

Assignment 1

Project Proposal

1. Project Overview: The Guessing Game is a simple Java application where the user tries to guess a randomly generated number between 1 and 100 within a limited number of attempts. The application provides feedback on whether the guess is too high, too low, or correct. It also allows the user to play the game again after completing or running out of attempts.

2. Features: Randomly generated number between 1 and 100 for each game session. Input field for the user to enter their guess. Feedback labels indicating whether the guess is too high, too low, or correct. Display of the number of attempts remaining. Option to play again after successfully guessing the number or running out of attempts. Simple and intuitive user interface using Swing components.

3. Target Audience: The Guessing Game is suitable for individuals of all ages who enjoy casual gaming and want to test their guessing skills. It can be used for educational purposes to demonstrate basic Java programming concepts, such as event handling, GUI development, and random number generation.

4. Project Objectives: Develop a Java GUI application using Swing to create an interactive guessing game. Implement event handling to capture user input and provide appropriate feedback. Utilize random number generation to dynamically select the target number for each game session. Enhance user experience by providing clear instructions and visual feedback. Encourage user engagement through the option to replay the game multiple times.

5. Implementation Plan: Phase 1: Initial Setup (1 day) Set up the project structure and create the main Java class with the basic UI components. **Phase 2: Functionality Development (3 days)** Implement the logic for generating random numbers, processing user guesses, and updating feedback labels. **Phase 3: User Interaction (1 day)** Integrate event listeners to capture user input from the guess button and handle game flow based on user actions. **Phase 4: UI Refinement (1 day)** Enhance the visual design and layout of the application for improved user experience. **Phase 5: Testing and Debugging (2 days)** Conduct thorough testing to identify and fix any bugs or issues. Ensure smooth functionality across different platforms.

6. Future Enhancements: Add difficulty levels with varying ranges and maximum attempts. Incorporate sound effects or animations for a more engaging experience. Implement high score tracking to record the best performance of each player. Introduce multiplayer mode to allow multiple users to guess the number simultaneously.

7. Conclusion: The Guessing Game project aims to deliver a fun and interactive Java application that challenges users to guess a randomly generated number within a limited number of attempts. By providing clear feedback and an intuitive user interface, the game offers an enjoyable experience for players of all ages.