CSC207 PROJECT REPORT TEMPLATE

Link to the Demo: CSC207 GROUP 6 FINAL DEMO.mp4

Project Report

Created 2023.11.13

Rhythm Labyrinth

Raza

Sam

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Ayman

Section 1: REPORT SUMMARY

The project's scope is to build off the AdventureGame and branch off into using two separate minigames. One of the minigames, inspired by OSU, features a screen with buttons that appear in various randomized positions where the player is expected to press the buttons on time. The other minigame, inspired by the Simon board game, features a 3 x 3 grid of buttons in which the player repeats the sequence made by the CPU.

Section 2: PROCESS DOCUMENTATION

SPRINT 1 OVERVIEW

Sprint 1 Overview:

Our goal for this sprint is to create the fundamental structure for most of the high priority user stories within code, which will allow us to seamlessly implement the specifics later.

Sprint 1 User Stories:

ID	User story	Name	Notes
1.1	As a video game player who is enthusiastic about multiple endings, I want a continuous stream of in-game events to have a gradual, incremental impact on my adventure outcome so that I can actively shape my adventure outcome.	S. Wang	Started implementing base code for outcomes
1.2	As a person who enjoys playing games with engaging gameplay, I want there to be minigames to play, specifically puzzles and battles, so I can have engaging interactions while playing.	R. Ashfaq	Started implementing base code for the minigames
1.3	As a person who enjoys playing games with an immersive interface, I want the game to have a GUI that displays everything I can interact with and shows the entire gameplay, so I do not have to see the backend workings of the game and ruin my immersion.	Kairui	Designed the GUI
1.13	As a player who enjoys games with a sense of cohesion, I want to have a sense of story/progression when I play the game so I can feel engaged with the game.	Ayman	Reform the original classes

Sprint 1 Team Capacity:

We expect to be able to complete the baseline structure of the essential components (specifics to be determined) by Sunday November 19.

Sprint 1 Participants:

Name	Responsibility

Sam	• Focused on translating the State and Factory Design Pattern into a hierarchy of classes categorized into Endings, OutcomeDeterminer, and Interpretations. • Endings would focus on the different kinds of endings the player would result in based on their decisions in the game • OutcomeDeterminer would calculate (based on the Player's decisions throughout the game) the appropriate Ending. • Interpretations were the means through which the Player's performance in Minigames would be "interpreted" into ending-altering decisions.
Raza	• Focusing on ideas as to how to approach the ideas for implementing the minigames (battle and puzzles) • Brainstorming ideas as to how the battle and puzzles function • Searching the proper Java built in packages that support these minigames
Kairui Yang	• Design the interface and main displays of the game • Ensure other members' code implementations are taken into consideration for the components of the GUI
Ayman	• Focusing on the rooms and how the player is able to move around in the new game • Restructure the base game to only include what we need

Sprint 1 Tasks Completed:

Everyone was able to jot down ideas as to how some of the implementation would work. However, sprint 1 is mainly dedicated to understanding the logic as to how the game would function. Baseline implementations were completed and everyone is now able to implement more specific components.

SPRINT 1 PRODUCT BACKLOG

Sprint	User Stories	Acceptance Criteria (what we formally need)	Reflection (needs improvement or worked well?)	Status
1	Samuel Wang: 1.1	Given that I am a video game player who is enthusiastic about multiple endings, when I perform within a certain bound on a mini-game, then I progress down a certain, respective developmental route.	The basic classes have been created and implemented	Basic classes are made
	Raza Ashfaq: 1.2	Given that I am a person who enjoys playing games with engaging gameplay, when I play the game, I will encounter minigames such as a battle or a puzzle	While the idea is beneficial, it is still too early to implement this fully. Only the baseline structure has been made	Basic implementation finished
	Kairui Yang: 1.3	Given that I am a person who enjoys playing games with an immersive interface, when I launch the game, I should be able to play the entire game exclusively on a frontend interface.	All the necessary scenes were designed, still require implementation.	Design is finished
	Ayman: 1.13	Given that I am a player who enjoys games with a sense of cohesion, when I play and as I go through the game, I want to experience a full cohesive story driven experience.	All the classes are reformed to fit the new implementation of the game	Basic restructuring is completed

SPRINT 1 CODE REVIEWS

Commits were done on individual feature branches, and code reviews were done as a group in person.

