REPORT

On

Snake Game Project

For

Distributed Programming

Submitted by

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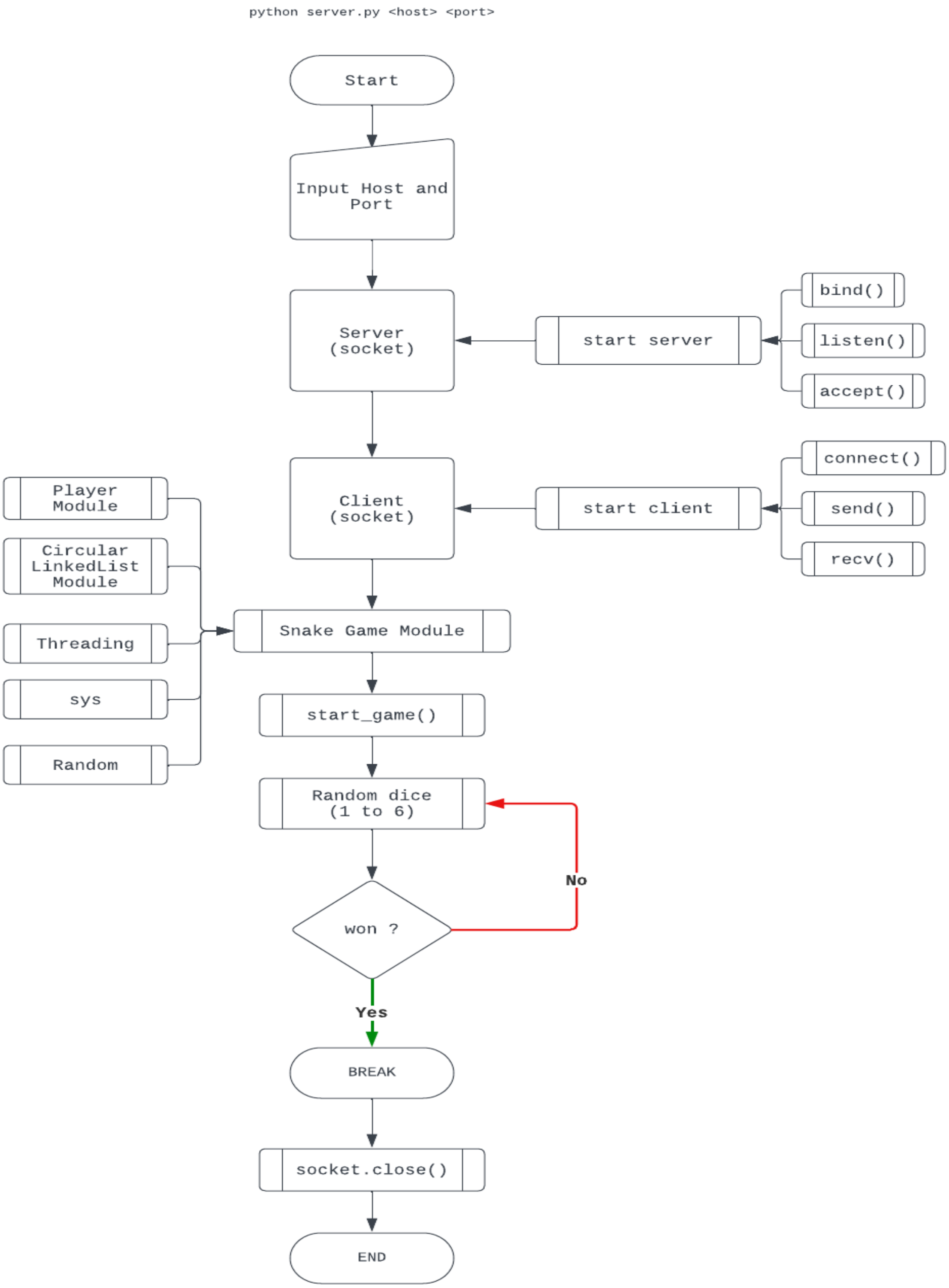
Abstract

