CSC207 PROJECT REPORT TEMPLATE

FINAL Project Report
Created 2023.12.05

Project Name
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SECTION 1: REPORT SUMMARY

The primary motivation for undertaking this project is to gain experience and knowledge in project management, teamwork and game development. The project encourages creativity and collaboration, dedication and perseverance. It encourages applying technological and theoretical knowledge in a practical setting.

The enhancement this project will bring to the existing functionality are aimed at making the game more accessible and engaging. By implementing features such as minigames, boss fights, character classes, and abilities, the main goal is to improve the players' gaming experience. These features will not only improve the overall quality of the user experience, but potentially increase player satisfaction.

Accessibility is a crucial part of the project. Accessibility is incorporated in the project by supporting speech-to-text. The project is made to be not only fun and engaging, but also inclusive and accessible to all players.

In essence, the aim of the project is to create an accessible and engaging game as well as to encourage personal growth.

SECTION 2: PROCESS DOCUMENTATION

2.1. SPRINT 1 OVERVIEW

2.1.1 Sprint Overview:

This sprint started on November 16, 2023, and ended on November 30, 2023. Our goal for this sprint is to finalize the implementation of deleting games, loading game models, and establishing an initial view prior to the commencement of the game. In addition, our focus will extend to the development of character classes and the process of levelling up.

2.1.2 Stories Selected for this Sprint:

- User Story 1.2 – Delete Game – Adriana
- User Story 1.3 – Load Game Model – Adriana
    - The game now has an initial view before it starts. The player is allowed to start a new game by selecting a game model, or to load an already saved game.
- User Story 1.11 – Levelling up – Abdullah
- User Story 1.13 - Character Classes – Jose
- User Story 1.16 – Background Music - Jason

2.1.3 Team Capacity:

We expect to be able to finish the levelling up user story completely by December 4, 2023. This involves the acceptance criteria related to abilities. Moreover, we expect to finish an accessibility feature before December 2, 2023. A priority is Speech-To-Text and a research about Google API has already started.

2.1.4 Participants:

Adriana :

- Implementing Delete Game feature
- Implementing Load Game Model feature
- Creating the merge request to the main branch, as well as maintaining GitLab
- Writing the final project report

- Holding and participating in meetings

Abdullah:
- Implementing Levelling up feature
- Resolving merge conflicts and executing the merges
- Maintaining GitLab
- Holding and participating in meetings

Jose:
- Implementing Background Music feature
- Implementing Character feature
- Maintaining GitLab
- Participating in meetings

Jason:
- Implementing Background Music

2.1.5 Tasks Completed:

"Delete Game" user story was fully completed. Implemented a DeleteView that is displayed when the player clicks on the Delete button. The view allows the player to select a game from a list of all saved games and delete it. The player is also prompted to confirm their decision via a dialogue box. Documentation is provided for the new methods and classes.

"Load Game Model" user story was fully completed. Implemented a SelectModelView that is displayed when the game starts running. The view allows the player to either load a model and start a new game or load a saved game. To implement this, the AdventureGameApp is also slightly modified. Documentation is provided for the new methods and classes.

"Levelling up" user story was mostly completed. The Level class is implemented, which stores XP and level attributes, and handles updating. The Player class has a Level attribute. NegativeXPException is implemented if negative XP was passed in. The room and object file formats are changed. In AdventureLoader is updated to

handle the file format change. The game view is updated to include a level display with an XP bar.

"Character Classes" user story was mostly completed. The feature is implemented with Factory Pattern. A base class Character and subclasses Mage, Tank and Damage are implemented. Changed AdventureGameView to initialize a character creation prompt.

Background music was mostly completed, but wasn't able to be pushed at this time. BackgroundMusic class implemented which handles the music. Music fades in and fades out with each room. AdventureGameView is used to invoke the class.