Story Reviewed	Name of Reviewer	Pull Request Link
[DEV-1.1]: Outcomes	Everyone	Done in person

[DEV-1.2]: Minigames	Everyone	Done in person
[DEV-1.3]: GUI	Everyone	Done in person
[DEV-1.13]: Gameplay	Everyone	Done in person

SPRINT 1 RETROSPECTIVE

- The participants in the meeting;
    - Raza, Sam, Kairui, Ayman
- Any unfinished tasks;
    - The specific implementation of the ideas that we had
        - Plan to carry that over to sprint 2
- A summary of practices that went well this sprint and should be continued;
    - Everyone contributed ideas as to what the game should entail
    - Everyone individually met the expected deadlines
- A summary of new or revised practices to include moving forward;
    - Implementing a more structured approach to task assignment and tracking progress to ensure smoother execution.
    - Introducing regular check-ins to monitor individual and team progress and address any potential roadblocks promptly.
    - Exploring collaborative tools to enhance communication and coordination among team members.
- A summary of any bad practices that will not be repeated moving forward;

        - Lack of clarity in task definitions leading to confusion among team members.
        - Inadequate documentation of decisions and action items during meetings.
        - Procrastination in addressing issues or blockers, resulting in delayed resolution.

- Your team’s best/worst experience during this sprint

        - Best experience: The positive and open collaboration among team members, fostering a creative and productive environment. The willingness of everyone to contribute ideas and work collectively towards the project's success was a highlight.
        - Worst experience: Facing challenges in the actual implementation of ideas due to a lack of a clear roadmap and well-defined tasks. This experience highlighted the importance of detailed planning and execution strategies for future sprints.

SPRINT 2 OVERVIEW

Sprint 2 Overview:

Our goal for this sprint is to implement more of the specific details within the baseline implementations from last sprint. We want the minigames to have a demo, options to play either of the minigames, have the methods figured out for the outcome, and have baseline GUI implemented.

Sprint 2 User Stories:

ID	User story	Name	Notes
2.8	As a player of the game who enjoys performance based outcomes, I want the extent of my success with the puzzles or battles to determine the magnitude of progression down my adventure route so that I can actively shape the fate of my adventure.	Samuel	Further developing the classes and methods for processing the ending
2.2	As a person who enjoys playing games with engaging gameplay, I want there to be minigames to play, specifically puzzles and battles, so I can have engaging interactions while playing.	Raza	Implementing more specific components, drafting up a demo for each
2.3	As a person who enjoys playing games with an immersive interface, I want the game to have a GUI that displays everything I can interact with and shows the entire gameplay, so I do not have to see the backend workings of the game and ruin my immersion.	Kairui Yang	Starting the code implementation s
2.7	“As a player of the game who enjoys puzzles and experiencing variation in games, I want each room to either include a battle with an enemy, or a puzzle so I can have variation when I’m playing and be more engaged.”	Ayman	Made the choices class for playing one of the minigames
2.12	“As a player of the game without a consistently functioning keyboard, I want the possible moves within each room to be displayed as buttons to press instead of typing the moves so I can still play the game with ease with just a mouse”	Kairui/Ayman	The possible moves are parsed and displayed accordingly

Sprint 2 Team Capacity:

We expect to have basic workable implementations that can function standalone by Sunday November 26.

