**Greedy Dwarf Deliverables, Testing and Inspections Report**

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[**Project Description**](https://docs.google.com/document/d/1P_rxwQHqadJIyfRsrA6IPUIZDZWh35QJ/edit#heading=h.tyjcwt)

The game Greedy Dwarf is a top-down Pac-Man style arcade game. The project consists of a dwarf that is supposed to pick up as much treasure as he can and avoid getting caught by the dragon. The game implements a traveling salesman algorithm, as the dwarf collects different treasures, the dwarf’s speed decreases and thus the player needs to plan the strategy of collecting the treasure in the right order.

[**Project Deliverable**](https://docs.google.com/document/d/1P_rxwQHqadJIyfRsrA6IPUIZDZWh35QJ/edit#heading=h.lnxbz9)

This project was done in three different sprints, and each was carefully planned in two different scenarios. After 8 weeks, our group managed to make a working prototype of the project previously created by the other group from the past semester. We separated the project into three main parts that had to be done during the specific sprint.

The first part was making sure that the Map consisted of a collection of Tiles where the different objects like Creatures (Dwarf and Dragon), Walls and Pickup Items (Treasures) are supposed to be. We also made sure in this part that the dwarf was able to move around the Map freely, that the Key Listener works, and that the Map has objects and different variations of object places.

The second part was making sure that the travelling salesman algorithm works, and that consisted of the dwarf’s speed changes, the treasure pick up, the dragon chasing the dwarf after the treasure has been picked up and also the dragon’s range. The last part was adding details that would make our game nicer, such as the main menu with instructions and start button, high score, and saving the game when the player wants to exit.

[**Testing**](https://docs.google.com/document/d/1P_rxwQHqadJIyfRsrA6IPUIZDZWh35QJ/edit#heading=h.svtci2elahu8)

Three major functions of the project required manual testing. Over the course of a week the key listener, item pick up function, and the dwarf’s movement speed were tested multiple times on each level of the game to ensure that each item functioned correctly.

Test 2.1 - Key Listener Test - This test will determine whether or not the code responds to the keyboard presses in a timely manner and correctly.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Input: Keypress** | Up Arrow | Down Arrow | Right Arrow | Left Arrow | L Key | S key |
| **Output:** | Dwarf moves up | Dwarf moves down | Dwarf moves right | Dwarf  moves left | Loaded saved game in text file | Saves current game to text file |

***Table 2.1 - Input/Output for Test 2.1***

Test 2.2 - Pick Up Item Test - This test determines whether or not all functions associated with the player collecting treasure items on the map function correctly.

|  |  |  |  |
| --- | --- | --- | --- |
| **Input: Interaction** | Player with Gold | Player with Ruby | Player with Diamond |
| **Output:** | Gold is no longer visible on the map, cannot be found in the Tile Arraylist, and Score is now 1 | Ruby is no longer visible on the map, cannot be found in the Tile Arraylist, and Score is now 5 | Diamond is no longer visible on the map, cannot be found in the Tile Arraylist and Score is now 10 |

***Table 2.2 - Input/Output for Test 2.2***

Test 2.3 - Dwarf’s Speed Test - The test will determine whether the dwarf changes the speed after picking up different treasures.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Input:** | Coin | Ruby | Diamond | All together | Collision with dragon | Level 1/2/3/4 |
| **Output:** | Dwarf moves up | Dwarf moves down | Dwarf moves right | Dwarf  moves left | Loaded saved game in text file | Change in speed like in previous tests |

***Table 2.3 - Input/Output for Test 2.3***

[**Inspection**](https://docs.google.com/document/d/1P_rxwQHqadJIyfRsrA6IPUIZDZWh35QJ/edit#heading=h.z337ya)

Inspections were conducted on the game state class, map component class, key listener class, item pick up function, player death function, dragon chase function, main menu code, dragon range function, and the dwarf’s speed change function. These inspections helped identify key issues as well as areas in the code that could be improved for efficiency, style and structure.

[**Recommendations and Conclusions**](https://docs.google.com/document/d/1P_rxwQHqadJIyfRsrA6IPUIZDZWh35QJ/edit#heading=h.1ci93xb)

We had a few recommendations for this project that could improve it. One of them is to fix the speed of the map updates. The map currently updates slower that the player can move the dwarf. Another thing is the improvement of collision checking, we made a recommendation that it should be checked by using smaller lists of more specific object types like Pickup or Creature instead of our way - by using one large tile array list. The next improvement that can be made is the dragon range function, which currently doesn’t work. The improvement could be to use the same code as the one from the dragon chasing when the treasure is picked up. The last addition might be to add sound effects.

[**Project Issues**](https://docs.google.com/document/d/1P_rxwQHqadJIyfRsrA6IPUIZDZWh35QJ/edit#heading=h.3whwml4)

One of the main issues that the original creators aimed to solve in future releases is to cater towards those who have color blindness. To do so in the setting there will be different color pallets that will cater towards those who aren’t able to see the original color pallet. Throughout the development of the game our team met once a week but on certain weeks we found ourselves meeting twice a week. In the future we should strive twice a week to have more check in and help each other more.