bags, what vehicles are preferable and the issue with car ownership.

Kal & Antons:

- No tasks were planned.

Curtis:

- Researched different ways of filling potholes.

Isaac:

- Looked into the features of the “pothole Patrol” app on Google Play Store and Apple App Store

Actions Planned

Nathan, Peter, Kal, Curtis & Antons:

- Consult with advisor.

Isaac:

- Begin problem statement in PDF report

Obstacles

All Members:

- O.K

October 23rd 2024

Location (Room No. and/or Teams): CSB 01/020

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	R	NW
Peter Robinson	R	PR
Kal Worthington	R	KW
Curtis McCartney	R	CSM
Isaac Edmonds	R	IE
Antons Bogdanovs	R	AB

Task Reporting

Nathan, Peter, Kal, Curtis & Antons:

- No tasks planned, awaited advisor input.

Isaac:

- Started work on PDF Report Problem Statement

Actions Planned

Nathan:

- Investigate how the game layout will be made and how it will look in Java Swing.

Peter:

- Start drafting use case descriptions to gain insight into how tasks will work for the game.

Kal:

- Explore some design elements for the board game e.g. name, backgrounds, player pieces

Curtis:

- Look into questions posed by Ian in advisory.

Isaac:

- Continue development of the problem statement in line with the team's decision

Antons:

- Will look at what makes a good board game

Obstacles

All Team Members:

- O.K

October 28th 2024

Location (Room No. and/or Teams): Teams

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	T	NW
Peter Robinson	T	PR
Kal Worthington	T	KW
Curtis McCartney	T	CSM
Isaac Edmonds	T	IE
Antons Bogdanovs	T	AB

Task Reporting

Nathan:

- Investigated the use of Apache NetBeans for creative Java GUI applications.

Peter:

- For guidance, asked ChatGPT to generate some use case descriptions based on our current ideas for the game.
- Created a word document to store all use case descriptions. Written 8 so far, including a template.
- Most significant use cases will be included in the PDF report as a screenshot.
- Refined descriptions to specify which use cases are connected to one another (includes/extends)

Kal:

- Thought of names for the board game and possible design elements.

Curtis, Isaac & Antons:

- No tasks mentioned

Actions Planned

Nathan:

- Will take the design made by Kal during the week and try to create it in Java using Apache NetBeans

Peter:

- Construct UML Diagrams with the Players as actors.
- Consider any other actors (Host, maybe?)

Kal:

- Create a few simple designs/layouts for the board and hand them over to Nathan.

Curtis:

- Research the answers to the questions posed by Ian about our solution.

Isaac:

- Complete Problem Statement of PDF report

Antons:

- Research what makes a good board game
- Come up with a description for the game

Obstacles

All Team Members:

- O.K

November 4th 2024

Location (Room No. and/or Teams): Teams

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	T	NW
Peter Robinson	T	PR
Kal Worthington	T	KW
Curtis McCartney	T	CSM
Isaac Edmonds	T	IE
Antons Bogdanovs	T	AB

Task Reporting

Nathan:

- Created a draft game board in Java using NetBeans and java swing.

Peter:

- Created first draft of the use case diagram, covering approximately 9 use cases between 2 actors, Player and Game System.
- Wrote 10 new potential use cases and their respective descriptions, totalling 17 use cases so far.

Kal:

- Created various draft layouts and handed them over to Nathan.

Curtis:

- Researched into the questions posed by Ian about our final solution.

Isaac:

- Wrote up the Problem Statement and Proposed Solution section in the PDF Report
- Created a UML Diagram for the proposed game idea. Currently 3 classes and 3 subclasses covered

Antons:

- Wrote product description
- Did research on what would make the board game more interesting

Actions Planned

Nathan, Peter, Kal, Isaac, Antons:

- No actions planned, studying for upcoming exam

Curtis:

- Research questions that could be used in the game for the “Knowledge Squares”

Obstacles

Nathan, Peter, Kal, Curtis, Isaac, Antons:

- O.K

Curtis:

- Many tests coming up, only a few questions may be created in these few days.