2.2. SPRINT 1 PRODUCT BACKLOG

- Delete Game (1.2) – Priority: 1
- Load Game Model (1.3) – Priority: 1
- Speech-To-Text (1.4) – Priority: 1
- Levelling Up (1.11) – Priority: 1
- Character Classes (1.13) – Priority: 1
- Background Music (1.16) – Priority: 1
- Lives (1.7) – Priority: 2
- Challenges (1.9) – Priority: 2
- Boss Fights (1.10) – Priority: 2
- Passive Objects and Characters (1.11) – Priority: 2
- Character Abilities (1.13) – Priority: 2
- Colour Templates (1.5) – Priority: 3
- Sound Effects (1.6) – Priority: 3
- Text-To-Speech (1.8) – Priority: 3
- Map (1.12) – Priority: 3
- Armour and Weapons (1.15) – Priority: 3
- Developer Mode (1.18) – Priority: 3

2.3. SPRINT 1 CODE REVIEWS

Story Reviewed	Name of Reviewer	Pull Request Link

[DEV-1.2]: Delete Game	Abdullah Enaya	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/2
[DEV-1.3] Select Game Model	Abdullah Enaya	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/1
[DEV-1.11] Levelling Up	Adriana Gaydov	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/3
[DEV-1.13] Character Classes	Jason Chen	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/4
[DEV-1.16] Background Music	Jose Pestana	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/6

2.4 SPRINT 1 RETROSPECTIVE

- The participants in the meeting;
  - Adriana Gaydov, Abdullah Enaya, Jose Pestana
- Unfinished tasks:
  - Speech-To-Text (1.4)
  - Lives (1.7)
  - Challenges (1.9)
  - Boss Fights (1.10)
  - Passive Objects and Characters (1.11)
  - Character Abilities (1.13)
  - Colour Templates (1.5)
  - Sound Effects (1.6)
  - Text-To-Speech (1.8)
  - Map (1.12)

- Armour and Weapons (1.15)
- Developer Mode (1.18)
- A summary of practices that went well this sprint and should be continued:
  - Creative ideas and good designs
  - Prioritizing high-impact tasks can lead to significant progress
  - Setting specific and achievable goals for each sprint
- A summary of new or revised practices to include moving forward:
  - Implementing retrospective meetings at the end of each sprint to discuss what went well and what could be improved
  - Encourage team members to learn new skills or technologies that could benefit the project
- A summary of any bad practices that will not be repeated moving forward:
  - Poor communication leading to features being implemented much later
  - Ignoring feedback from group members
- Your team's best/worst experience during this sprint
  - Best: the joy of running your first feature as a group
  - Worst: the reality of working in a group

3.1. SPRINT 2 OVERVIEW

3.1.1 Sprint Overview:

This sprint started on November 30, 2023, and ended on December 2, 2023.

Our goal for this sprint is to finalize the implementation of speech-to-text, boss fights, health points/lives. In addition, our focus will extend to the development of passive objects and characters.

3.1.2 Stories Selected for this Sprint:
- User Story 1.4 - Speech-To-Text - Adriana
  - The functionality is turned on by a specific key (F5). The player can say out their commands until they turn off speech-to-text. A confirmation menu is not present.

- User Story 1.7 - Lives and HP - Jose
- User Story 1.10 - Boss Fights - Abdullah
- User Story 1.11 - Passive Objects and Characters - Jason

3.1.3 Team Capacity:

We expect to be able to complete both the character and HP / Lives user story by December 2, 2023. We expect to be able to complete Speech-To-Text user story by December 2, 2023. We expect to be able to fully complete Boss Fights user story by December 5, 2023. We expect to be able to fully complete Passive Objects and Characters user story by December 5, 2023.

3.1.4 Participants:

Adriana :
- Implementing Speech-To-Text feature
- Researching Google API and setting up Maven project
- Creating the merge request to the main branch, as well as maintaining GitLab
- Resolving merge conflicts and executing the merges
- Writing the final project report
- Holding and participating in meetings

Abdullah:
- Researching Google API and setting up Maven project
- Implementing Boss Fights feature
- Researching animations
- Resolving merge conflicts and executing the merges
- Maintaining GitLab
- Holding and participating in meetings

Jose:
- Implementing Lives/HP feature
- Completing Character Classes feature
- Maintaining GitLab
- Participating in meetings

Jason:

- Implementing Passive Objects and Characters feature

3.1.5 Tasks Completed:

Speech To Text was fully completed. The player is able to turn on the feature by pressing a key (F5). Commands are received and executed from the microphone until the player turns off the functionality. Converted the project to Maven project to support remote APIs. Google API has been integrated into the project to implement the speech-to-text functionality. Strategy pattern is used to create timelines specific to the position in game: character selection or playing the game.