Sprint 2 Participants:

Name	Responsibility
Sam	• Finalized the relevant class structure for Ending, OutcomeDeterminer, and (partially) Interpretations • State Pattern was implemented via Ending • Factory Pattern was implemented via Interpretations • OutcomeDeterminer linked the two classes together
Raza	• Experimenting with the Java button class and see how it can be utilized into a minigame • Continue brainstorming how the puzzles and battles (mainly focusing on puzzles) would work out for the minigame structure
Kairui	• Begin implementing the interface • create the required scenes as basic blank scenes
Ayman	• Adding gameplay and “story” • Implementing choice options for players

Sprint 2 Tasks Completed:

The minigames has demos that run on separate windows, where the puzzle can display a 3x3 grid and track the current button being pressed. The battle currently displays random buttons that do not disappear.

Outcomes are more refined, basic logic for determining the outcome is completed.

Some gameplay is implemented through “interactions”. A series of dialogue can be displayed and read through by clicking. A choice can then be offered, and selecting a choice will play a minigame.

GUI has the blank scenes and includes the directions for moving. It is compatible with the Interactions.

SPRINT 2 PRODUCT BACKLOG

Sprint	User Stories	Acceptance Criteria (what we formally need)	Reflection (needs improvement or worked well?)	Status
2	Samuel: 2.8	Given that I am a player of the game who enjoys performance based outcomes, when I complete a puzzle or battle, depending on how well I completed the puzzle, the magnitude to which I progress down a certain route corresponds to the quality of my completion.	The rooms and its completion have certain rankings that correspond to the determiner of ones outcomes.	Completed
	Raza: 2.2	Given that I am a person who enjoys playing games with engaging gameplay, when I play the game, I will encounter minigames such as a battle or a puzzle.	This has worked well as the necessary gameplay mechanic of either a battle or a puzzle has been implemented	Completed
	Kairui Yang: 2.3	Given that I am a person who enjoys playing games with an immersive interface, when I launch the game, I should be able to play the entire game exclusively on a frontend interface.	All the necessary scenes were added as blank filler templates.	Still need actual implementation
	Ayman: 2.7	Given that I am a player of the game who enjoys puzzles and experiencing variation in games, when I enter a room, I either get a battle I must beat to move on, or a puzzle to complete.	Each room will have either a battle or a puzzle to be dealt with accordingly.	Completed

SPRINT 2 CODE REVIEWS

Reviews were once again done in person by everyone at the same time.

Story Reviewed	**Name of Reviewer**	**Pull Request Link**
[DEV-2.8]: Outcomes	Everyone	Done in person
[DEV-2.2]: Minigames	Everyone	Done in person
[DEV-2.3]: GUI	Everyone	Done in person
[DEV-2.7]: Variation	Everyone	Done in person

SPRINT 2 RETROSPECTIVE

- The participants in the meeting;
    - Raza, Sam, Kairui, Ayman
- Any unfinished tasks
    - Still need to integrate the game to display on the main GUI
    - Gameplay not fully fleshed out
- A summary of practices that went well this sprint and should be continued
    - Frequent communication
    - Everyone is contributing accordingly
- A summary of new or revised practices to include moving forward;

        - Better time management since some tasks were not done until the last moments

- A summary of any bad practices that will not be repeated moving forward;
    - Lack of git pushes
- Your team’s best/worst experience during this sprint
    - Best experience: Everyone is still actively participating and completing their tasks as requested.
    - Worst experience: Stressful last minute fulfillment of responsibilities due to lack of time.

SPRINT 3 OVERVIEW

Sprint 3 Overview:

Our goal for this sprint is to start putting everything together to display the required scenes and have the game run.

Sprint 3 User Stories:

