Python mini project-1 (Number guessing game)

Problem Statement-
- Build a number Guessing Game in which the user selects a range.
   Assume the user selected a range from X to Y where both X and Y
   are   integers.
- So a random number in that range is selected by the system where the user
  needs to guess the minimum number of guesses.

Algorithm-

1. Initialization:
   - Define variables:
   - lower_bound (integer): The lower limit of the user-defined range (X).
   - upper_bound (integer): The upper limit of the user-defined range (Y).
   - secret_number (integer): The randomly chosen number within the range
     (generated by the program).
   - guess (integer): The user's guess for the number.

2. User Input:
   - Prompt the user to enter the lower bound (lower_bound).
   - Prompt the user to enter the upper bound (upper_bound).
   - Validate user input to ensure lower_bound is less than or equal to
     upper_bound.

3. Generate Secret Number:
   - Use a random number generator to select a secret number between
     lower_bound (inclusive) and upper_bound (inclusive).

4. Guessing Loop:
   - Start a loop that continues until the user guesses the correct number.
   - Inside the loop:
   - Prompt the user to enter their guess (guess).
   - Compare the guess with the secret_number:
   - If guess is greater than secret_number:
   - Print a message indicating the guess is too high.
   - If guess is less than secret_number:
   - Print a message indicating the guess is too low.

5. Check for Correct Guess:
   - After the comparison in step 4, check if guess is equal to secret_number.

- If guess is equal to secret_number:
- Exit the loop (user guessed correctly).
- Print a congratulatory message and display the number of guesses it took the user.

6. Continue Loop:
- If the guess wasn't correct, the loop continues back to step 4, prompting the user for another guess.

7. End Game:
- Once the loop exits (due to a correct guess), the game ends.

Pseudo code-

START

   PRINT "Welcome to the Number Guessing Game!"

REPEAT

      PRINT "Enter the lower bound:"

      READ lower_bound

      PRINT "Enter the upper bound:"

      READ upper_bound

      IF lower_bound > upper_bound THEN

        PRINT "Invalid range. Lower bound must be less than or equal to upper bound."

      END IF

   UNTIL lower_bound <= upper_bound

   SET secret_number TO RANDOM(lower_bound, upper_bound)

   SET attempts TO 0

   PRINT "Guess the number between" lower_bound "and" upper_bound "!"

  REPEAT

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        PRINT "Enter your guess: "

        READ guess

        INCREMENT attempts BY 1

    IF guess < lower_bound OR guess > upper_bound THEN

        PRINT "Please guess a number within the range" lower_bound "to"
upper_bound "."

        ELSE IF guess < secret_number THEN

        PRINT "Too low! Try again."

        ELSE IF guess > secret_number THEN

        PRINT "Too high! Try again."

        ELSE

        PRINT "Congratulations! You guessed the number" secret_number "in"
attempts "attempts."

        END IF

    UNTIL guess == secret_number

END
```

```python
import random
1 usage new *
def guessing_number():
    print("Welcome to the Number Guessing Game!")
    print("bhavyasri")
    print("You need to guess a number chosen by me ")
    num1 = int(input("Enter a start range: "))
    num2 = int(input("Enter an end range: "))
    x = random.randint(num1, num2)
    guess_chance = 0
    while True:
        guess = int(input(f"Guess a number between {num1} and {num2}: "))
        guess_chance += 1
        if x == guess:
            print(f"Congratulations! Your guess is correct. It took you {guess_chance} attempts.")
            break
        elif guess < x:
            print("Your guess is lower than the number.")
        else:
            print("Your guess is higher than the number.")


if __name__ == '__main__':
    guessing_number()
```

OUTPUT :

```
C:\Users\bhavy\PycharmProjects\django\.venv\Scripts\python.exe C
Welcome to the Number Guessing Game!
bhavyasri
You need to guess a number chosen by me
Enter a start range: 5
Enter an end range: 9
Guess a number between 5 and 9: 7
Your guess is lower than the number.
Guess a number between 5 and 9: 6
Your guess is lower than the number.
Guess a number between 5 and 9: 8
Your guess is lower than the number.
Guess a number between 5 and 9: 5
Your guess is lower than the number.
Guess a number between 5 and 9: 9
Congratulations! Your guess is correct. It took you 5 attempts.
```