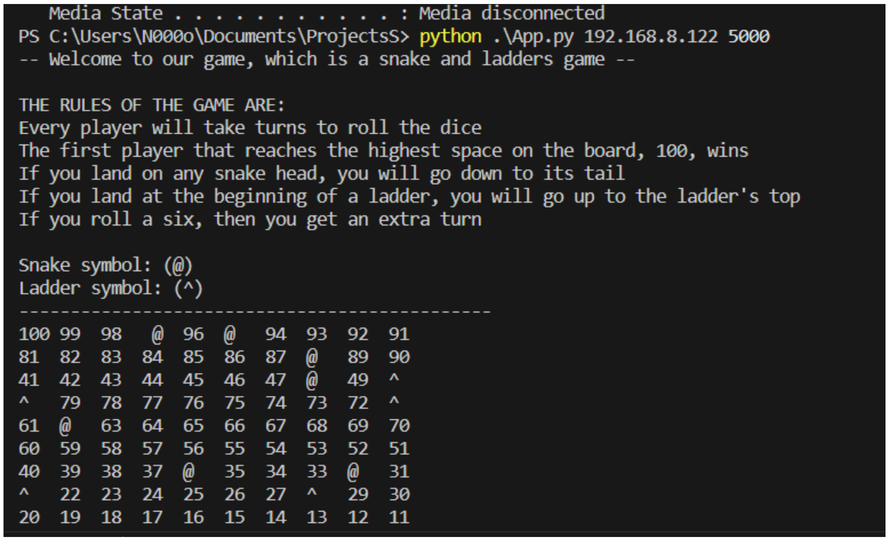
1. Introduction:

Snake, a classic arcade game, has been a staple in the realm of computer games since its inception. The game's simplicity and addictive nature make it a popular choice for developers looking to explore the fundamentals of programming and game design. In this project, we delve into the creation of a Snake game using Python, a versatile and beginner-friendly programming language. As we navigate through the development process, we aim to understand key concepts such as user input, and game logic, offering a hands-on experience for both aspiring programmers and game enthusiasts.

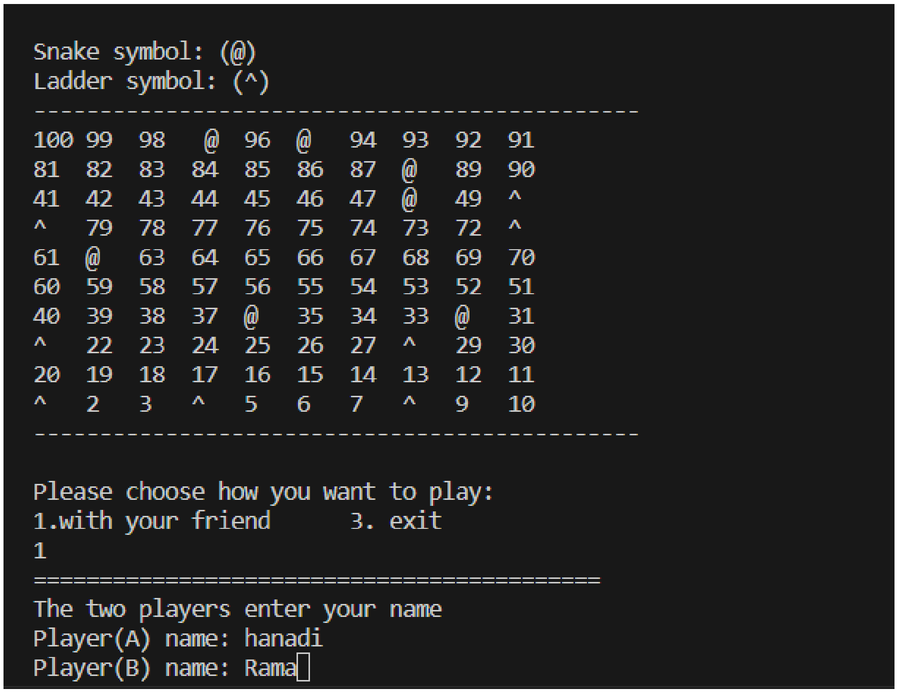
2. Flowchart


python server.py <host> <port>
Start
Input Host and Port
Server (socket)
start server
bind()
listen()
accept()
Client (socket)
start client
connect()
send()
recv()
Player Module
Circular LinkedList Module
Threading
sys
Random
Snake Game Module
start_game()
Random dice (1 to 6)
won ?
No
Yes
BREAK
socket.close()
END

