BMS COLLEGE OF ENGINEERING BENGALURU

Autonomous Institute, Affiliated to VTU

SPC AAT Report on

HANGMAN GAME

Submitted in partial fulfillment of the requirements for AAT

Bachelor of Engineering
in
Computer Science and Engineering

Submitted by:

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BMS COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

We, PRIYANSHU SINGH AND PUROHIT NAISARG MEHUL students of 1st Semester, B.E, Department of CSE, BMS College of Engineering, Bengaluru, hereby declare that, this AAT Project entitled "HANGMAN GAME" has been carried out in Department of CSE, BMS College of Engineering, Bengaluru during the academic semester Oct 2025 – Jan 2026. We also declare that to the best of our knowledge and belief, the AAT Project report is not from part of any other report by any other students.

Student Name   **Student Signature**

1. PRIYANSHU SINGH

2. PUROHIT NAISARG MEHUL

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CERTIFICATE

This is to certify that the AAT Project titled "**HANGMAN GAME**" has been carried

out by PUROHIT NAISARG MEHUL (1BM25CS841) and PRIYANSHU SINGH

(1BM25CS955) during the academic year 2025-2026.

Signature of the Faculty in Charge

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1. INTRODUCTION

In the realm of computer programming, developing logic-building games is a fundamental way to enhance problem-solving skills and algorithmic thinking. Hangman is a classic word-guessing game that challenges players to identify hidden words within a limited number of attempts, making it an engaging tool for testing vocabulary and deduction skills. This project focuses on the design and implementation of a text-based **Hangman Game** using the C programming language.

The game is designed to allow users to guess a hidden word character by character while the system tracks the correct guesses and the number of remaining attempts. Different difficulty levels are provided—Easy (Cities), Medium (Food), and Hard (Places)—to offer varied challenges and hints to the user. The program captures each character input in real time, compares it with the secret word, and evaluates the user's progress by either revealing the letter or reducing the remaining "lives" and updating the visual stick figure.

This project includes the source code, algorithm, and flowchart, which together explain the logical structure and execution flow of the Hangman game. The algorithm provides a step-by-step description of the program logic, while the flowchart visually represents the control flow using standard symbols. Through this project, fundamental concepts of C programming such as string manipulation, input handling, conditional statements, loops, and arrays are effectively demonstrated.

2. ALGORITHM

Step 1: Start the program.

Step 2: Display the game title "HANGMAN GAME".

Step 3: Display difficulty options (1. Easy, 2. Medium, 3. Hard).

Step 4: Read the user's choice of difficulty level.

Step 5: If choice = 1, set secretWord = "AHMEDABAD", Hint = "Indian City"

Else if choice = 2, set secretWord = "MALPUVA", Hint = "Rajasthan Sweet Dish"

Else set secretWord = "NATHDWARA", Hint = "Highest Shiv Statue"

Step 6: Initialize triesLeft = 5 and guessedWord with underscores.

Step 7: Repeat while triesLeft > 0

Display the current `guessedWord`, `triesLeft`, and Hint

Read a character `guess` from the user

Initialize `found = 0`

Repeat for `i` from 0 to `length`

If `secretWord[i]` matches `guess`, update `guessedWord[i]` and set `found = 1`

If `found == 0`

Decrement `triesLeft`

Display "Wrong!"

