# Group 6 Game Presentation

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Introduction

The rules of game are as follows:
- There are 2 players, S and O.
- They roll their dice, getting a number from 1 to 3.
- They move around the board in circular motion until they reach square number 8, as shown on the right.
- If a player lands on another player, they kill them and reset them back to the starting position.
- In order for a player to win the game, they have to land exactly on the finish spot otherwise their turn is skipped.

7	6	5
SO	TAKE ME HOME 8	4
1	2	3

Flowchart
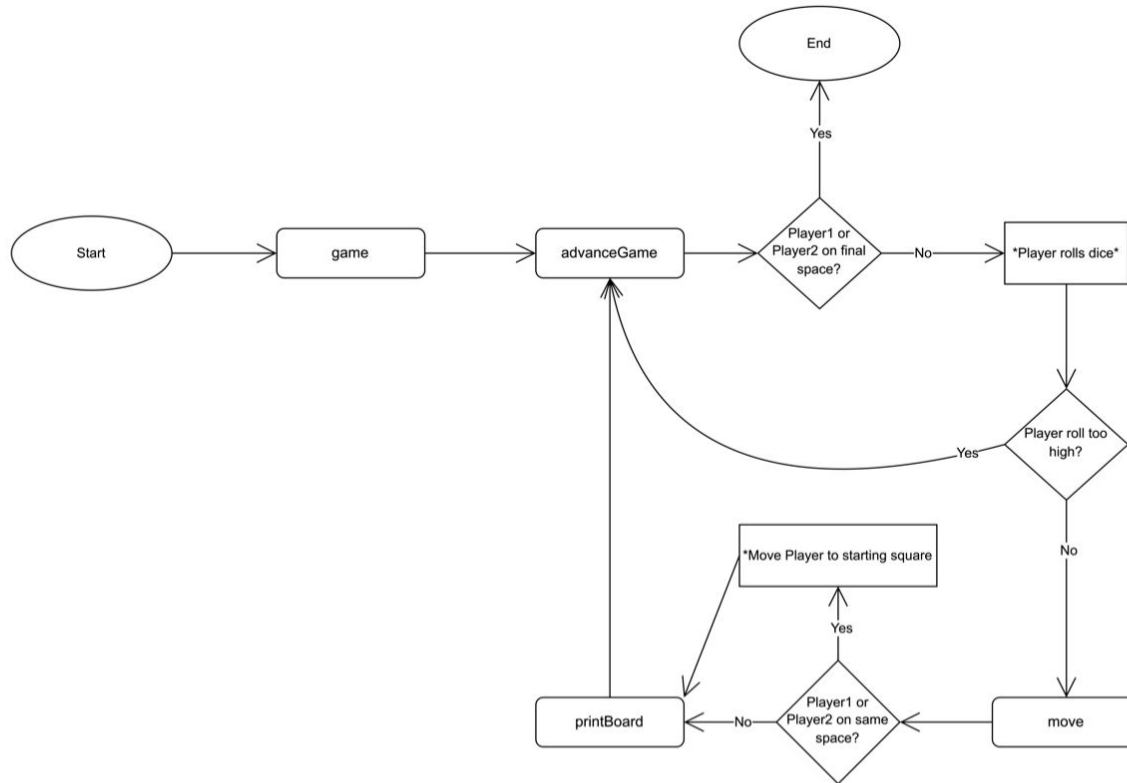
Main Game Pseudocode

```
initialise player1 and player2 with their starting
position
call game()
print(Initial Board)
while (No player has landed on finishing tile)
    call advanceGame()
        rollDice
        if player roll is too high
            Skip turn
        else
            move
    check if a player killed another player
    print(New board state)

 If player has won:

    print(Board)

    print(winning player)
```

Code Snippets

The printBoard function generates the rows and columns. It prints the "|" character at the start and end of each line to indicate the border. It also calls the getPattern function to get the value of each tile.

The getPattern function is responsible for generating the pattern a specific tile should take depending on how many players are on it (O,S or both)

```python
def getPattern(i, j, p1, p2):
    if j == p1[0] and i == p1[1] and j == p2[0] and i == p2[1]:
        pattern = " \033[1;36mSO\033[0;0m"
    elif j == p1[0] and i == p1[1]:
        pattern = " \033[1;36mS\033[0;0m "
    elif j == p2[0] and i == p2[1]:
        pattern = " \033[1;36mO\033[0;0m "
    else:
        pattern = "   "
    return pattern
```

```python
def printBoard(player1, player2):
    print("-------------")
    for i in range(1, 4):
        print("|", end="")
        for j in range(1, 4):
            print(getPattern(4 - i, j, player1, player2), end="|")
        print("\n-------------")
    print("==========================")
```

Code Snippets contd.

