

Hangman Game – Documentation

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Project Overview

This project is a graphical implementation of the classic Hangman game using Java and Swing. The game randomly selects a word from a file and allows the player to guess letters or the full word within a limited number of attempts.

Design Choices

- **Graphical User Interface (GUI):** Built using Java Swing to create a user-friendly experience.
- **Word Selection:** Words are loaded from an external file (`words.txt`) to allow easy modifications.
- **Sound Effects:** The game plays background music and sound effects for correct and incorrect guesses.
- **Scoring System:** Players earn or lose points based on their performance.
- **Game Configuration:** Uses a `config.properties` file to set parameters like the number of attempts and sound settings.

Algorithms and Data Structures

- **Random Word Selection:** Uses Java's `Random` class to select a word from a list.
- **String Manipulation:** The game tracks guessed letters using `StringBuilder`.
- **HashSet for Used Letters:** Prevents duplicate guesses.
- **File Handling:** Reads words and configuration settings from external files.

Challenges Encountered

- **GUI Layout:** Ensuring a responsive and user-friendly interface required fine-tuning of layouts.
- **Sound Implementation:** Managing sound playback without interruptions.
- **Dynamic Word Updates:** Updating the word display after each guess while maintaining formatting.

Improvements Over Initial Implementation

- Added a **scoring system** to incentivize better performance.
- Introduced **sound effects** for an immersive experience.
- Optimized the **image update logic** for better visualization.
- Implemented a **structured configuration system** for easy customization.

File Handling

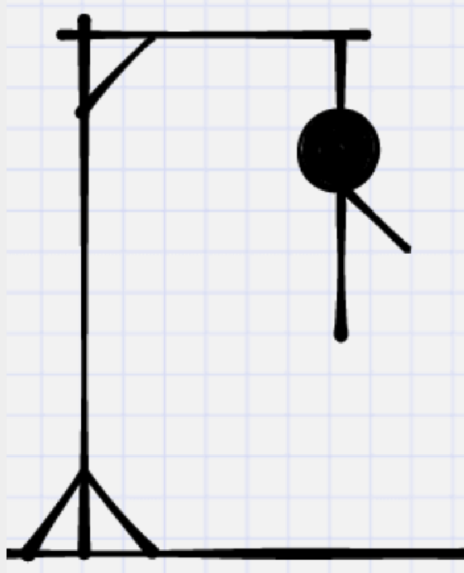
- `words.txt`: Contains the list of words for the game.
- `config.properties`: Stores game settings such as lives and sound file paths.
- `assets/images/`: Stores hangman images for different stages.
- `assets/sounds/`: Contains sound files for game events.

Example Output & Screenshots



Score: 0

Exit



a _ _ l _

Attempts left: 3

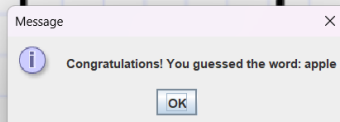
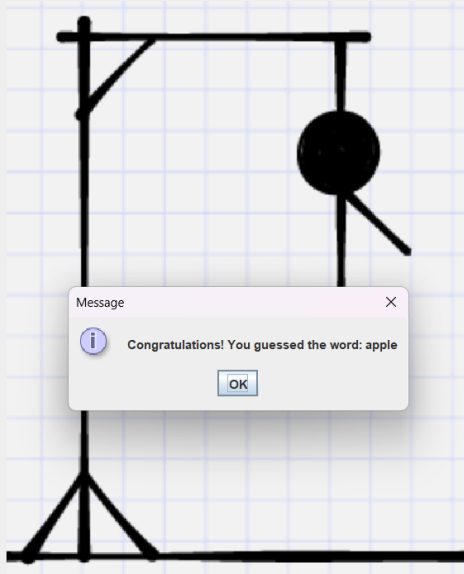
Used letters: axlr b

Guess



Score: 20

Exit

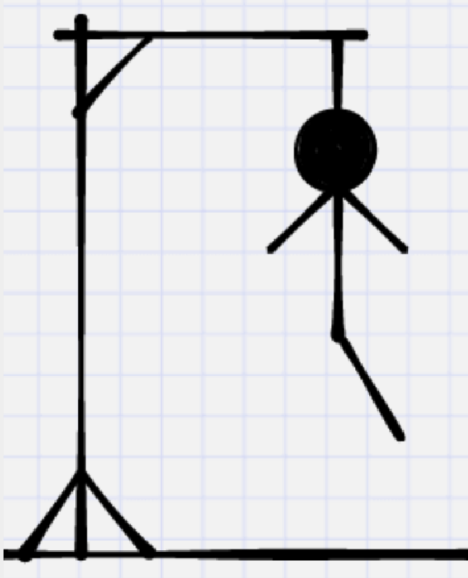


apple

Attempts left: 3

Used letters: axlr bpe

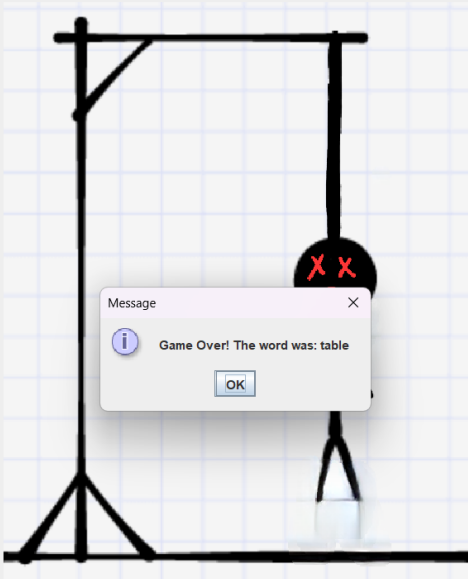
Guess



_ a b _ _

Attempts left: 1

Used letters: acdb;p



_ a b _ _

Attempts left: 0

Used letters: acdb;p.