Boss Fights feature was started, basic boss functionality was implemented.

"Characters" was fully completed. On the game's first initialization, the UI prompts the player to choose their desired character. The chosen character is what the player will use for that run of the game.

"HP | Lives" was fully completed. An HP progress bar is on the main screen of the game, respective to the type of character. The lives feature implemented that reduces by 1 whenever the hp falls below 0. At 0 lives the game ends.

3.2. SPRINT 2 PRODUCT BACKLOG

- Speech-To-Text (1.4) – Priority: 1
- Character Classes (1.13) – Priority: 1
- Lives (1.7) – Priority: 1
- Boss Fights (1.10) – Priority: 1
- Passive Objects and Characters (1.11) – Priority: 1
- Challenges (1.9) – Priority: 2
- Character Abilities (1.13) – Priority: 2
- Armour and Weapons (1.15) – Priority: 2
- Colour Templates (1.5) – Priority: 3
- Sound Effects (1.6) – Priority: 3
- Text-To-Speech (1.8) – Priority: 3
- Map (1.12) – Priority: 3

- Developer Mode (1.18) – Priority: 3

3.3. SPRINT 2 CODE REVIEWS

Story Reviewed	Name of Reviewer	Pull Request Link
[DEV-1.13] Character Classes	Jason Chen	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/4
[DEV-1.4] Speech-To-Text	Abdullah Enaya	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/8
[DEV-1.17] Passive objects and characters	N/A	N/A

3.4 SPRINT 2 RETROSPECTIVE

- Participants in meeting
  - Adriana Gaydov, Abdullah Enaya, Jose Pestana
- Unfinished tasks
  - Challenges (1.9)
  - Boss Fights (1.10)
  - Passive Objects and Characters (1.11)
  - Character Abilities (1.13)
  - Colour Templates (1.5)
  - Sound Effects (1.6)
  - Text-To-Speech (1.8)
  - Map (1.12)
  - Armour and Weapons (1.15)
  - Developer Mode (1.18)

- A summary of practices that went well this sprint and should be continued:
  - Split up remaining work appropriately
  - Members were given work they wanted to do the most / were the most comfortable working with.
- A summary of new or revised practices to include moving forward:
  - More team meetings – helps group to stay more organized and ensures that we actually work as a team instead of individuals who split split up work.
- A summary of any bad practices that will not be repeated moving forward:
  - Lack of communication – more meetings should be held, for meetings we did hold usually a member was absent.
- Your team's best/worst experience during this sprint:
  - Best: The user stories working together.
  - Worst: Conflicting ideas.

4.1. SPRINT 3 OVERVIEW

4.1.1 Sprint Overview:
This sprint started on December 2, 2023, and ended on December 4, 2023.
Our goal for this sprint is to finalize the implementation of minigames, armour and weapons. In addition, our focus will extend to the development of boss fights and character abilities.

4.1.2 Stories Selected for this Sprint:
- User Story 1.15 - Armour and Weapons - Jose
- User Story 1.9 - Challenges – Adriana
  - The player can now encounter a minigame (Snake) challenge that blocks their path. If they win the game, they can move to the next room. Otherwise, they remain at the same room.
- User Story 1.10 - Boss Fights - Abdullah

- User Story 1.14 - Character Abilities - Abdullah

4.1.3 Team Capacity:

We expect to finalize Challenges feature by December 4, 2023. We expect to finish Armour and Weapons, Boss Fights and Character Abilities by December 5, 2023.

4.1.4 Participants:

Adriana :

- Implementing Challenges feature
- Creating the merge request to the main branch, as well as maintaining GitLab
- Resolving merge conflicts and executing the merges
- Writing the final project report
- Holding and participating in meetings

Abdullah:

- Implementing Boss Fights feature
- Implementing Character Abilities feature
- Integrating HP and Lives into the Boss Fights.
- Researching animations
- Resolving merge conflicts and executing the merges
- Maintaining GitLab
- Holding and participating in meetings

Jose:

- Implementing Armour and Weapons feature
- Maintaining GitLab
- Participating in meetings
- Writing the final project report

Jason:

- Implementing Passive Objects and Characters feature

4.1.5 Tasks Completed:

"Challenges" was fully completed. A SnakeView has been created that contains the Snake minigame. The methods movePlayer, interpretAction have been changed to support minigame encounter. The AdventureGameView opens the SnakeView when the player runs into the challenge, and the SnakeView is closed when the player either loses or wins.