November 11th 2024

Location (Room No. and/or Teams): Teams

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	T	NW
Peter Robinson	T	PR
Kal Worthington	T	KW
Curtis McCartney	T	CSM
Isaac Edmonds	T	IE
Antons Bogdanovs	T	AB

Task Reporting

Nathan, Kal, Isaac & Antons:

- Completed no tasks. Focused on an exam during the previous week.

Peter:

- Updated use case diagrams and descriptions based on feedback.

Curtis:

- Created 15 questions for knowledge squares.

Actions Planned

Nathan:

- Clean up the team minutes to make them more presentable for the deliverable.
- Investigate how a 2D array might work for

Peter:

- Further refine the use cases to prepare for sequence diagrams.
- Change the layout of the use case diagram to fit the PDF report.

Kal:

- Add the draft game layout to the PDF report.

Curtis:

- Complete a PowerPoint presentation for the game demo video.

Isaac:

- Refine Problem Statement and Proposed Solution in PDF Report
- Expand UML diagram with discussed information on game layout

Antons:

- Do the UML diagram with Isaac

Obstacles

Nathan:

- A 2D array might be better for the game board. Investigate how that might work and if it's better.

Peter, Kal, Curtis & Antons:

- O.K.

Isaac:

- UML diagram

November 13th 2024

Location (Room No. and/or Teams): CSB 01/020

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	R	NW
Peter Robinson	R	PR
Curtis McCartney	R	CSM
Antons Bogdanovs	R	AB

Task Reporting

Nathan:

- Went through all the team minutes and made them look presentable for submission.
- Explored the possibility of using a 2D array and decided it was best to leave it for semester 2 when we start coding.

Peter:

- Refined use case diagram and descriptions based on feedback and to prepare for sequence diagrams.

Kal:

- Added the draft game layout to the PDF report

Isaac:

- Not present at meeting due to illness, but improved Problem Statement since last meeting

Curtis:

- Didn't manage to get presentation complete as the game draft layout needs to be finalised.

Antons:

- Worked on UML Diagram

Actions Planned

Nathan:

- Get started on the PowerPoint presentation for the Game Demo Video

Kal & Isaac:

- Not Present for this meeting

Curtis & Peter:

- Splitting work on Sequence Diagrams to be finished by Wednesday 20th 2024. Curtis will work on the first half, and Peter will work on the other half.

Antons:

- Speak with Isaac to finish the UML diagrams.

Obstacles

Nathan:

- O.K

Curtis & Peter:

- UML Class diagram isn't finalised. Will have to work based on what we've got.
- Need a refresh on sequence diagrams.

Kal & Isaac:

- Not present for this meeting.

Antons:

- UML Class diagram not finished.

November 18th 2024

Location (Room No. and/or Teams): Teams

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	T	NW
Peter Robinson	T	PR
Kal Worthington	T	KW
Curtis McCartney	T	CSM
Isaac Edmonds	T	IE
Antons Bogdanovs	T	AB

Task Reporting

Nathan & Kal:

- Completed the PowerPoint presentation for the game demo video

Peter:

- Completed drafts of the sequence diagrams for the last 5 use cases.

Curtis:

- Researched into sequence diagrams and the methods needed to create them.

Isaac & Antons:

- No tasks completed

Actions Planned

Nathan:

- Replace screenshot of the draft game layout with an updated version.
- Add screenshots of the game layout to the game demo video presentation.
- Add speaker notes to the rest of the game demo video presentation.
- Fill out the Peer Assessment Form, leaving out the scores as they need discussed as a team.
- Added all Team Minutes as an appendix in the PDF Report

Peter:

- Refine the sequence diagrams based on team feedback.

Kal:

- Shorten the problem statement and add images.

Curtis:

- Finish Sequence Diagrams for first 5 use cases.

Antons & Isaac:

- Have a meeting regarding the UML diagram and update it to better reflect the game layout discussed by the team.

