

FINAL Project Report

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Pokémon Adventure Game

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SECTION 1: REPORT SUMMARY

The "Pokémon Game" project was initiated with the primary objective of developing a single-player, turn-based role-playing game (RPG) inspired by the popular Pokémon franchise. The initial scope included creating a game that allows players to explore a virtual world, capture and train Pokémon, and engage in battles with computer-controlled opponents.

Throughout the project's development, the core scope remained consistent, focusing on delivering an engaging Pokémon-themed RPG experience. However, it's important to note that minor adjustments were made to the scope to enhance gameplay and improve user experience. These changes primarily involve adding new in-game accessibility features such as high contrast mode and zooming.

SECTION 2: PROCESS DOCUMENTATION

2.1. SPRINT 1 OVERVIEW

2.1.1 Sprint Overview:

"Our goal for Sprint 1 was to establish the main components of the Pokémon game, including: the NPC abstract class with Opponents and Villagers subclasses, the Pokémon class, and Pokemon.txt, Room class, Player Class, and Battle Class (where players enter the gyms to battle)."

2.1.2 Stories Selected for this Sprint:

[DEV-2] NPC Villager and Opponent Class and Labelled (Laurence Liu)

[DEV-2] Pokémon class and Pokemon.txt (Krit Kasikpan)

[DEV-4] Battle and Moves Class (Athena Cai)

[DEV-2] Player and Rooms Class (Inayah Dhaliwal)

2.1.3 Team Capacity:

"We expect to be able to complete the basic components of the Pokémon Game listed in 2.1.2 by Friday, November 21"

2.1.4 Participants:

Laurence Liu – NPC abstract class, Opponent and Villager sub classes. Labelled interface.

Krit Kasikpan - Pokémon class and Pokemon.txt, set up group's Discord

Athena Cai – Battle and Moves Class, team meeting scheduling and room booking

Inayah Dhaliwal – Player and Rooms class.

2.1.5 Tasks Completed:

During Sprint 1, we successfully implemented all the basic components of the Pokémon Game listed in 2.1.2

2.2. SPRINT 1 PRODUCT BACKLOG

1. [DEV-7] NPC Class (Priority: Low)

- As a player, I want to be able to interact with NPCs in the game to make the gaming experience feel more immersive.

2. [DEV-2] Pokémon class and Pokemon.txt (Priority: High)

- As a player, I want to be able to encounter and catch many different Pokémon and keep them in my backpack.

3. [DEV-4] Battle Class (Priority: High)

- As a player, I want to be able to enter the gym and battle with trainers.

4. [DEV-5] Moves Class (Priority: Medium)

- As a player, I want to choose Pokémon's move in the battle.

2.3. SPRINT 1 CODE REVIEWS

Story Reviewed	Name of Reviewer	Pull Request Link
[DEV-4] [DEV-5]	Athena Cai	https://mcscsm.utm.utoronto.ca/csc207_20239/group_35/-/commit/337cf28d5685f7ad78b30dca7a45d6b221c4fbd0

[DEV-2]	Inayah Dhaliwal	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/476ab0911ae5f681bf897ebb3448f871751c9d3d
[DEV-2]	Krit Kasikpan	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/dce4e0afdc3205b5b3e7f164deda1f5bca45129e
[DEV-7]	Laurence Liu	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/a6feddbf8e626e2270e1a89ac267c241d98eafd2

2.4 SPRINT 1 RETROSPECTIVE

Participants: Laurence Liu, Krit Kasikpan, Athena Cai, Inayah Dhaliwal

Unfinished tasks: None

What went well:

- Successful Implementation of basic Pokémon Game components.
- Effective communication and collaboration within the team.

New practices to include:

- Regular code reviews for quality assurance
- More detailed sprint planning for better task allocation

Bad practices that will not be repeated moving forward:

- Merge everything into main instead of development branch

Best experience: Being able to parse Pokémon to the Pokédex (catalog of Pokémon).

Worst experience: We merged every feature into main branch instead of development branch, so we must revamp our branch structure

2.5. SPRINT 2 OVERVIEW

2.5.1 Sprint Overview:

"Our goal for this sprint is to reconstruct assignment 2 so it works with our Pokémon game, as well as incorporating elements of our battle class."

2.5.2 Stories Selected for this Sprint:

[Dev-4] Battle interfaces

[Dev-2] Parsing Files

[Dev-2] Pokémon and Villager Images

[Dev-2] A2 reconstruction

2.5.3 Team Capacity:

"We expect to be able to complete elements of our Battle class and reconstruct assignment 2 by Nov 30th."