ID	User story	Name	Notes
3.5	As a person who has low vision accessibility needs and likes video games, I want the ability to change the colour of the HUDs and/or text by inverting the colour of the scene so that it may be easier to see the game.	Kairui	Adding a colour inversion button
3.3	As a person who enjoys playing games with an immersive interface, I want the game to have a GUI that displays everything I can interact with and shows the entire gameplay, so I do not have to see the backend workings of the game and ruin my immersion.	Kairui	Integrating the battle with the GUI
3.11	“As a player of the game who enjoys playing battles, I want the battle to test my reaction speed and motor skills (i.e. ability to click on targets within a limited time frame) so that I can enjoy the thrill of the moment.”	Kairui/Raza	Referenced the demo to remake the battle
3.7	“As a player of the game who enjoys puzzles and experiencing variation in games, I want each room to either include a battle with an enemy, or a puzzle so I can have variation when I’m playing and be more engaged.”	Ayman	The rooms will have either a battle or a puzzle, not both.
3.8	“As a player of the game who enjoys performance based outcomes, I want the extent of my success with the puzzles or battles to determine the magnitude of progression down my adventure route so that I can actively shape the fate of my adventure.”	S. Wang	Referenced in the OutcomeDeterminer where each room will give points that leads to a certain ending depending on the number of points.
3.14	As a player who enjoys puzzles in games, I want the puzzles to test my memory through memorizing a sequence of patterns so I can feel challenged and engaged with the game.	Raza	Added attributes for CPU sequence and a player sequence
3.10	“As a player of the game who enjoys more difficult challenges as I improve, I want the difficulty of the puzzles and battles to increase as I play for longer so that I can enjoy a cognitively challenging game.”	A. Mohammed	Added it so the rooms will get harder as the player progresses through further.
3.14	As a player who enjoys puzzles in games, I want the puzzles to test my memory through memorizing a sequence of patterns so I can feel challenged and engaged with the game.	Raza	Implemented the sequence attributes to the puzzles.

Sprint 3 Team Capacity:

We expect to have most of the game integrated, meaning the minigame displays and gameplay are functional, but do not have to be a fully cohesive experience. We want this done by Sunday December 3.

Sprint 3 Participants:

Name	**Responsibility**
Sam	• Began working on the Interpretation classes for a rough version of Puzzle class • Attempted to implement GUI for the Ending classes
Raza	• Implementing the actual Puzzle class and the Battle class using the experimentation done with the previous sprints • Implementing the methods and attributes for both classes • Adding additional user stories and features to both classes
Kairui	• Modify the battle to only display one button rather than many • Rewrite the battle to be compatible with Javafx (the demo was written with Java Swing) • Make the battle playable on the main GUI (handle the logic for inflicting and taking damage, track progress, determine when to end)
Ayman	• More game design, mapping out the layout and creating each room

Sprint 3 Tasks Completed:

The outcomes are mostly finished at this point, it just requires linkage to the minigames.

Minigames are mostly completed. Puzzle is still not on the main GUI but is playable as a standalone game. The battle is fully integrated into the GUI and is playable and accessible from the GUI.

SPRINT 3 PRODUCT BACKLOG

Sprint	User Stories	Acceptance Criteria (what we formally need)	Reflection (needs improvement or worked well?)	Status
3	Kairui: 3.5	Given that I am a person who has low vision accessibility needs and likes video games, when I open the menu, then I can invert the button by pressing an invert colour button.	Invert button is functional, not formatted nicely	Complete
	Kairui: 3.3	Given that I am a person who enjoys playing games with an immersive interface, when I launch the game, I should be able to play the entire game exclusively on a frontend interface.	Has battle integrated, still doesn't exit properly	Just battle integration done
	Kairui/Raza: 3.11	"Given that I am a player of the game who enjoys battles, when I want to enjoy a game that invites thrill and quick focus, then I engage in quick rounds of the battle minigame."	Battle works and is playable	Completed
	Ayman: 3.7	"Given that I am a player of the game who enjoys puzzles and experiencing variation in games, when I enter a room, I either get a battle I must beat to move on, or a puzzle to complete."	Battle and Puzzle functions as expected when entering a room	Completed

	Samuel: 3.8	“Given that I am a player of the game who enjoys performance based outcomes, when I complete a puzzle or battle, depending on how well I completed the puzzle, the magnitude to which I progress down a certain route corresponds to the quality of my completion.”	The performance of the room is a factor into the outcome that the user will receive at the end of the game	Completed
	Raza: 3.14	Given that I am a player who enjoys puzzles in games, when I play a puzzle, a 3x3 grid of buttons will appear and give me a sequence of buttons to memorize.	A 3x3 grid of buttons has been implemented within the GUI	Completed
	Ayman: 3.10	“Given that I am a player of the game who enjoys more difficult challenges as I improve, when I play more puzzles or battles, the iterations become increasingly long and complex for the puzzles and the battles require quicker reaction times.”	Rooms as user progresses forward has more challenging minigames as a difficulty curve	Comped

SPRINT 3 CODE REVIEWS

Reviews were once again done in person by everyone at the same time. More pushes were done to individual branches.

