

Basics of Coding

Guess The Number

# Introduction

This assessment involves creating a simple number guessing game in Python. The purpose of the game is to let the user guess a randomly generated number within a certain range. The user is provided with a limited number of guesses and hints to make the game more interactive and challenging.

# Project concept

The idea behind this project is to create an engaging and interactive game where users can guess a number chosen randomly by the program. The game provides hints to the user if they are close to the correct number and maintains a record of the user's guesses. The game aims to improve user engagement through feedback and the thrill of guessing within a limited number of attempts.

# Design concept

# The diagram for this project is an Activity Diagram.

# Figure 1: Activity diagram of the project

The design is kept simple to maintain ease of understanding and implementation. The game follows a linear flow, that also contains some loops, where the user is guided from start to end through a series of steps, including initialization, guessing, feedback, and termination. This design ensures clarity and a smooth user experience.

Explanation:

1. **Initialization**: The game starts by initializing the necessary variables, including the number to be guessed, guess count, and hints.
2. **Random Number Generation**: A random number between 1 and 100 is generated.
3. **User Interaction**: The user is prompted to guess the number. The input is validated to ensure it is a valid integer.
4. **Feedback**: The program provides feedback on whether the guess is too high, too low, or correct. Hints are given if the guess is close.
5. **Guess Recording**: The user's guesses are recorded and saved to a text file.
6. **Termination**: The game ends either when the user guesses correctly or runs out of attempts. The user is then prompted to play again or exit.

# Technical implementation

Below is an explanation of the code with screenshots to illustrate the key sections.

The random module is imported to generate random numbers for the game.

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Figure 2: Importing Required Libraries

The guess\_my\_number function encapsulates the game logic.



Figure 3: Function Definition

Here, the random number is generated, and variables are initialized. The guesses.txt file is cleared at the start of each game.

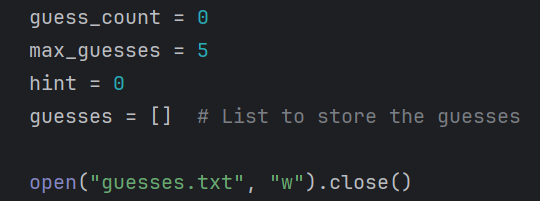


Figure 4: Variable Initialization and File Handling

The greeting text is read from greetings.txt and displayed to the user.

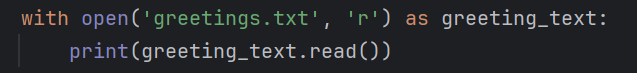


Figure 5: Reading and Displaying Greeting Text

The user is prompted to enter their guess. Input validation is performed to ensure a valid number is entered.

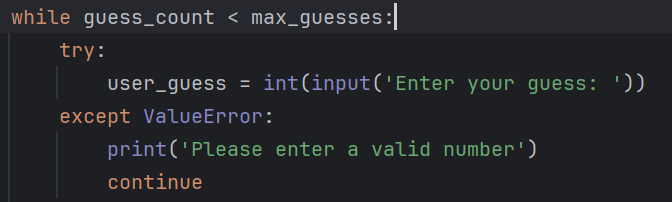


Figure 6: Main Game Loop

The user's guess is compared with the random number, and appropriate feedback is given. Hints are provided if the guess is close.