2.5.4 Participants :

Laurence Liu – Parsing all .txt files (Room, Villagers, Opponents, PokemonInRoom) and making the Labelled abstract class that all game objects inherit from to store required attributes for all objects such as object id, name, description and image files.

Krit Kasikpan – Create the Pokémon text file and parse through the file to create a Pokedex to utilize to create Pokémon objects to be used in the project.

Athena Cai – Creating the battle mediator and battle colleague interface to create a battle loop.

Inayah Dhaliwal – Editing the A2 text files to work according to the Pokémon game.

2.5.5 Tasks Completed:

We completed parsing all the .txt files to properly instantiate all game objects. We got all the image files required for our project and attached them as attributes to each individual object. We started but did not complete the battle loop as we were having issues dealing with Threads.

2.6. SPRINT 2 PRODUCT BACKLOG

[Dev-4] Battle interfaces

[Dev-2] Parsing Files

[Dev-2] Pokémon and Villager Images

[Dev-2] A2 reconstruction

2.7. SPRINT 2 CODE REVIEWS

Story Reviewed	Name of Reviewer	Pull Request Link
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[DEV-4]	Athena Cai	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/94a7030e659f32f2e680312694bdb4482f5de628
[DEV-2]	Inayah Dhaliwal	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/52f422529cc909fa7304c09a7ba920cf84414e5c
[DEV-2]	Krit Kasikpan	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/919774c51cf2ea3a3a3a270338f333190f40e9b1
[DEV-2]	Laurence Liu	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/cc61890e1e1b3c9c92b24d06563c04ce33a77d8a

2.8 SPRINT 2 RETROSPECTIVE

What went well:

- Successfully Reconstruct assignment 2 to work with our intended functions.

New practices to include:

- Better documentation of code so everyone can understand and work together on the project.

Bad practices that will not be repeated moving forward:

- Lack of documentation

Best experience: Being able to run the application showing our game

Worst experience: Many bug issues when changing A2 to work with our project.

2.9. SPRINT 3 OVERVIEW

2.9.1 Sprint Overview:

"Our goal for this sprint is to use JavaFX to create a graphic user interface and display our game."

2.9.2 Stories Selected for this Sprint:

[Dev-3] Game Design – Creating a story line based on Pokeearth (see more on Appendix A)

[Dev-2] Bug Fixes

[DEV-3] Villager and battle JavaFX

[DEV-6] Pokémon Selection for battle

2.9.3 Team Capacity:

"We expect to implement JavaFX and Pokémon selection for battle, as well as develop a storyline of our game by Dec 3rd."

2.9.4 Participants :

Laurence Liu – Addressed critical bug issues related to instantiating game objects and populating hash maps, resolving them effectively.

Krit Kasikpan – Created each room, thoughtfully adding game objects and environmental elements to align narrative and mechanics. Additionally, scripting dialogues and strategically determining spawn points to enrich the gameplay experience.

Athena Cai – Designed the JavaFX interfaces for both villagers and battle scenarios, incorporating text display for villager dialogue and creating the visual for when the player enters a battle.

Inayah Dhaliwal – Developed functionality enabling players to select Pokémon, implemented random Pokémon selection for opponents, and devised the logic for Pokémon moves.

2.9.5 Tasks Completed:

Fixed the bug issues related to instantiating game objects.

Finished the game design

Created the JavaFX for villagers and battle

Finished being able to select Pokémon and logic for Pokémon fights

2.10. SPRINT 3 PRODUCT BACKLOG

[Dev-3] Game Design – Creating a story line based on Pokeearth (see more on Appendix A)

[Dev-2] Bug Fixes

[DEV-3] Villager and battle JavaFX

[DEV-6] Pokémon Selection for battle

2.11. SPRINT 3 CODE REVIEWS

Story Reviewed	Name of Reviewer	Pull Request Link
[DEV-3]	Athena Cai	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/6f78e49913fb81c4cc2c388b71af216ea74b819f
[DEV-6]	Inayah Dhaliwal	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/e8dce999708b9f068e4217f0eca492f417b9f0da
[DEV-2]	Laurence Liu	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/cc78327a0808d8eeddf9cb230e0c0b916c95474d
[DEV-3]	Krit Kasikpan	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/merge_requests/38

2.12 SPRINT 3 RETROSPECTIVE

Participants: Laurence Liu, Krit Kasikpan, Athena Cai, Inayah Dhaliwal

Unfinished tasks: None

What went well:

- Created frontend using JavaFX for villagers and battle scene
- Finished the game design and story line referenced to Pokeearth
- Complete Pokémon selection and basic logic for Battle

New practices to include:

- Using git reset to avoid merge conflict

Bad practices that will not be repeated moving forward:

- Documentation without standard for all group members

Best experience: Successfully visualize battle scene using JavaFX

Worst experience: IntelliJ has an issue with .idea file so we sometimes have to clone the whole project to a new local directory.

