

Overall plan and description of game

Underwater Adventure!

In this 2D underwater adventure arcade game, the Turtle will be the main character for the user to control its movement. During the game, the scuba diver will be following the main character. The game will end once the turtle gets caught by the scuba diver or gets eaten by a shark. However, the game will also have other obstacles to add some difficulties for players. Lastly, the game will have three stars to demonstrate the user's performance in the game. A player will only win one star if he/she finishes the game without getting any rewards. Anyone who gets half of the rewards in the game will get two stars. Players will win all three stars if they collect all the rewards.

- **Main character-** Main character in our ocean theme-based 2d arcade game will be a Turtle. The turtle can move in four directions up/down/left/right controlled using four keyboard keys. The Turtle will have to dodge all the moving and stationary enemies and collect all the regular rewards (keys) to leave the maze and win the game.
- **Enemies** – The game will have two types of moving enemies which are briefly described below.
 - **Scuba diver-** Scuba diver will be able to move in all directions in the maze like the main character (turtle). Every tick on the keyboard will bring it closer to the turtle. Collision with a scuba diver will lead to the player losing and the game ends.
 - **Shark-** Shark will be a moving enemy but will be restricted to moving in either a vertical or horizontal line. Any contact with a shark would end the game and the player loses.
- **Punishment** - The game would contain two types of punishments. Punishments will add some degree of difficulties to the player during the game.
 - **Squid** - The squid will splash ink to the main character. As the main character gets splashed by the squid, the vision of the game will get limited. The player will only see cells around them. Once hit with ink, the score will decrease by 20 and the player will lose one heart.
 - **Seaweed** - The seaweed would slow down the player's speed. However, the player will be forced to go through the seaweed as some of awards are hidden in the seaweed.
- **Rewards-** The main character wants to find the underwater buried treasure! There will be two rounds of regular rewards that the main character must collect before they are able to leave the map. Both rewards will be collected as the character moves onto the cell that the reward resides in.

- o **Pieces of a Map-** When the game begins, the pieces of the map will be scattered across the board. The player must collect all pieces of the map for the next regular reward to populate the board. When the map has been completed, it will be displayed for the user to see. Each piece found will increase the score by 10.
 - o **Keys-** Once the player has collected all pieces of the map, the keys will appear on the board. Once the keys have been collected by the player, the player will then be able to reach the “exit” cell and receive the buried treasure. Each key collected will increase the score by 10.
- **Bonus Rewards** - The game will have two types of bonus rewards; one will assist the player in achieving victory and the other will improve the final score of the player.
 - o **Worms-** Worms will randomly appear and disappear as a consumable throughout the game. Once consumed, the fish (main character) will gain half a heart back. Each worm taken will increase the score by 20.
 - o **Shrimps-** Shrimps will randomly appear and disappear as bonus points inside seaweeds; obtaining shrimps will improve the final score of the player by allowing the players to achieve 1~3 stars, 3 stars being the highest achievable result. Each shrimp taken will increase the score by 20.
- **Board and Barriers** - The board’s perimeter will be surrounded by rocks that no character can move through. Throughout the board, there will be one cell individual barriers, represented by coral, that will also block the movements of all characters on the board. The start cell is positioned in the bottom left-most corner of the board. The end cell is positioned in the top right-most corner of the board. Relative to the start cell, an enemy’s initial position is not allowed to be within 5 cells of the start. In the bottom of the screen, the current score, as well as the time elapsed will be displayed for the user. The main character’s lives are in the bottom right hand corner of the screen. These hearts will indicate how many times a player has come in contact with a stationary punishment.

When a player wins the game, i.e. they collect all regular rewards and touch the end cell, the game will display the “win screen”, which shows the time taken, score, and the amount of stars a player has earned. A player will earn one star for completing the game with no bonus rewards, two stars for obtaining half, and three stars for completing the game with all bonus rewards obtained. If a player touches a moving enemy or the number of hearts they have drops to zero, the game will display the “game over screen”, which also displays the score and gives the player the opportunity to try again or exit.