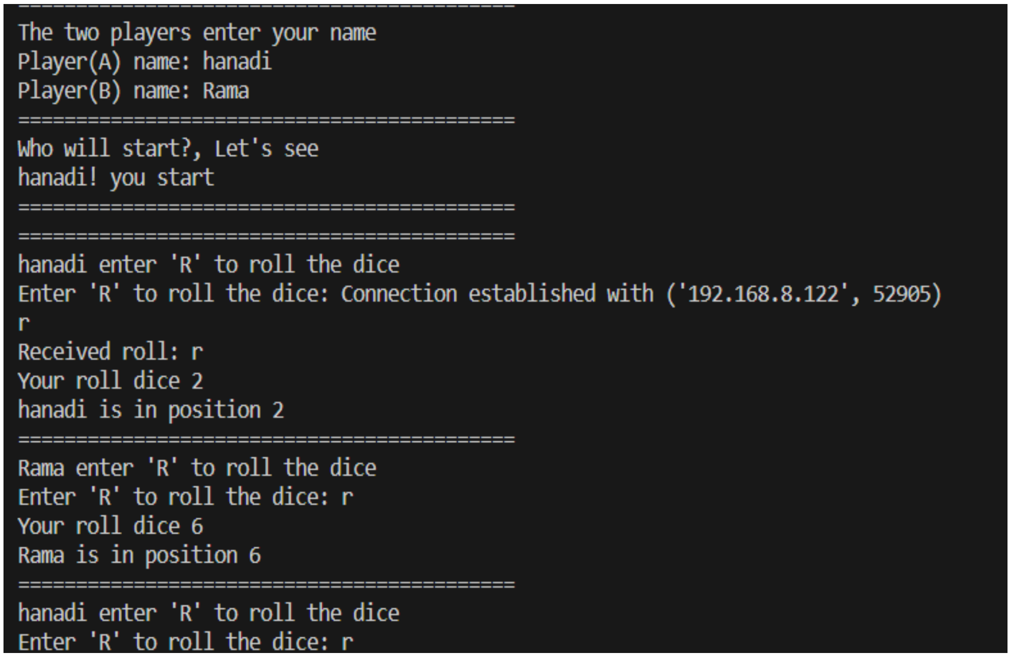
3. Output Screenshot



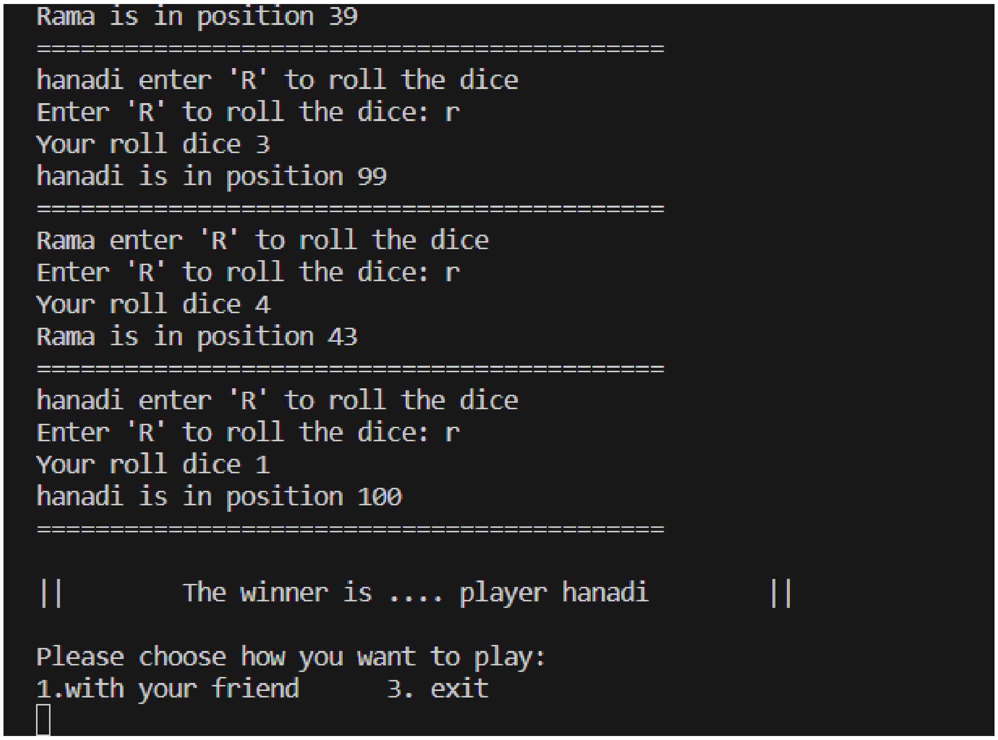
```
   Media State . . . . . . . . . . . : Media disconnected
PS C:\Users\N000o\Documents\ProjectsS> python .\App.py 192.168.8.122 5000
-- Welcome to our game, which is a snake and ladders game --

THE RULES OF THE GAME ARE:
Every player will take turns to roll the dice
The first player that reaches the highest space on the board, 100, wins
If you land on any snake head, you will go down to its tail
If you land at the beginning of a ladder, you will go up to the ladder's top
If you roll a six, then you get an extra turn

Snake symbol: (@)
Ladder symbol: (^)
----------------------------------------------
100 99  98   @  96  @   94  93  92  91
81  82  83  84  85  86  87  @   89  90
41  42  43  44  45  46  47  @   49  ^
^   79  78  77  76  75  74  73  72  ^
61  @   63  64  65  66  67  68  69  70
60  59  58  57  56  55  54  53  52  51
40  39  38  37  @   35  34  33  @   31
^   22  23  24  25  26  27  ^   29  30
20  19  18  17  16  15  14  13  12  11
```



```
Snake symbol: (@)
Ladder symbol: (^)
----------------------------------------------
100 99  98   @  96  @   94  93  92  91
81  82  83  84  85  86  87  @   89  90
41  42  43  44  45  46  47  @   49  ^
^   79  78  77  76  75  74  73  72  ^
61  @   63  64  65  66  67  68  69  70
60  59  58  57  56  55  54  53  52  51
40  39  38  37  @   35  34  33  @   31
^   22  23  24  25  26  27  ^   29  30
20  19  18  17  16  15  14  13  12  11
^   2   3   ^   5   6   7   ^   9   10
----------------------------------------------

Please choose how you want to play:
1.with your friend      3. exit
1
===========================================
The two players enter your name
Player(A) name: hanadi
Player(B) name: Rama
```



```
==========================================
The two players enter your name
Player(A) name: hanadi
Player(B) name: Rama
==========================================
Who will start?, Let's see
hanadi! you start
==========================================
==========================================
hanadi enter 'R' to roll the dice
Enter 'R' to roll the dice: Connection established with ('192.168.8.122', 52905)
r
Received roll: r
Your roll dice 2
hanadi is in position 2
==========================================
Rama enter 'R' to roll the dice
Enter 'R' to roll the dice: r
Your roll dice 6
Rama is in position 6
==========================================
hanadi enter 'R' to roll the dice
Enter 'R' to roll the dice: r
```



```
Rama is in position 39
==========================================
hanadi enter 'R' to roll the dice
Enter 'R' to roll the dice: r
Your roll dice 3
hanadi is in position 99
