

Project Lesson: Guessing Game in Python

Objective: Create a number-guessing game where the user guesses a randomly generated number between 1 and 100. The game provides feedback ("Too high" or "Too low") and tracks the number of attempts.

Step 1: Import Required Modules

We need the `random` module to generate a random number.

```
import random
```

Step 2: Generate a Random Number

Use `random.randint()` to generate a number between 1 and 100.

```
secret_number = random.randint(1, 100)
```

Step 3: Initialize Variables

Create variables to track the number of attempts and control the game loop.

```
attempts = 0
guessed_correctly = False
```

Step 4: Create the Game Loop

Use a `while` loop to repeatedly ask for guesses until the user is correct.

```
while not guessed_correctly:
    # Get user input and convert to integer
    guess = int(input("Guess a number between 1 and 100: "))
    attempts += 1 # Increment attempt counter

    # Check if the guess is correct
    if guess == secret_number:
        guessed_correctly = True
    elif guess < secret_number:
        print("Too low! Try again.")
    else:
        print("Too high! Try again.")
```

Step 5: Display the Result

After the loop ends, print a success message with the number of attempts.

```
print(f"Congratulations! You guessed the number in {attempts} attempts.")
```

Full Code

```
import random

secret_number = random.randint(1, 100)
attempts = 0
guessed_correctly = False

print("Welcome to the Guessing Game!")
print("I'm thinking of a number between 1 and 100...")

while not guessed_correctly:
    guess = int(input("\nGuess a number between 1 and 100: "))
    attempts += 1

    if guess == secret_number:
        guessed_correctly = True
    elif guess < secret_number:
        print("Too low! Try again.")
    else:
        print("Too high! Try again.")

print(f"\nCongratulations! You guessed the number in {attempts} attempts.")
```

Sample Output

```
Welcome to the Guessing Game!
I'm thinking of a number between 1 and 100...

Guess a number between 1 and 100: 50
Too high! Try again.

Guess a number between 1 and 100: 25
Too low! Try again.

Guess a number between 1 and 100: 37
Congratulations! You guessed the number in 3 attempts.
```