Obstacles

All Team Members:

- O.K

November 20th 2024

Location (Room No. and/or Teams): CSB 01/020

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	R	NW
Peter Robinson	R	PR
Kal Worthington	R	KW
Curtis McCartney	R	CSM
Isaac Edmonds	R	IE
Antons Bogdanovs	R	AB

Task Reporting

Nathan:

- Replaced screenshot of the draft game layout with an updated version in the PDF Report.
- Added screenshots of the game layout to the game demo video presentation.
- Added speaker notes to the rest of the game demo video presentation.
- Filled out the Peer Assessment Form, leaving out the scores as they need discussed as a team.

Peter:

- Started refining sequence diagram for the last 5 use cases based on team feedback.

Kal:

- Shortened the problem statement and added images.

Curtis:

- Worked on Sequence Diagrams and cut out functionality that is not essential to the overall game.

Isaac:

- Worked with Antons to further develop the UML diagram and better model the design

Antons:

- Worked on the UML Class diagram with Isaac

Actions Planned

Nathan & Kal:

- No actions planned

Peter:

- Continue improving sequence diagrams with assistance from Curtis & Isaac.
- Implement diagrams in PDF report.

Curtis:

- Finish off Sequence Diagrams.

Isaac & Antons:

- No actions planned

Obstacles

All Team Members:

- O.K

November 25th 2024

Location (Room No. and/or Teams): Teams

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	T	NW
Peter Robinson	T	PR
Kal Worthington	T	KW
Curtis McCartney	T	CSM
Antons Bogdanovs	T	AB

Task Reporting

Nathan, Kal & Antons:

- No Actions Planned

Peter:

- Finished the sequence diagrams for use cases 4,5,6 and 8.
- Added diagrams (as pictures) to PDF report.

Curtis:

- Finished the Sequence Diagrams

Isaac:

- Not present at today's meeting due to an interview

Actions Planned

All Team Members:

- Record the allocated slides of the game demo video presentation for Nathan to edit
- Discuss and fill in Peer Assessment 1 at Wednesday’s meeting

Nathan:

- Put together each members recorded slides into one Game Demo Video.

Peter:

- Write commentaries on sequence diagrams for use cases 4,5 & 6.

Kal:

- Write commentaries for use cases 7 and 8.

Curtis:

- Fix up Sequence Diagrams, upload them to PDF Report.
- Write commentaries for first 3 sequence diagrams.

Isaac:

- Not present at meeting but will meet with Antons to finalise the UML Class Diagram for semester 1

Antons:

- finish UML Class diagrams with Isaac and add commentaries

Obstacles

All Team Members:

- O.K

November 27th 2024

Location (Room No. and/or Teams): CSB 01/020

The following team members were present (in the same meeting room or on Teams) when these minutes were discussed:

Name (printed/typed)	In room (R); On teams (T).	Signature (agreed bitmap or initials)
Nathan Watkins	R	NW
Peter Robinson	R	PR
Kal Worthington	R	KW
Curtis McCartney	R	CSM
Isaac Edmonds	R	IE
Antons Bogdanovs	R	AB

Task Reporting

All Team Members:

- Recorded segments for the game demo video presentation and sent to Nathan.
- Finished the PDF report with Peer assessment and personal statements.

Nathan:

- Edited and completed the Game Demo Video.

Peter:

- Wrote commentaries on sequence diagrams for use cases 4,5 & 6.

Kal:

- Wrote commentaries for use cases 7 and 8.

Curtis:

- Fixed and uploaded my Sequence Diagrams to the PDF report with commentaries.

Isaac:

- Finalised design of the UML Class Diagram for semester 1
- Created commentary on the Class Diagram in the PDF Report
-

Antons:

- Wrote commentary on the Class Diagram in the PDF Report
- Finished UML Class diagrams

Actions Planned

All team members:

- N/A, semester 1 has been completed.

Obstacles

All Team Members:

- N/A, semester 1 has been completed.