University Institute of Computing

Chandigarh University

Gharuan , Mohali(Punjab)

COMPUTING APTITUDE MINI PROJECT

ON

# WORD GUESSING GAME USING C++

**Submitted by:**

**Mohit chauhan**

**(23BCA10018)**

**Submitted to:**

**Ms. Priyanka Arora**

**Signature:**

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# Abstract

The *Word Guessing Game using C++* is a console-based interactive application designed to strengthen programming fundamentals.

The project challenges players to guess a randomly selected word by entering one letter at a time. It demonstrates essential programming constructs such as loops, conditionals, string manipulation, and randomization.

The goal is to create an engaging learning experience that enhances logic-building and user interaction in C++.

# Introduction

Games are an excellent way to learn programming concepts practically.

This project implements a simple word guessing game that provides players with feedback based on their guesses. Each correct letter is revealed in the hidden word, while incorrect guesses reduce the number of remaining attempts.

Through this project, students can understand how to manage game logic, process user input, and provide interactive feedback—all within a console-based environment using C++.

# Problem Statement / Objectives

## Problem Statement:

To design a console-based word guessing game that allows a player to guess letters of a hidden word within a limited number of attempts.

## Objectives:

Implement random word generation from a predefined list.

Display progress after each guess and track remaining attempts.

Apply control structures, loops, and conditionals effectively.

Strengthen understanding of logic-building through gameplay.

## System Design / Approach

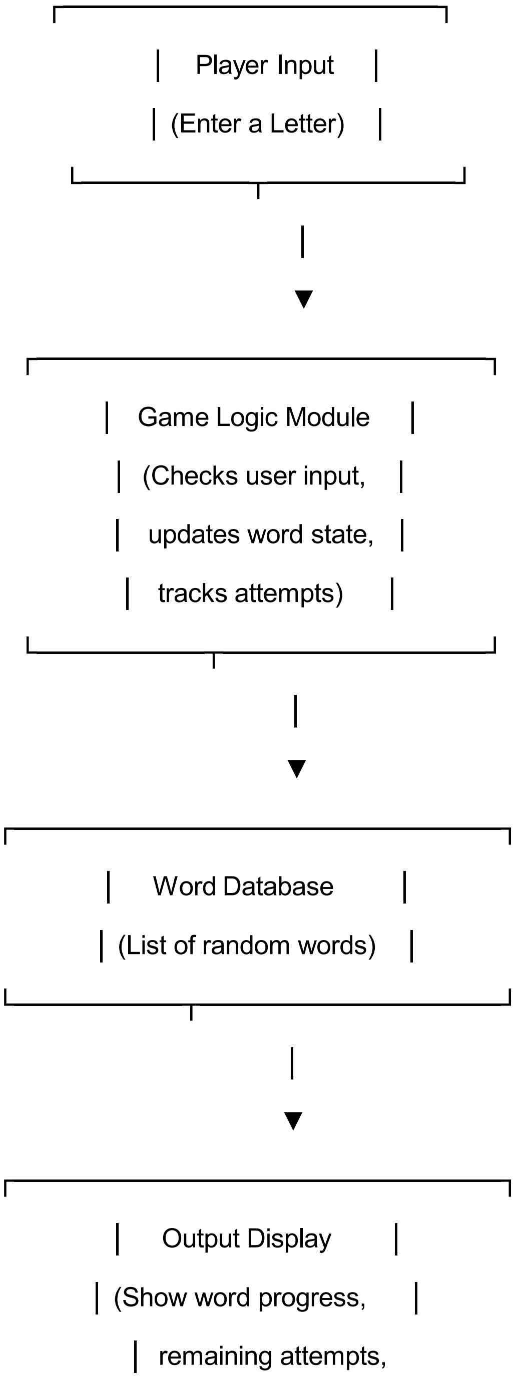
### System Architecture:

| **Module** | **Description** |
|---|---|
| **Input Module** | Accepts player’s guessed letter. |
| **Processing Module** | Compares letter with the hidden word and updates game state. |
| **Output Module** | Displays current progress, remaining attempts, and final result. |

# Flow of Control:

1. Start the game.
2. Select a random word from a list.
3. Display blanks for each letter.
4. Player inputs a letter.
5. If the letter exists → reveal it; else → reduce attempt count.
6. Repeat until word is guessed or attempts reach zero.
7. Display result (Win/Lose).

## Flowchart:



Player Input
(Enter a Letter)

Game Logic Module
(Checks user input,
updates word state,
tracks attempts)

Word Database
(List of random words)

Output Display
(Show word progress,
remaining attempts,

# Key Code Snippet

```
#include <iostream>
#include <cstdlib>
#include <ctime>
#include <string>
using namespace std;

int main() {
    // List of words to guess from
    string words[] = { "apple", "banana", "orange", "mango", "grapes" };
    srand(time(0));  // Seed for random selection
    string word = words[rand() % 5]; // Randomly select one word
    string guessed(word.length(), '_'); // Initialize guessed word as
underscores
    int attempts = 6;  // Total attempts allowed
    char guess;
    bool won = false;

    cout << "\n=== WORD GUESSING GAME ===\n";
    cout << "You have " << attempts << " attempts to guess the word.\n";

    // Game loop — runs until attempts are over or word is guessed
    while (attempts > 0 && !won) {
        cout << "\nWord: " << guessed << endl;
        cout << "Enter a letter: ";
        cin >> guess;

        bool correct = false;

        // Check if guessed letter exists in the word
        for (int i = 0; i < word.length(); ++i) {
            if (word[i] == guess && guessed[i] == '_') {
                guessed[i] = guess;
                correct = true;
            }
        }

        // If letter is not in word → reduce attempts
        if (!correct) {
            attempts--;
            cout << "Wrong guess! Attempts left: " << attempts << endl;
        } else {
            cout << "Good guess!" << endl;
        }

        // Check if word is fully guessed
        if (guessed == word) {
            won = true;
        }
    }

    // Final output
    if (won)
        cout << "\n□  Congratulations! You guessed the word: " << word <<
endl;
    else
        cout << "\n□  Out of attempts! The word was: " << word << endl;

    return 0;
}
```