Story Reviewed	**Name of Reviewer**	**Pull Request Link**
[DEV-3.1]: Outcomes	Everyone	Done in person
[DEV-3.2]: Minigames	Everyone	Done in person
[DEV-3.3]: GUI	Everyone	Done in person

[DEV-3.11]: Gameplay	Everyone	Done in person

SPRINT 3 RETROSPECTIVE

- The participants in the meeting;
    - Raza, Sam, Kairui, Ayman
- Any unfinished tasks
    - The puzzle still needs to be attached to the GUI and make playable from the GUI
    - We are lacking gameplay; everything works as their own features but there is no cohesion for the game as a whole at the moment
    - The progress tracking for determining the outcomes must be linked from the minigames to the outcomes classes
- A summary of practices that went well this sprint and should be continued
    - Everyone is communicating what needs to be done and what has been completed, allowing us to stay on track
- A summary of new or revised practices to include moving forward;
    - Using GIT more often to pull work from other branches and link them with the current tasks

- A summary of any bad practices that will not be repeated moving forward
    - We slightly underestimated how much work we would do, so at this rate, it appears that the entire product might not be finished
- Your team’s best/worst experience during this sprint
    - Best experience: Seeing everyone’s work and how functional they were.
    - Worst experience: Incomplete product.

SPRINT 4 OVERVIEW

Sprint 4 Overview:

Our goal for this sprint is to have everything fully integrated and finished.

Sprint 4 User Stories:

ID	User story	Name	Edits
4.3	As a person who enjoys playing games with an immersive interface, I want the game to have a GUI that displays everything I can interact with and shows the entire gameplay, so I do not have to see the backend workings of the game and ruin my immersion.	Kairui/Raza	Puzzle integrated with the GUI
4.13	As a player who enjoys games with a sense of cohesion, I want to have a sense of story/progression when I play the game so I can feel engaged with the game.	Ayman	Finishing the game design
4.8	“As a player of the game who enjoys performance based outcomes, I want the extent of my success with the puzzles or battles to determine the magnitude of progression down my adventure route so that I can actively shape the fate of my adventure.”	Samuel	Finished linking endings with game

Sprint 4 Team Capacity:

We expect to be able to have fully functional separate features that can be demonstrated individually, and some semblance of a complete game (player can travel through rooms, play minigames, receive an ending, all on the GUI)

Sprint 4 Participants:

Name	Responsibility
Sam	• Integrated OutcomeExecuter (previously OutcomeDeterminer), Endings, and Interpretation classes with the rest of the software.
Raza	• Playtesting and debugging the Puzzle class • Writing up some of the good copy for the documentation using the notes made throughout our sprints

	• Filling in the report summary and final summary
Kairui	• Modify the puzzle to be compatible with Javafx (the demo was written with Java Swing) • Make the puzzle playable on the main GUI (handle the logic for tracking progress, determine when to end) • Finish the report and determine how to record the demo
Ayman	• Finish designing the gameplay • Put everything together, have the GUI display the gameplay, link minigames with rooms, link outcome with outcome

Sprint 4 Tasks Completed:

We have every feature functional on their own. The GUI can display the rooms, and players can move between each room. Within each room, the player will receive a dialogue to read through, and will be offered a minigame to play. Upon completing the minigame, the player will return to the room scene and can continue their adventure. Once the player reaches the "end room", they will receive their ending.

