Space Exploration Game Report Two-Page Summary

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Space Exploration Game is a game created to help people learn about different planets and galaxies that exist in the currently unreachable vast expanse that surrounds Earth. Players can travel to different galaxies, scan different planets for information, and interact with different minigames which have a direct effect on their survival. The main three areas explored in this project include the Milky Way galaxy, the Keplar system, and the Andromeda galaxy. All information within the game was retrieved from the NASA exoplanetary website, which is to ensure that all information given is accurate and credible. The game exists for the purpose of providing an alternate way of learning. The main audience for the game is students, gamers, and teachers.

The main deliverable of this project is the game itself. Group 9 implemented a fully playable experience, which allows players to travel to three different areas, each with their own respective planets. Each planet can be explored for information, all while accounting for the survival aspect of the game. As players travel, they lose fuel to their spaceship, and may encounter danger which negatively impacts their spaceship durability. If the player were to reach zero on either their fuel or durability, the game ends. Each session has a score attached to it, which is displayed to the user, and allows for replay value. Our first release included the view for the different areas and planets, though did not have survival aspects or minigames implemented. The following two releases would add sound effects, minigames, survival stat tracking, scoring, and an additional side mode, “Creative Mode”, where players can create their own unique wallpapers based on different planets featured in the game. Animations and a game manual were also added. Overall, much of the original design from Fall 2021 Group 4 was maintained. Some differences include not being able to integrate NASA’s API for planet data, not having a save system in place, and changing the idea for “sandbox mode” into “creative mode” .

Testing for the game was done using a round-robin approach. Each member of the group provided their own pieces of code to be tested by another member of the group. Code that was tested includes the scanning minigame, the fueling minigame, the pirate encounter random event, and the game over event.

Items that were inspected include the asteroid minigame, the pirate encounter event, the Kepler90 planet view, and the Creative mode. In particular, we wanted to look at how fun, difficult, stable, and rewarding each area was. We wanted to ensure that gameplay felt rewarding and fair to players, and that it was engaging.

Many of the recommendations include adding more content to each item, such as additional backgrounds for Creative mode and for the Kepler system planet view. Another was to change some random number aspects of the pirate encounter event.

A couple of our open issues involve the game survival and point aspects. Group 9 coded the game independently and pushed different areas of the game together. The main way that consistency was maintained was through discussion at the weekly meetings and via Discord. This meant that each galaxy rewarded score differently, decremented fuel and durability differently, and rewarded fuel and durability differently. Given more time, one goal would be to balance the scoring and survival systems across the board, so that a more consistent experience is delivered to the player. The main issue left in the waiting room is the save system. There had been plans to implement a save system, however due to time constraints, it had to be cut.

In retrospect, it was a good idea to standardize the use of IntelliJ, GitHub, and Discord for all group members. This allowed us to help one another with troubleshooting, idea discussion, and progress checks. The main critique of our development process was that each member coded independently. This meant a fair amount of variation between planets gameplay and look wise. One thing we would change is to map out our design ahead of time, and to create a uniform way of awarding stats and maintaining score.