# Implementation

### Programming Language: C++

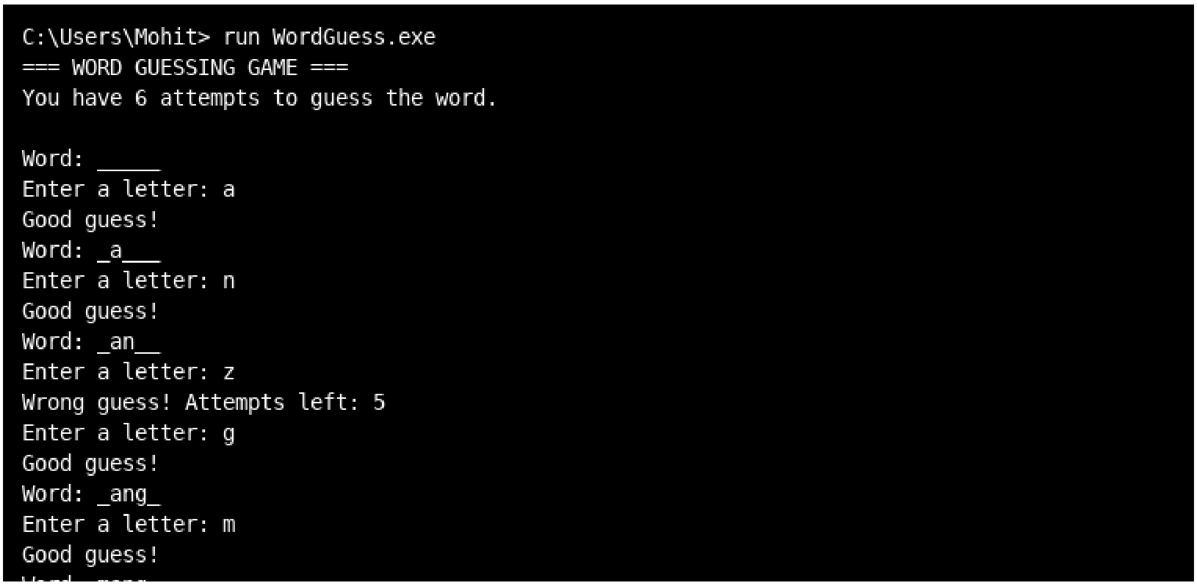
### Development Tool: Visual Studio Code / g++ Compiler

**Header Files Used:** <iostream>**,** <cstdlib>**,** <ctime>**,** <string>

## Main Program Code:

```
#include <iostream>
#include <cstdlib>
#include <ctime>
#include <string>
using namespace std;

int main() {
    string words[] = { "apple", "banana", "orange", "mango", "grapes" };
    srand(time(0));
    string word = words[rand() % 5];
    string guessed(word.length(), '_');
    int attempts = 6;
    char guess;
    bool won = false;

    cout << "\n=== WORD GUESSING GAME ===\n";
    cout << "You have " << attempts << " attempts to guess the word.\n";

    while (attempts > 0 && !won) {
        cout << "\nWord: " << guessed << endl;
        cout << "Enter a letter: ";
        cin >> guess;

        bool correct = false;
        for (int i = 0; i < word.length(); ++i) {
            if (word[i] == guess && guessed[i] == '_') {
                guessed[i] = guess;
                correct = true;
            }
        }

        if (!correct) {
            attempts--;
            cout << "Wrong guess! Attempts left: " << attempts << endl;
        } else {
            cout << "Good guess!" << endl;
        }

        if (guessed == word) won = true;
    }

    if (won)
        cout << "\nCongratulations! You guessed the word: " << word <<
endl;
    else
        cout << "\nOut of attempts! The word was: " << word << endl;

    return 0;
}

           }
```

**Output (Sample Console Run)**



```
C:\Users\Mohit> run WordGuess.exe
=== WORD GUESSING GAME ===
You have 6 attempts to guess the word.

Word: _____
Enter a letter: a
Good guess!
Word: _a___
Enter a letter: n
Good guess!
Word: _an__
Enter a letter: z
Wrong guess! Attempts left: 5
Enter a letter: g
Good guess!
Word: _ang_
Enter a letter: m
Good guess!
Word: mang
```

The image above shows a simulated Windows Command Prompt run of the Word Guessing Game where the player successfully guesses the word 'mango'.

## Conclusion

This mini project implements a Word Guessing Game in C++. It demonstrates the use of control structures, string manipulation, and user interaction in a console application. The project serves as a basic example for beginners to practice file-less game logic and C++ fundamentals.

This mini project demonstrates a simple yet effective use of **control structures, randomization, and string manipulation** in C++.
The game allows users to engage interactively while learning how programming logic works.
Future improvements can include difficulty levels, word categories, or a graphical interface.

# Appendix

1. To compile the code: g++ WordGuess.cpp -o WordGuess.exe

2. To run the executable: ./WordGuess.exe (or WordGuess.exe on Windows)

3. Improvements: Add difficulty levels, use external word lists, or allow full-word guessing.

4. References: C++ documentation on string handling, control structures, and random number generation.

5. Lecture Notes – Chandigarh University

**End of Project**