==========================================
Rama enter 'R' to roll the dice
Enter 'R' to roll the dice: r
Your roll dice 4
Rama is in position 43
==========================================
hanadi enter 'R' to roll the dice
Enter 'R' to roll the dice: r
Your roll dice 1
hanadi is in position 100
==========================================

||         The winner is .... player hanadi        ||

Please choose how you want to play:
1.with your friend      3. exit
```

4. Utilized Module

1. sys Module

The `sys` module provides access to some variables used or maintained by the Python interpreter. It's commonly used for system-related functionalities, such as exiting the program. In Snake game to get host and port number as arguments (Inputs).

2. socket Module

The `socket` module enables communication over networks using sockets. In the context of a Snake game, Socket is used to create server and client for the game where client is the player.

3. threading Module

The `threading` module provides a way to run multiple threads (smaller units of a program) concurrently. This is useful for handling multiple tasks simultaneously, such as handling user input and updating the game state, threading can be employed to prevent one task from blocking others. For instance, you might have a thread for capturing user input and another for updating the game state concurrently.

5. selectors Module

The `selectors` module provides a high-level interface for I/O multiplexing. It allows you to wait for events on multiple file-like objects with asynchronous I/O operation. This is more advanced and may not be necessary for a straightforward Snake game.

6. random Module

The `random` module is used for generating random numbers.
In a Snake game, you'd use `random` to generate random positions for placing the player on the game grid, making the game more unpredictable and challenging.

5. Discussion

- Discussion about choosing a project.
- Selected Snake Game as a project
- Distributed the task in the team.
- Created the logic of the game.
- Created the Flowchart of logic.
- Implemented the game in Python with different modules as we discussed above.
- Executed the Game script and fixed the known bugs.

6. Conclusion

Creating the Snake game in Python was a fun and educational journey. We learned the basics of game development, tackled challenges, and applied various programming concepts.

The integration of modules like `sys`, `socket`, `threading`, `selectors`, and `random` enriched the game's functionality. While the project has its limitations, it provides a solid foundation for future enhancements. Overall, it has been a rewarding step in our programming journey.