Code Report: Number Guessing Game

Project Overview

This project implements a simple **Number Guessing Game** in C, where the user attempts to guess a number between 1 and 500 within a limited number of chances.

Key Features:

1. **Random Number Generation**:

   - The program generates a random number between 1 and 500 using rand() seeded with the current time (time(0)).

2. **User Interaction**:

   - Prompts the user to make a guess and provides hint if the guess is too high or too low.

   - Offers the user up to 5 chances (hardcoded) to guess the correct number.

3. **Replay Option**:

   - After completing a game, the user can choose to play again or quit.

4. **Input Validation**:

   - Feedback is provided to guide the user toward the correct guess.

Code Walkthrough:

1. **Global Variables**:

   o original_n: Holds the randomly generated number.

   o chances: Defines the maximum number of allowed attempts (5).

   o flag: Indicates whether the guess was correct (1 for success, 0 for failure).

   o guess: Stores the user's current guess.

   o i: Counter for the number of attempts made.

   o choice: Stores the user's decision to replay or quit.

2. **Main Function**:

   o Initializes the random number.

   o Runs a loop for replay functionality (do-while loop).

   o Calls the check() function to process user guesses.

   o Displays the correct number if the user exceeds the number of allowed attempts.

   o Prints a thank-you message at the end, along with correct answer (if user can't get it & quits).

3. **check() Function**:
   - Handles the guessing logic:
     - Loops for up to the specified number of chances.
     - Compares the user's guess to the random number and provides feedback.
     - Returns 1 if the user guesses correctly within the allowed attempts.
     - Returns 0 if the user exhausts all attempts without guessing correctly.

Code Analysis:

1. **Strengths**:
   - **Random Number Generation**: The use of rand() ensures variability in each game.
   - **User Feedback**: Provides clear guidance for too high or too low guesses.
   - **Replay Functionality**: Allows users to easily restart the game.

2. **Limitations**:
   - **Hardcoded Values**:
     - The range (1-500) and the number of chances (5) are hardcoded, reducing flexibility.

Conclusion:

The Number Guessing Game is a fun and interactive project suitable for beginners learning C programming. While functional, the code can benefit from minor adjustments to improve clarity, flexibility, and reliability.