2.13. SPRINT 4 OVERVIEW

2.13.1 Sprint Overview:

"Our goal for this sprint is to finalize the battle functionality and complete a fully playable game from start to finish. We also want to include accessibility features."

2.13.2 Stories Selected for this Sprint:

[DEV-1] Zoom and Contrast

[DEV-1] Text to Speech

[DEV-4] Pokémon battling logic done

[DEV-4] Enter and exit battle done.

[DEV-2] Implement AdventureMap observer pattern

2.13.3 Team Capacity:

"We expect to be able to complete all accessibility for inclusive gameplay experience, as well as completing the enter and exit logic of battle by Dec 5th. "

2.13.4 Participants :

Laurence Liu

Krit Kasikpan

Athena Cai

Inayah Dhaliwal

2.13.5 Tasks Completed:

Everything listed in our user stories was finished.

2.14. SPRINT 4 PRODUCT BACKLOG

[DEV-1] Zoom and Contrast

[DEV-1] Text to Speech

[DEV-4] Pokémon battling logic done

[DEV-4] Enter and exit battle done.

2.15. SPRINT 4 CODE REVIEWS

Story Reviewed	Name of Reviewer	Pull Request Link
[DEV-1]	Krit Kasikpan	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/1a647ceca5d9aaf41f4ff282fede661458371044

[DEV-1]	Laurence	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/merge_requests/49/diffs?commit_id=0b91730f313939b3d48a339548490161911f5853
[DEV-4]	Inayah	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/fd28331bd30a6856bda702527ee2c413a7fc3487
[DEV-4]	Athena	https://mcsscm.utm.utoronto.ca/csc207_20239/group_35/-/commit/1e4d52dbe077f684bc0a358c6aee65ff1ca2456e

2.16. SPRINT 4 RETROSPECTIVE

Participants: Laurence Liu, Krit Kasikpan, Athena Cai, Inayah Dhaliwal

Unfinished tasks: None

What went well:

- Implementation of accessibility for inclusive experiences
 - o TextToSpeech
 - o Zoom In-Out
 - o Color Contrast
- Successfully enter and exit the battle

New practices to include:

- Pair programming

Bad practices that will not be repeated moving forward:

- Overlooking code quality which ended up harder to debug

Best experience: Successfully presented the project demo

Worst experience: debugging battle logic and ended up creating more methods to handle the issue.

SECTION 3: SUMMARY

In this final section, briefly summarize both your project **accomplishments** and its **limitations**.

This project involves the creation of a comprehensive, fully playable Pokémon Role-Playing Game (RPG). The game offers an immersive experience, allowing players to

interact with villagers, catch and release Pokémon, and engage in exciting Pokémon battles.

Key Features:

- **Interactive Gameplay:** Players can communicate with in-game characters (villagers) and participate in the core activities of catching and releasing Pokémon.
- **Battle Mechanics:** The game includes a battle system where players can challenge opponents, employing strategies typical of Pokémon games.
- **Accessibility Options:**
 - **Text-to-Speech:** This feature ensures the game's accessibility to players with visual impairments or reading difficulties.
 - **High Contrast Mode:** Enhances visual clarity and readability for players with visual impairments.
 - **Zoom In/Out:** Allows players to adjust the screen magnification to their comfort level.

Technical Challenges:

- **GitLab Integration:** We encountered difficulties in integrating our project with GitLab, which was crucial for version control and collaborative development.
- **Merge Conflicts:** Resolving merge conflicts was a recurring challenge, as multiple team members worked on different parts of the game simultaneously.
- **IntelliJ Configuration with Git:** Setting up and maintaining the IntelliJ environment for smooth pull and push operations with the Git repository presented additional hurdles.

Resolution Strategies:

- To address GitLab integration issues, we dedicated time to understand GitLab's workflow and implemented standardized protocols for code commits and merges.
- For resolving merge conflicts, we established a clear communication channel among team members and conducted regular code reviews to pre-emptively

identify potential conflicts.

Conclusion:

Despite the technical challenges encountered, the project was successfully completed, resulting in a fully functional and accessible Pokémon RPG game. The team's commitment to resolving issues and enhancing the game's accessibility ensures a broad and inclusive player base. This project not only showcases our technical prowess but also our dedication to creating an engaging and accessible gaming experience.