The advanceGame function is in charge of dice roll mechanic as well as checking if a player has rolled too high.

The move function is responsible for changing the direction a player should move depending on if it has reached a corner.

```python
def advanceGame(currentPlayer):
    input("Press enter to roll dice")
    print("Rolling Dice...")
    currentRoll = random.randint(1, 3)
    print("The result is ", currentRoll)
    # Check if a player rolled too high
    if (currentPlayer[0] == 2 and currentPlayer[1] == 3 and currentRoll > 2) or (
            currentPlayer[0] == 1 and currentPlayer[1] == 3 and currentRoll > 1):
        print("\033[1;31m You rolled too high. Turn has been skipped.\033[0;0m")
        pass
    # Otherwise call the move method for the player
    else:
        move(currentPlayer, currentRoll)
```

```python
def move(currentPlayer, currentRoll):
    for i in range(1, currentRoll + 1):
        # Check if user is on the first corner, if yes turn di
        if currentPlayer[0] == 1 and currentPlayer[1] == 1:
            currentPlayer[2] = 1
            currentPlayer[3] = 0
        # Check if user is on the second  corner, if yes turn
        elif currentPlayer[0] == 3 and currentPlayer[1] == 1:
            currentPlayer[2] = 0
            currentPlayer[3] = 1
        # Check if user is on the third corner, if yes turn di
        elif currentPlayer[0] == 3 and currentPlayer[1] == 3:
            currentPlayer[2] = -1
            currentPlayer[3] = 0
        # Check if user is on the last corner, if yes move pla
        elif currentPlayer[0] == 1 and currentPlayer[1] == 3:
            currentPlayer[2] = 1
            currentPlayer[3] = -1
    currentPlayer[0] += currentPlayer[2]
    currentPlayer[1] += currentPlayer[3]
```

Code Snippets contd.

The game function will run a while loop until a player has reached the final tile. In that iteration, it will call the advanceGame function to roll the dice as well as the printBoard function to print the board state.

It checks if a player has landed on someone else, resetting them. If someone has won, the loop is broken and the winner is announced.

```python
def game(player1, player2):
    currentPlayer = player1
    currentPlayerName = "S"
    # Print initial board
    printBoard(player1, player2)
    print("It is S's turn")
    # Loop will keep running until a player has reached the end tile
    while [player1[0], player1[1]] != [2, 2] and [player2[0], player2[1]] != [2, 2]:
        # Call advanceGame with the current player as an argument
        advanceGame(currentPlayer)
        # Check if player O has landed on S
        if player1 == player2 and currentPlayerName == "O":
            player1 = [1, 2, 0, -1]
            print("O has \033[33mkilled\033[0;0m S")
        # Check if player S has killed player O
        elif player1 == player2 and currentPlayerName == "S":
            player2 = [1, 2, 0, -1]
            print("S has \033[33mkilled\033[0;0m O")

        printBoard(player1, player2)
        # Check which player's turn it is
        if currentPlayerName == "S" and [player1[0], player1[1]] != [2, 2]:
            currentPlayer = player2
            currentPlayerName = "O"
            print("It is O's turn")
        elif currentPlayerName == "O" and [player2[0], player2[1]] != [2, 2]:
            currentPlayer = player1
            currentPlayerName = "S"
            print("It is S's turn")
    # Check if player won the game
    if currentPlayer == player1:
        print("\033[0;32m S has won the game!")
        print("\033[0;0m=============================")
    else:
        currentPlayer = player1
        print("\033[0;32m O has won the game!")
        print("\033[0;0m=============================")
```

Stunning 2D Graphics

Starting Output:

```
-------------
|   |   |   |
-------------
| SO|   |   |
-------------
|   |   |   |
-------------
=====================
It is S's turn
Press enter to roll dice
```

Player Death Output:

```
=====================
It is S's turn
Press enter to roll dice
Rolling Dice...
The result is  2
S has killed O
-------------
| S |   |   |
-------------
| O |   |   |
-------------
|   |   |   |
-------------
```

Roll too High Output:

```
=====================
It is S's turn
Press enter to roll dice
Rolling Dice...
The result is  2
 You rolled too high. Turn has been skipped.
-------------
| S |   | O |
-------------
|   |   |   |
-------------
|   |   |   |
-------------
```

Player Win Output:

```
=====================
It is O's turn
Press enter to roll dice
Rolling Dice...
The result is  3
-------------
| S |   |   |
-------------
|   | O |   |
-------------
|   |   |   |
-------------
=====================
 O has won the game!
=====================

Process finished with exit code 0
```

Thank You