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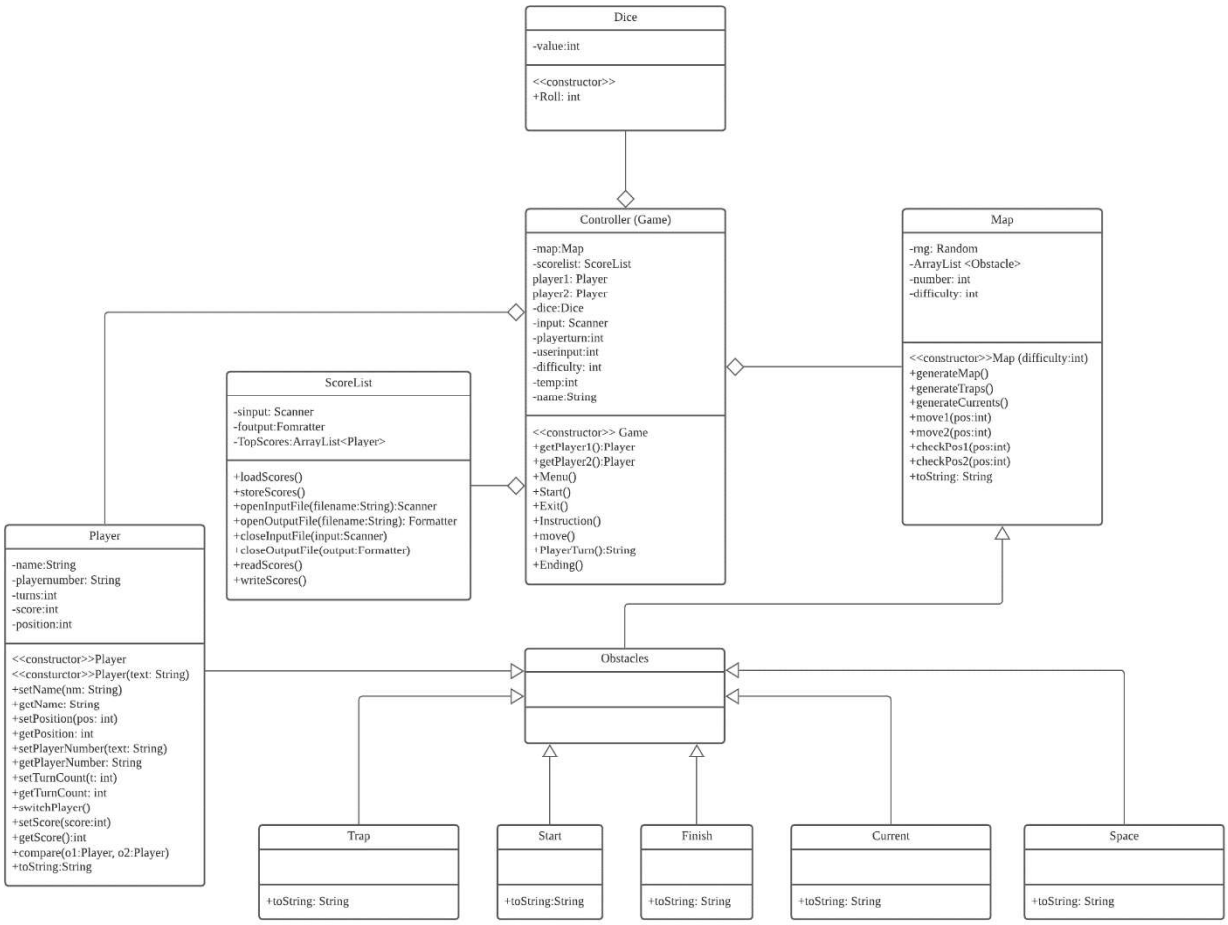
1.0 UML Diagram to show Class and Class relationship



2.0 Screenshots with description to demonstrate the test results

2.1 Main menu screen

2.11 The first screen the player will see when they boot up the game

```
#################
#1.Start        #
#2.Exit         #
#3.Instruction  #
#################
```

-Player can key in either number 1, 2 or 3 to continue to other screens

2.12 Screen that pops up when player enters an invalid input

```
#################
#1.Start        #
#2.Exit         #
#3.Instruction  #
#################
adsasd
Pleae enter a valid input
#################
#1.Start        #
#2.Exit         #
#3.Instruction  #
#################
```

-Program will prompt the user to enter a valid input and loop back to the main menu

2.13 When player enters 2

```
#################
#1.Start        #
#2.Exit         #
#3.Instruction  #
#################
2
Thanks for playing!
```

-Program will exit

2.14 When player enters 3

```
3
********************
****INSTRUCTIONS****

Welcome to the boat game!
The 'T' on the map stands for trap
If you step on a trap, you will be set back three steps

Difficulty levels determine how many traps will spawn on the map
There are 3 difficulty levels

If a Player steps on another player,
The player that got stepped on will be set back one step

The first player who reaches the finish line wins and gets bonus points depending on difficulty

That is all for the instructions, good luck have fun!

################
#1.Start       #
#2.Exit        #
#3.Instruction #
################
```

-Instructions will be printed out and after that, loop back to main menu

2.15 When player enters 1

```
################
#1.Start       #
#2.Exit        #
#3.Instruction #
################
1
1. asfas 408
2. asdsdfsdf 408
3. asdasd 402
4. fsdsdf 399
5. 123123 393

Please input difficulty:
3
Please enter Player 1 name:
ali
Please enter Player 2 name:
abu
generating traps
generating currents

Player ali turn
Press Enter to roll the dice!
```

-When player enters 1, the game will prompt the top 5 scores, and then prompt the player to enter the difficulty level (between 1 to 3) and the player names. Difficulty is an additional function in this game that determines the trap count.