SPRINT 4 PRODUCT BACKLOG

Sprint	User Stories	Acceptance Criteria (what we formally need)	Reflection (needs improvement or worked well?)	Status
4	Kairui/Raza: 4.3	Given that I am a person who enjoys playing games with an immersive interface, when I launch the game, I should be able to play the entire game exclusively on a frontend interface.	Puzzle is functional with the main GUI, minigame also finishes now	Complete
	Ayman: 4.13	Given that I am a player who enjoys games with a sense of cohesion, when I play and as I go through the game, I want to experience a full	The game is playable and the player receives a full short experience	Complete

		cohesive story driven experience.		
	Samuel: 4.8	“Given that I am a player of the game who enjoys performance based outcomes, when I complete a puzzle or battle, depending on how well I completed the puzzle, the magnitude to which I progress down a certain route corresponds to the quality of my completion.”	The players receive a different ending based on their performance	Comple te

SPRINT 4 CODE REVIEWS

Code was reviewed in person by everyone. Final pushes were done to individual branches.

Story Reviewed	**Name of Reviewer**	**Pull Request Link**
[DEV-4.1]: Outcomes	Everyone	Done in person
[DEV-4.2]: Minigames	Everyone	Done in person
[DEV-4.3]: GUI	Everyone	Done in person
[DEV-4.4]: GUI	Everyone	Done in person

SPRINT 4 RETROSPECTIVE

- The participants in the meeting;
    - Raza, Sam, Kairui, Ayman
- Any unfinished tasks
    - The entire final product might have many issues. There are many untested components and potential bugs are not identified.
- A summary of practices that went well this sprint and should be continued
    - Everyone mostly remained positive and stuck to their responsibilities.
- A summary of new or revised practices to include moving forward;
    - Set realistic goals and expectations next time.
    - Note from Sam: I had some personal drawbacks near the end of the working term and it unfortunately cost the team on their ambitions and plans.
        - More specifically, I (whatever the reason may be) failed to integrate OutcomeExecuter and related classes (starting in the second half of the 4th sprint) with the rest of the software until the very last 5 hours, and had the team endure an unpleasant experience.
        - But besides this, I have been mostly productive for the beginning and middle sections of the term.
- A summary of any bad practices that will not be repeated moving forward;
    - There were a few tasks that were not estimated well time-wise
        - Leading to a few tasks that have been done relatively late
- Your team’s best/worst experience during this sprint

- Best Experience: During the moments they existed, the periods of coordinated teamwork and communication that occurred throughout the term.
- Worst Experience: Have the team staying up cramming right before the assignment deadline

Section 3: SUMMARY

Our group has accomplished a very satisfactory project, demonstrating the team's dedication and proficiency. The project proposal of brandishing two different entertaining minigame ideas which have been implemented with success, and deadlines have been adhered to to meet our workload. The majority of our user stories have been implemented within our project in some capacity or form, however, a few have been neglected due to time constraints.

Our work cycle throughout the weeks has encountered some challenges. One example is the fact that not all the user stories have been implemented as they are relatively low priority. We may have been too ambitious with the game ideas at the start which was not a problem in the long run. Instead, we aimed to shift our focus on getting the bulk of the actual game to be completed. We will be mindful to keep these insights of these challenges for our future work.
We also did not stick to some of the original UML designs. This was also a result of underestimating our work since we eventually just built off of what was created from the demo/baseline versions for the final result. These unexpected challenges in our design's trajectory required revisions to the original plan. Real-world limitations, strategic decision-making, and an iterative development process all led to unexpected changes. A recalibration of focus based on changing project requirements and deliberate prioritization shifts resulted from the reevaluation of some user stories and features. The differences between the original proposal and

the finished product are a sign of the project sprint’s flexibility and responsiveness rather than a sign of flaws. For the project to be successful, it was essential to make these strategic changes, incorporate user feedback, and adjust for unforeseen obstacles. The project's alignment with dynamic real-world considerations was made possible thanks in large part to these modifications. As a result, even though the finished product might differ from the original plan, these differences are essential to the iterative nature of the growth process. The team's capacity to overcome obstacles and welcome change has been essential to producing a favorable project.