"Armour and Weapons" was partially completed. The initial idea for the armour and weapons user story was to have a separate field from the inventory of a player and instead make and equipped feature so that when the player has an item equipped it will give the bonuses. To do this the idea was to make an item subclass of the usual adventureObject, but it turned out to be too ambitious, so we instead just added attributes to adventureObject to allow attack / hp boosts when the item was added to the inventory of the player. Items were also made to be character specific.

"Boss Fights" was mostly completed. A BossFightView class was created which holds the view for the boss fight, and animation was implemented. A BossFight class was implemented, made to handle the logic of the boss fight. In a boss fight, the player can get hit, or hit, a boss. Fireball animation was implemented.

HP bar was moved into the BossFightView, with a new HP bar for the boss added. Lives are viewed alongside levels throughout the game.

"Character Abilities" was partially completed. Character classes were revamped to follow the state design pattern, with an Ability as the state. Abilities implement moves such as attack, using boosts which are held as attributes.

4.2. SPRINT 3 PRODUCT BACKLOG
- Boss Fights (1.10) – Priority: 1
- Challenges (1.9) – Priority: 1
- Armour and Weapons (1.15) – Priority: 1
- Character Abilities (1.13) – Priority: 1
- Passive Objects and Characters (1.11) – Priority: 2
- Colour Templates (1.5) – Priority: 3

- Sound Effects (1.6) – Priority: 3
- Text-To-Speech (1.8) – Priority: 3
- Map (1.12) – Priority: 3
- Developer Mode (1.18) – Priority: 3

4.3. SPRINT 3 CODE REVIEWS

Story Reviewed	Name of Reviewer	Pull Request Link
[DEV-1.13] Challenges	Abdullah Enaya	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/9

4.4 SPRINT 3 RETROSPECTIVE

- The participants in the meeting;
  - Adriana Gaydov, Abdullah Enaya, Jose Pestana
- Any unfinished tasks;
  - Boss Fights (1.10)
  - Passive Objects and Characters (1.11)
  - Character Abilities (1.13)
  - Colour Templates (1.5)
  - Sound Effects (1.6)
  - Text-To-Speech (1.8)
  - Map (1.12)
  - Armour and Weapons (1.15)
  - Developer Mode (1.18)
- A summary of practices that went well this sprint and should be continued:
  - A lot more meetings were held – both online and in person – we should continue doing this moving forward as constant communication helped us to both work together and be more transparent with workload and what was left to complete.
- A summary of new or revised practices to include moving forward:

- Implement a work timeline – workload for each member was made apparent but progression and completion of work wasn't tracked through the week.
- Be familiar with future work we are looking implement – helps overall work management as many features built off previous ones.
- A summary of any bad practices that will not be repeated moving forward:
  - Poor time management – rushed to implement features, didn't allow as many mistakes.
- Your team's best/worst experience during this sprint:
  - Best: Seeing the game come together
  - Worst: Rushing work.

5.1. SPRINT 4 OVERVIEW

5.1.1 Sprint Overview:

This sprint started and ended on December 5, 2023.

Our goal for this sprint is to finalize the implementation of boss fights, character abilities, armour and weapons. In addition, our focus will extend to the writing of the final project report as well as merging all branches.

5.1.2 Stories Selected for this Sprint:
- User Story 1.15 - Armour and Weapons - Jose
- User Story 1.10 - Boss Fights - Abdullah
- User Story 1.14 - Character Abilities - Abdullah

5.1.3 Team Capacity:

We expect to be able to finish all selected user stories for the sprint by December 5, 2023. We also expect to complete the final project report by December 5, 2023.