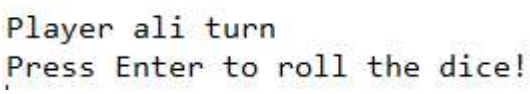
2.16 error handling for invalid input in difficulty

```
Please input difficulty:
asdasd
Please enter a number between 1 to 3
Please input difficulty:
```

-If player enters invalid input, program will prompt the user to enter difficulty value again

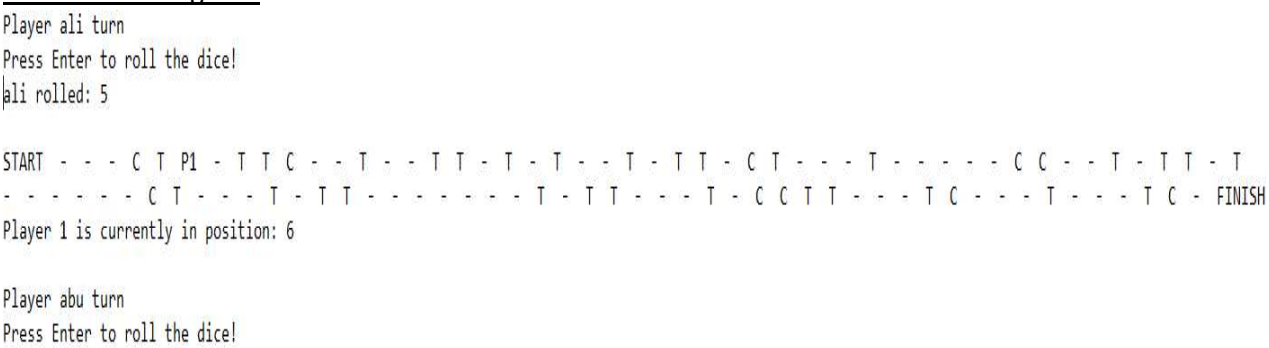
2.2 Game screen

2.21 Message to roll dice



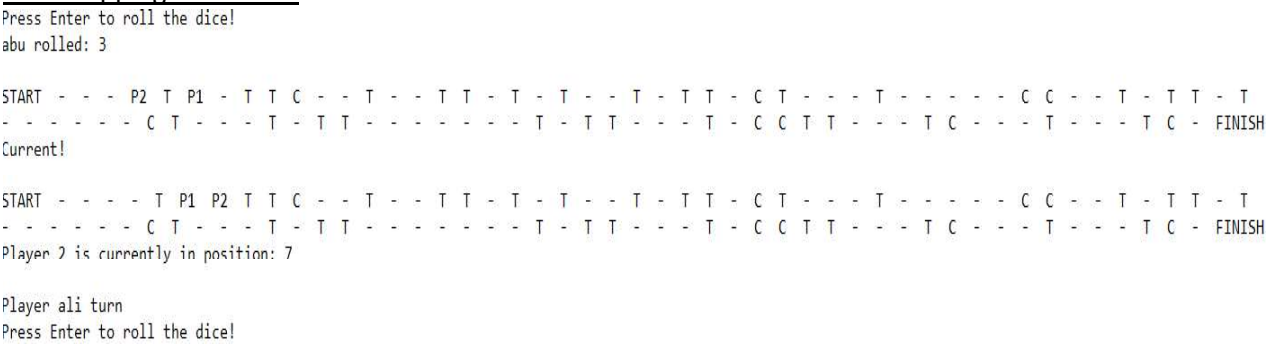
-Program will tell the user to press enter to roll dice