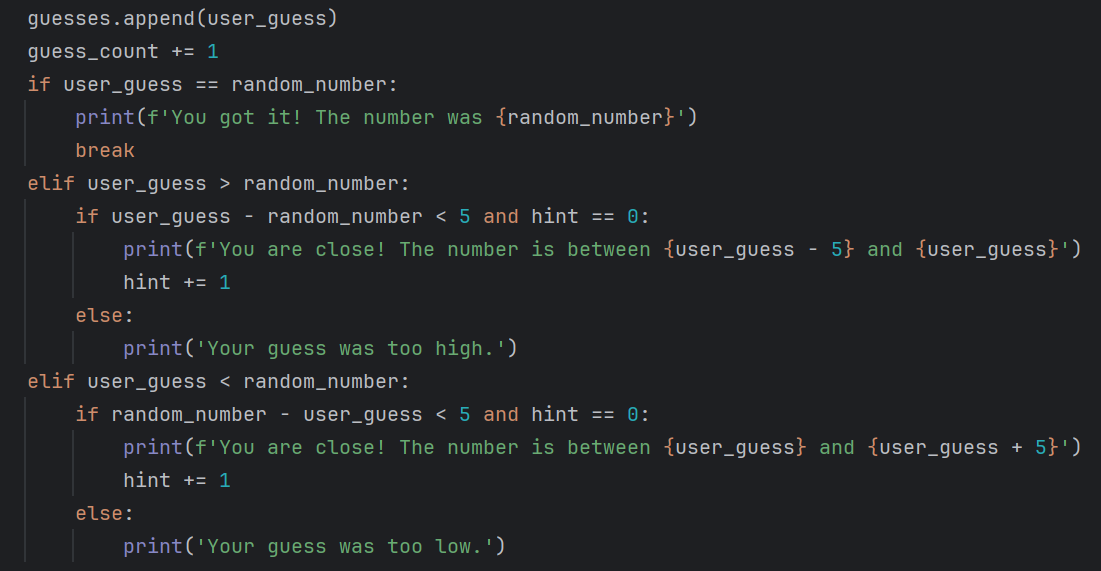


Figure 7: Guess Handling and Feedback

The remaining guesses are calculated and displayed to the player. The guesses are recorded in a text file and displayed at the end of the game.

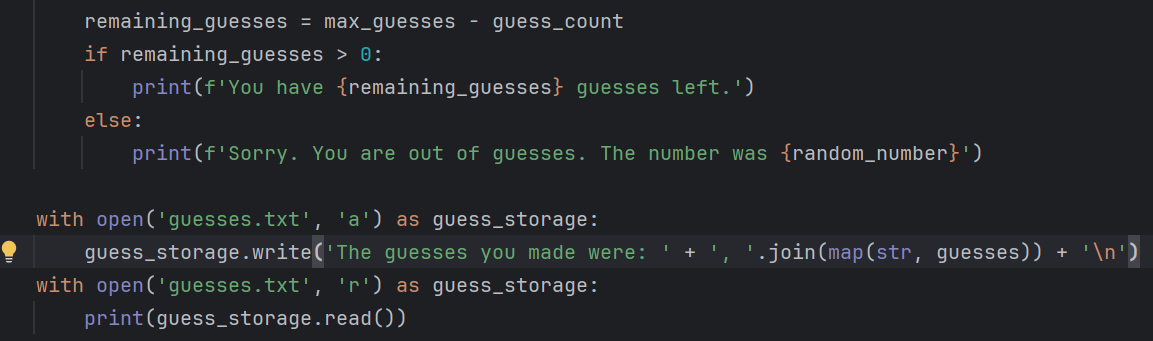


Figure 8: Recording Guesses

The user is asked if they want to play again, and the game loop continues based on their response.

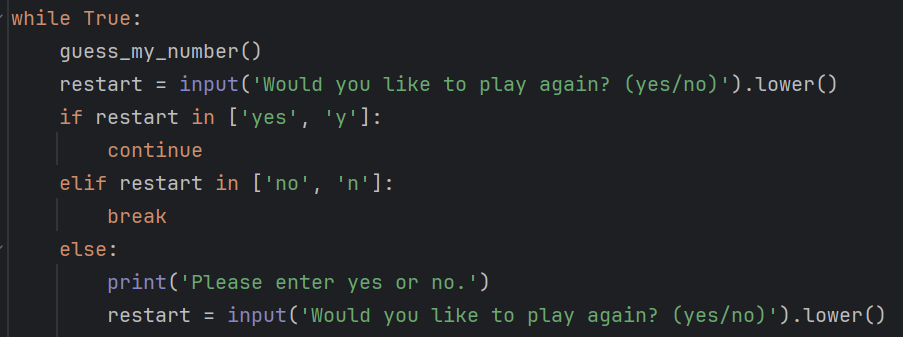


Figure 9: Loop for Replay

# GitHub link

<https://github.com/shamisashams/GuessTheNumber>

# Conclusion

This project demonstrates a simple number guessing game implemented in Python. The game involves generating a random number and allowing the user to guess with feedback and hints. The guesses are recorded and displayed at the end, adding an element of tracking the user's performance. Overall, this project showcases basic game logic, user interaction, and file handling in Python.