5.1.4 Participants:

Adriana :

- Creating the merge request to the main branch, as well as maintaining GitLab
- Resolving merge conflicts and executing the merges
- Writing the final project report
- Holding and participating in meetings

Abdullah:

- Implementing Boss Fights feature
- Implementing Character Abilities feature
- Fixing Background music
- Researching animations
- Resolving merge conflicts and executing the merges
- Maintaining GitLab
- Holding and participating in meetings

Jose:

- Implementing Armour and Weapons feature
- Maintaining GitLab
- Participating in meetings
- Writing the final project report

Jason:

- N/A

5.1.5 Tasks Completed:

Boss Fights was fully completed. A BossState was implemented to hold the interpretAction for the AdventureGame. A Command design pattern was implemented within the view and BossFight, to allow actions of the fight to be queued. Bosses can be encountered on passages. The player can choose one of three moves to do, attack, heal, or an ability.

Character Abilities was fully completed. The Command design pattern works with the abilities, to call their basic methods for the equippedAbility when the command is dequeued and executed. Abilities are tied to their animation. Each Character class

has their specific abilities. They have been implemented as just unlocked from the beginning, but the methods are available to make them level specific. The player can call the ability in the BossFight and activate it.

Armour and Weapons was fully completed. Weapons and armour are scattered in rooms and the player has the ability to pick them up if they meet the required level / XP / character to hold the item in their inventory. If the item is in their inventory, they receive the bonuses for it.

Background music was fixed, and merged completely and integrated with the other features.

The final project report was fully completed, all merge requests were created and completed. All merge conflicts were resolved, and the created features were merged from develop into the main branch.

5.2. SPRINT 4 PRODUCT BACKLOG

- Boss Fights (1.10) – Priority: 1
- Armour and Weapons (1.15) – Priority: 1
- Character Abilities (1.13) – Priority: 1
- Passive Objects and Characters (1.11) – Priority: 2
- Colour Templates (1.5) – Priority: 3
- Sound Effects (1.6) – Priority: 3
- Text-To-Speech (1.8) – Priority: 3
- Map (1.12) – Priority: 3
- Developer Mode (1.18) – Priority: 3

5.3. SPRINT 4 CODE REVIEWS

Story Reviewed	Name of Reviewer	Pull Request Link
[DEV-1.15] Armour and Weapons	Jason Chen	https://mcsscm.utm.utoronto.ca/csc207_20239/gr

		oup_74/-/merge_requests/7
[DEV-1.7] HP/Lives [DEV-1.10] Boss Fights [DEV-1.13-14] Character Abilities	Jose Pestana, Adriana Gaydov	https://mcsscm.utm.utoronto.ca/csc207_20239/group_74/-/merge_requests/10

5.4 SPRINT 4 RETROSPECTIVE

- The participants in the meeting:
    - Adriana Gaydov, Jose Pestana, Abdullah Enaya
- Any unfinished tasks:
    - Passive Objects and Characters (1.11)
    - Colour Templates (1.5)
    - Sound Effects (1.6)
    - Text-To-Speech (1.8)
    - Map (1.12)
    - Developer Mode (1.18)
- A summary of practices that went well this sprint and should be continued:
    - Most members were able to complete their individual work throughout all sprints.
    - Overall team communication improved
- A summary of new or revised practices to include moving forward:
    - Preparation – ensure that the final product works as we intended it to.
- A summary of any bad practices that will not be repeated moving forward:
    - Lack of preparation caused a lot of trouble before the presentation of the game. There was trouble merging so all features weren't able to be shown at the final presentation, these issues should have been ironed out beforehand.
- Your team's best/worst experience during this sprint:

- Best: Presenting went smoothly despite some hiccups.
- Worst: The game wasn't the full product we intended.

SECTION 3: SUMMARY

Our project has seen several significant accomplishments, as well as some limitations.

Accomplishments:
1. We successfully completed the project within the given time frame, demonstrating our ability to work efficiently and manage our time effectively.
2. Despite the communication difficulties we faced due to remote working conditions, our team maintained regular contact through scheduled in-person meetings and online communication. This ensured that almost everyone was on the same page and contributed to the project's success.
3. We were able to overcome technical challenges and learn new skills in the process, which not only benefited the project but also our personal growth.

Limitations:
1. Communication was a challenge at times, particularly due to some group members not present in meetings and hard to reach.
2. We were constrained by the project's timeline, which meant we had to prioritize certain tasks over others. As a result, there were some additional features we would have liked to implement but couldn't, due to time constraints.

Overall, we are proud of what we've achieved in this project and look forward to applying the lessons learned to future endeavors.