2.22 After rolling dice



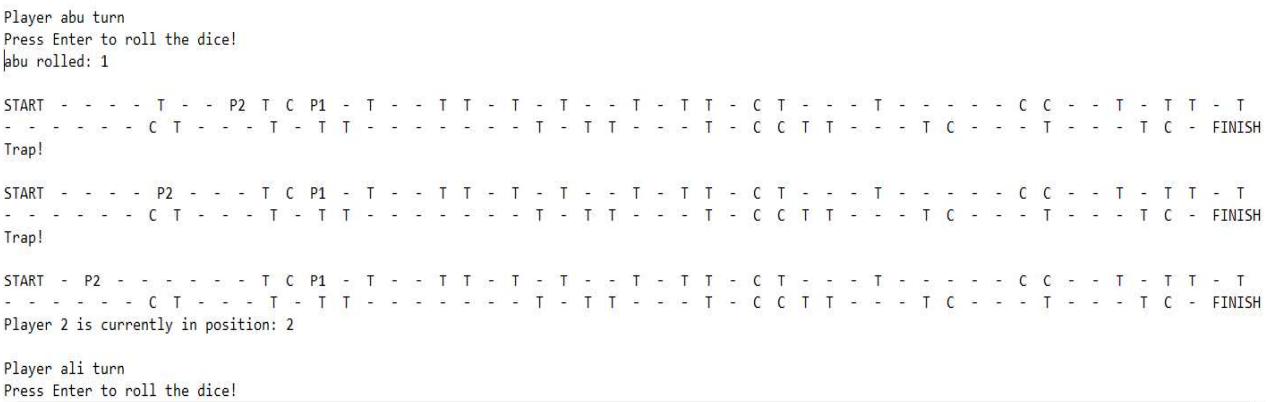
-After rolling, program will tell the user the number that they have rolled and print the map out. After that, it will prompt player 2 to roll the dice

2.23 Stepping on current



-In this picture, player 2 has stepped on a current. What will happen is that the program will prompt the word “Current!” to alert the user that they have stepped on a current and then update the map and the player will be pushed forward 3 steps. The updated map is printed out again. A similar thing is done for traps

2.24 Stepping on multiple traps



-In this scenario, player 2 has stepped on a trap. When that happens, the system will prompt the word “Trap!” and the player will be sent back 3 steps. In this case, when the player is sent back 3 steps, the player stepped on another trap, therefore the player will be sent back 3 steps again. This process will keep repeating until the player steps on an empty tile.

2.3 End Screen

2.31 When a player has won

```
Player zxcc turn
Press Enter to roll the dice!
rolling
zxcc rolled: 6
zxcc Has Won!

zxcc's final score is: 405
123123's final score is: 102
Would you like to play again? (Yes: 1/ No: 0)
```

-In this image, the game has detected that the player zxcc has won. Therefore, it will prompt the final score of the 2 players, with the winner having a higher score due to getting a bonus from winning. After that, the system will ask if the player wants to play again or not.

2.32 Playing again

```
Would you like to play again? (Yes: 1/ No: 0)
1
################
#1.Start       #
#2.Exit        #
#3.Instruction #
################
```

-If the player enters 1, then the game loops back to the main menu and everything starts again

2.33 Not playing again (entering 0)

```
Would you like to play again? (Yes: 1/ No: 0)
0
Thank you for playing!
```

-If the player enters 0, the system prompts the words “Thank you for playing!” and exits.

2.34 Error handling

```
12's final score is: 399
Would you like to play again? (Yes: 1/ No: 0)
12
Please enter a valid input
Would you like to play again? (Yes: 1/ No: 0)
```

-If player enters a number other than 1 or 0, an error message will pop out and ask the user to enter again

3.0 Additional Function

3.1 Stepping on another player

```
Player zxcc turn
Press Enter to roll the dice!
zxcc rolled: 2

START  -  -  P1  T  -  C  -  -  T  T  C  -  C  -  -  T  -  -  -  -  -  -  -  -  -  -  C  -  -  -  -  T  T  -  C  T  T  -  -  T  T  -  T  -  -  C  T  T  C  T
-  T  -  -  -  -  -  -  T  -  -  -  T  T  -  T  T  -  -  T  T  -  T  -  T  -  -  -  -  T  -  -  T  -  -  -  C  -  -  -  C  -  -  T  T  T  -  C  -  T  -  FINISH
Player 1 is currently in position: 3

Player 123123 turn
Press Enter to roll the dice!
123123 rolled: 2
Stepped on Player 1!

START  -  P1  P2  T  -  C  -  -  T  T  C  -  C  -  -  T  -  -  -  -  -  -  -  -  -  -  C  -  -  -  -  T  T  -  C  T  T  -  -  T  T  -  T  -  -  C  T  T  C  T
-  T  -  -  -  -  -  -  T  -  -  -  T  T  -  T  T  -  -  T  T  -  T  -  T  -  -  -  -  T  -  -  T  -  -  -  C  -  -  -  C  -  -  T  T  T  -  C  -  T  -  FINISH
Player 2 is currently in position: 3

Player zxcc turn
Press Enter to roll the dice!
```

-We have added a special function that allows players to kick each other back when they step on each other. In this scenario, player 1 (zxcc) is on the 3rd tile. On player 2 (123123)'s turn, he also rolled 3, and landed on the same tile as player 1. This will cause player 2 to kick player 1 backwards one step, which is an additional function in the game. The same thing will happen if player 1 steps on player 2.

-This special function is added to give the players more thrill and it also helps to make the map look neater. Since it is not possible to display two players on one tile, we just decided that it would be better to not allow the scenario where 2 players stand on one tile (except for the beginning of the game which is unavoidable)

3.2 Difficulty

```
Please input difficulty:
3
```

-We have also implemented a difficulty feature that allows players to set difficulty. The higher the difficulty, the more traps, however, the number of currents remain the same. The advantage of setting a higher difficulty is that the score players get will be higher. We implemented this feature with hardcore players that like a challenge in mind.