Project Proposal: Number Guessing Game with Guess History Tracking

Project title :

Number Guessing Game with guess history tracking

Objective:

Develop a console-based number guessing game in C++ that allows players to guess a random number between 1 and 100 while maintaining a history of previous guesses using stack data structure. The game emphasizes:

(i). Random number generation

(ii). Input validation

(iii). Guess history tracking

(iv). Immediate feedback (high/low)

Project Overview:

A simple yet engaging game where players attempt to guess a secret number with the following features:

(i). Random Number Generation: Generates a number between 1-100

(ii).Guess Validation: Ensures inputs are within valid range

(iii).Stack-Based History: Stores previous guesses in reverse chronological order

(iv).Attempt Counter: Tracks total number of guesses

(v).Feedback System: Provides "Too High"/"Too Low" hints

Technical Specifications:

Programming Language: C++

Libraries:

(i). <stack> for guess history implementation

(ii). Srand() Seeds the Random Number Generator

Key Components:

(i). stack<int> for LIFO guess storage

(ii). Loop-based game logic

(iii). Input validation system

(iv). Clean console interface

Potential Enhancements:

(1). Difficulty Levels:

(i). Easy (1-50)

(ii). Hard (1-200)

(2). Scoring System:

Bonus points for fewer attempts

(3). Multi-Round Play:

Best-of-3 matches

(4). Extended Features:

(i). Guess statistics (average guess, closest miss)

(ii). File-based history storage

Learning Outcomes:

(i). Implementation of STL stack container

(ii). Robust input validation techniques

(iii). Game loop design patterns

(iv). Data structure integration in game logic

Conclusion:

This proposal focuses on clean implementation of core game mechanics with a unique twist using stack-based history tracking. The project serves as an excellent introduction to data structure integration in game development.