Else Display "Good job!"
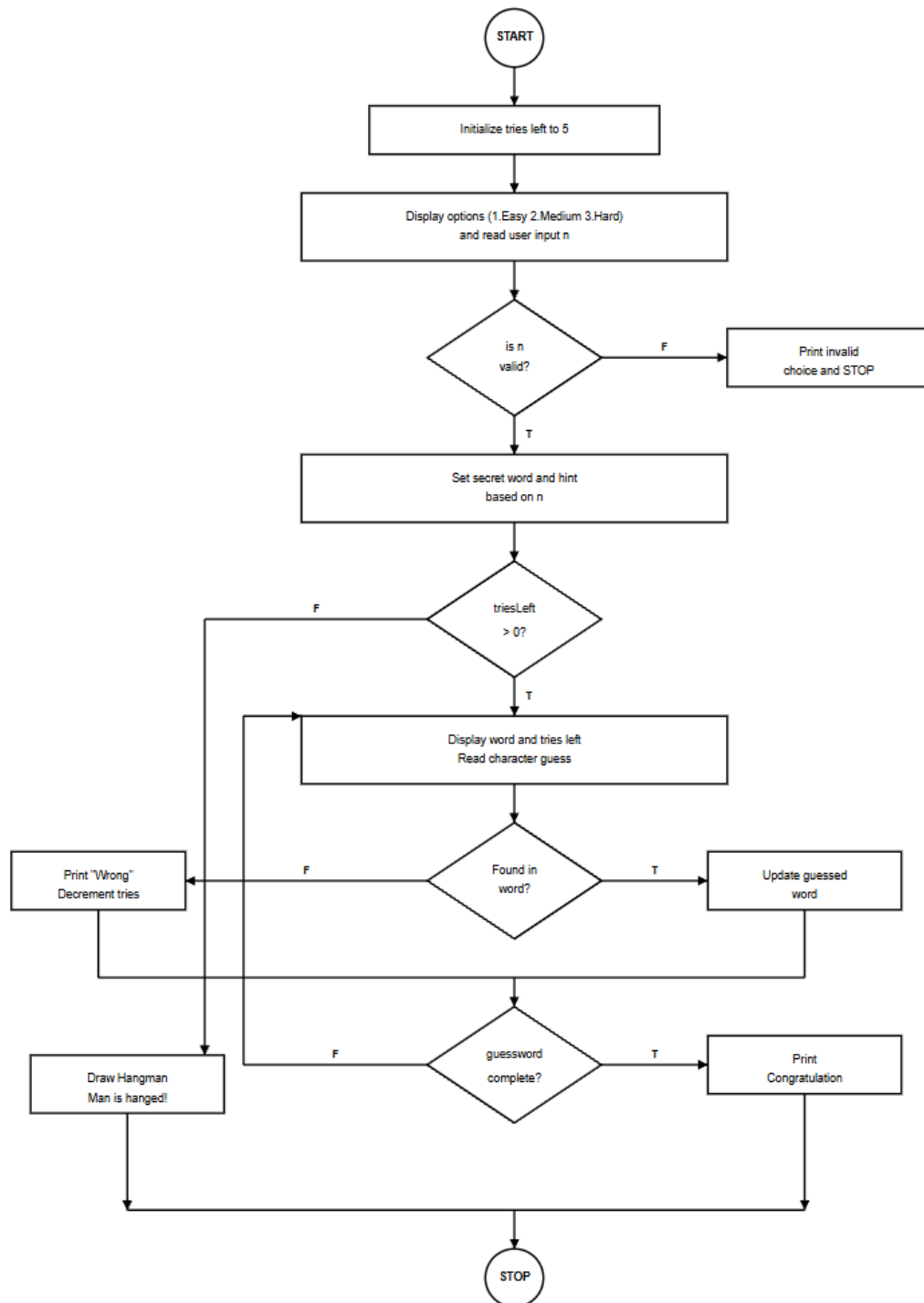
If `guessedWord` matches `secretWord`

Display "CONGRATULATIONS! You won!"

Go to Step 9

Step 8: Display the full Hangman stick figure and "MAN IS HANGED".

Step 9: End.

3. FLOWCHART

```
                    ( START )
                        │
                        ▼
        ┌───────────────────────────────┐
        │    Initialize tries left to 5   │
        └───────────────────────────────┘
                        │
                        ▼
        ┌───────────────────────────────┐
        │  Display options (1.Easy 2.Medium 3.Hard)  │
        │       and read user input n     │
        └───────────────────────────────┘
                        │
                        ▼
                    ◇ is n
                      valid?  ──F──►  ┌──────────────────┐
                        │             │   Print invalid   │
                        T             │  choice and STOP  │
                        │             └──────────────────┘
                        ▼
        ┌───────────────────────────────┐
        │      Set secret word and hint   │
        │            based on n           │
        └───────────────────────────────┘
                        │
                        ▼
                   ◇ triesLeft
              ──F── > 0?
                        │
                        T
                        ▼
        ┌───────────────────────────────┐
        │     Display word and tries left  │
        │       Read character guess       │
        └───────────────────────────────┘
                        │
                        ▼
    ┌─────────────┐  ◇ Found in   ┌──────────────────┐
    │ Print "Wrong"│◄─F── word? ──T──►│ Update guessed   │
    │Decrement tries│               │      word        │
    └─────────────┘               └──────────────────┘
                        │
                        ▼
  ┌─────────────┐  ◇ guessword   ┌──────────────────┐
  │ Draw Hangman │◄─F── complete? ─T──►│     Print        │
  │ Man is hanged!│               │  Congratulation  │
  └─────────────┘               └──────────────────┘
                        │
                        ▼
                    ( STOP )
```

