

# Abdul Azeem

Introduction Provide an overview of the Red-Blue Nim Game and explain the two game versions (Standard and Misère). Highlight the objectives and goals of implementing this game in Python

# Python Code

- `import random`
- - `# Set up the game`
- `num_red = int(input("Enter number of red marbles: "))`
- `num_blue = int(input("Enter number of blue marbles: "))`
- `version = input("Enter game version ('standard' or 'misere'): ").lower()`
- `first_player = input("Who plays first? ('human' or 'computer'): ").lower()`
- - `# Validate inputs`
  - `if version not in ['standard', 'misere']:`
    - `version = 'standard'`
  - `if first_player not in ['human', 'computer']:`
    - `first_player = 'computer'`
-

- # Simple move selection for the computer
- def computer\_move(num\_red, num\_blue):
- red\_move = random.randint(0, min(2, num\_red))
- blue\_move = random.randint(0, min(2, num\_blue))
- return red\_move, blue\_move
- 
- # Main game loop
- current\_player = first\_player
- game\_over = False
- while not game\_over:
- print(f"\nRed marbles: {num\_red}, Blue marbles: {num\_blue}")
- if current\_player == 'human':
- # Human move
- print("Your turn! Enter your move:")
- red\_move = int(input("Number of red marbles to remove: "))
- blue\_move = int(input("Number of blue marbles to remove: "))
- 
-

- if red\_move > num\_red or blue\_move > num\_blue:
- print("Invalid move! Try again.")
- continue
- else:
- # Computer move
- print("Computer's turn...")
- red\_move, blue\_move = computer\_move(num\_red, num\_blue)
- print(f"Computer removes {red\_move} red marbles and {blue\_move} blue marbles.")
- 
- # Update the game state
- num\_red -= red\_move
- num\_blue -= blue\_move
- 
- # Check for game-over conditions

- `if num_red == 0 or num_blue == 0:`
- `game_over = True`
- `if version == 'standard':`
- `print(f"Game over! {current_player} loses.")`
- `else:`
- `print(f"Game over! {current_player} wins.")`
- `else:`
- `current_player = 'human' if current_player == 'computer' else 'computer'`
-

```
1  import random
2
3  # Set up the game
4  num_red = int(input("Enter number of red marbles: "))
5  num_blue = int(input("Enter number of blue marbles: "))
6  version = input("Enter game version ('standard' or 'misere'): ").lower()
7  first_player = input("Who plays first? ('human' or 'computer'): ").lower()
8
9  # Validate inputs
10 if version not in ['standard', 'misere']:
11     version = 'standard'
12 if first_player not in ['human', 'computer']:
13     first_player = 'computer'
14
15 # Simple move selection for the computer
16 def computer_move(num_red, num_blue):
17     red_move = random.randint(0, min(2, num_red))
18     blue_move = random.randint(0, min(2, num_blue))
19     return red_move, blue_move
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19     return red_move, blue_move
20
21 # Main game loop
22 current_player = first_player
23 game_over = False
24
25 while not game_over:
26     print(f"\nRed marbles: {num_red}, Blue marbles: {num_blue}")
27
28     if current_player == 'human':
29         # Human move
30         print("Your turn! Enter your move:")
31         red_move = int(input("Number of red marbles to remove: "))
32         blue_move = int(input("Number of blue marbles to remove: "))
33
34         if red_move > num_red or blue_move > num_blue:
35             print("Invalid move! Try again.")
36             continue
```

```
37 else:
38     # Computer move
39     print("Computer's turn...")
40     red_move, blue_move = computer_move(num_red, num_blue)
41     print(f"Computer removes {red_move} red marbles and {blue_move} blue marbles.")
42
43     # Update the game state
44     num_red -= red_move
45     num_blue -= blue_move
46
47     # Check for game-over conditions
48     if num_red == 0 or num_blue == 0:
49         game_over = True
50         if version == 'standard':
51             print(f"Game over! {current_player} loses.")
52         else:
53             print(f"Game over! {current_player} wins.")
54     else:
55         current_player = 'human' if current_player == 'computer' else 'computer'
```



# Result

PROBLEMS

5

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

```
Number of red marbles to remove: 1
Number of blue marbles to remove: 2
Invalid move! Try again.
```

```
Red marbles: 1, Blue marbles: 1
Your turn! Enter your move:
Number of red marbles to remove: 1
Number of blue marbles to remove: 1
Game over! human loses.
```