Appendix A

Story development of our Pokémon Game

In our Pokémon Game, we developed our story based on Pokeearth (source: <https://www.serebii.net/pokearth/kanto/>), a fictional world in which the Pokémon games, TV series, movies, and other media take place. Our main character will begin the story in Kanto

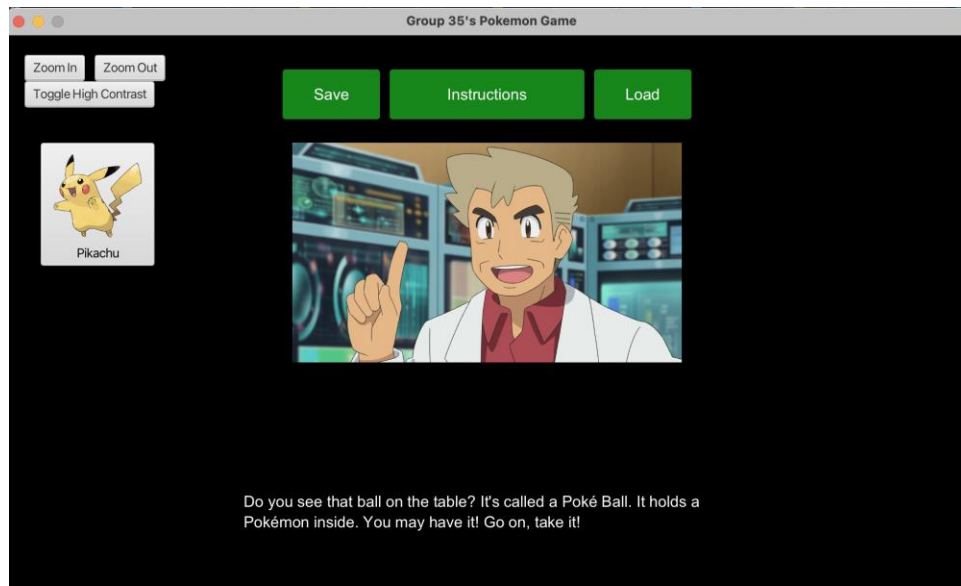


Figure 2: Scene from Professor Oak's Lab

We also put attention to detail to ensure that player get the most realistic experience possible. For example, in Room 12 (Cinnabar Island), there are many fire-type Pokémon to catch since Cinnabar Island located in the middle of glaciers. Meanwhile, in Room 11 (Seafoam Island), there are many water-type Pokémon to catch since Seafoam Island located in the middle of glaciers.

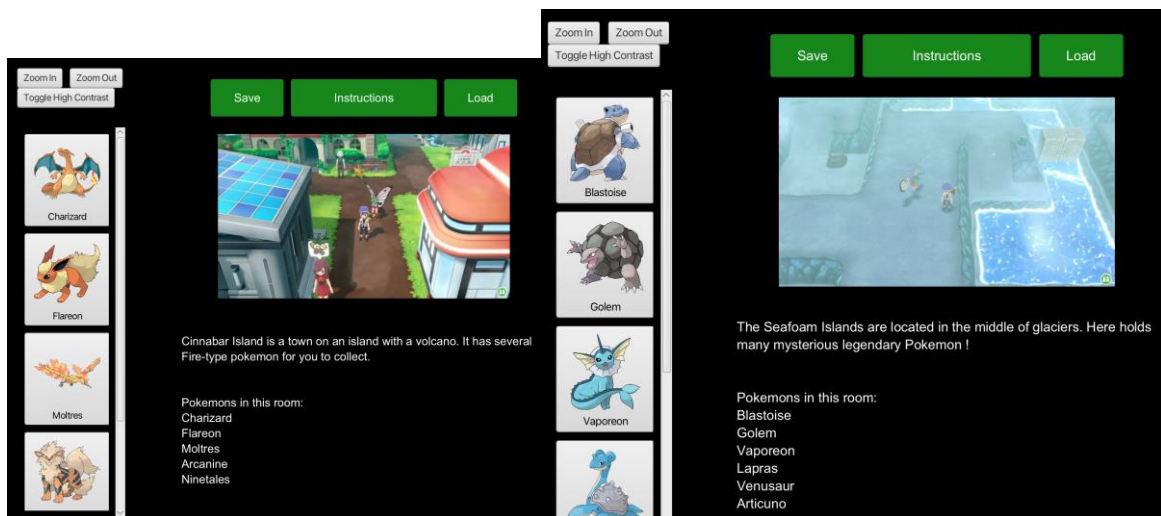


Figure 3: Cinnabar Island and Seafoam Island