4. SOURCE CODE

```c
#include <stdio.h>

#include <string.h>

int main() {

    int i, n;

    int found;

    char guess;

    int triesLeft = 5;


    char secretWord[20];

    char guessedWord[20];

    int length;


    printf("--- HANGMAN GAME ---\n");

    printf("Select difficulty: 1.easy 2.medium 3.hard: ");

    scanf("%d", &n);


    if (n == 1) {

        strcpy(secretWord, "AHMEDABAD");

        strcpy(guessedWord, "_____");

        length = 9;
```

```c
    } else if (n == 2) {

        strcpy(secretWord, "MALPUVA");

        strcpy(guessedWord, "_____");

        length = 7;

    } else if (n == 3) {

        strcpy(secretWord, "NATHDWARA");

        strcpy(guessedWord, "_____");

        length = 9;

    } else {

        printf("Invalid choice!\n");

        return 1;

    }


    while (triesLeft > 0) {

        printf("\nWord: %s\n", guessedWord);

        printf("Tries left: %d\n", triesLeft);


        if(n == 1) printf("Hint: Indian city name (CAPITAL letters): ");

        if(n == 2) printf("Hint: RAJASTHAN SWEET DISH (CAPITAL letters): ");

        if(n == 3) printf("Hint: Place of highest Shiv statue (CAPITAL letters): ");


        scanf(" %c", &guess);
```

```
found = 0;

for (i = 0; i < length; i++) {

    if (secretWord[i] == guess) {

        guessedWord[i] = guess;

        found = 1;

    }

}


if (found == 0) {

    printf("Wrong!\n");

    triesLeft--;

} else {

    printf("Good job!\n");

}


if (strcmp(secretWord, guessedWord) == 0) {

    printf("\nCONGRATULATIONS! You won! Word: %s\n", secretWord);

    return 0;

}

}
```

```
printf("\n  +---+\n  |   |\n  O   |\n /|\\  |\n / \\  |\n=========\n");

printf("\nMAN IS HANGED! The word was: %s\n", secretWord);

return 0;
```

}

5. RESULTS
GUESSED CORRECT WORD:

```
--- HANGMAN GAME ---
Select difficulty: 1.easy 2.medium 3.hard: 1

Word: _____
Tries left: 5
Hint: Indian city name (CAPITAL letters): A
Good job!

Word: A____A_A_
Tries left: 5
Hint: Indian city name (CAPITAL letters): H
Good job!

Word: AH___A_A_
Tries left: 5
Hint: Indian city name (CAPITAL letters): M
Good job!

Word: AHM__A_A_
Tries left: 5
Hint: Indian city name (CAPITAL letters): E
Good job!

Word: AHME_A_A_
Tries left: 5
Hint: Indian city name (CAPITAL letters): D
Good job!

Word: AHMEDA_AD
Tries left: 5
Hint: Indian city name (CAPITAL letters): B
Good job!

CONGRATULATIONS! You won! Word: AHMEDABAD
```

MAN IS HANGED! CAN'T GUESS:

```
--- HANGMAN GAME ---
Select difficulty: 1.easy 2.medium 3.hard: 2

Word: _____
Tries left: 5
Hint: RAJASTHAN SWEET DISH (CAPITAL letters): R
Wrong!

Word: _____
Tries left: 4
Hint: RAJASTHAN SWEET DISH (CAPITAL letters): T
Wrong!

Word: _____
Tries left: 3
Hint: RAJASTHAN SWEET DISH (CAPITAL letters): Y
Wrong!

Word: _____
Tries left: 2
Hint: RAJASTHAN SWEET DISH (CAPITAL letters): W
Wrong!

Word: _____
Tries left: 1
Hint: RAJASTHAN SWEET DISH (CAPITAL letters): Q
Wrong!

  +---+
  |   |
  O   |
 /|\  |
 / \  |
=========
```

```
Word: _____
Tries left: 1
Hint: RAJASTHAN SWEET DISH (CAPITAL letters): Q
Wrong!

  +---+
  |   |
  O   |
 /|\  |
 / \  |
=========

MAN IS HANGED! The word was: MALPUVA
```

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