DEPARTMENT OF COMPUTER & INFORMATION SYSTEMS ENGINEERING
BACHELORS IN COMPUTER SYSTEMS ENGINEERING
Course Code: CS-115
Course Title: Computer Programming
Complex Engineering Problem
FE Batch 2022, Fall Semester 2022
Grading Rubric
TERM PROJECT

Group Members:

Student No.	Name	Roll No.
S1	MUHAMMAD OWAIS	CS-0080
S2	MUHAMMAD ZUNAIN	CS-0086
S3	ZUHAIB NOOR	CS-0081

CRITERIA AND SCALES				**Marks Obtained**		
				S1	**S2**	**S3**
Criterion 1: Does the application meet the desired specifications and produce the desired outputs? (CPA-1, CPA-3) **[8 marks]**						
1	2	3	4			
The application does not meet the desired specifications and is producing incorrect outputs.	The application partially meets the desired specifications and is producing incorrect or partially correct outputs.	The application meets the desired specificationsbut is producing incorrect or partially correct outputs.	The application meets all the desired specificationsand is producing correct outputs.			
Criterion 2: How well is the code organization? **[2 marks]**						
1	2	3	4			
The code is poorly organized and very difficult read.	The code is readable only to someone who knows what it is supposed to be doing.	Some part of the code is well organized, while some part is difficult tofollow.	The code is well organized and very easyto follow.			
Criterion 3: How friendly is the application interface? (CPA-1, CPA-3) **[2 marks]**						
1	2	3	4			
The application interface is difficult to understandand use.	The application interface is easy to understand and but not that comfortable to use.	The application interface is very easy to understand and use.	The application interface is very interesting/ innovative and easy tounderstand and use.			
Criterion 4: How does the student performed individually and as a team member? (CPA-2, CPA-3) **[4 marks]**						
1	2	3	4			
The student did not workon the assigned task.	The student worked on the assigned task, and Accomplished goals partially.	The student worked on the assigned task, andaccomplished goals satisfactorily.	The student worked on the assigned task , and accomplished goals beyond expectations.			
Criterion 5: Does the report adhere to the given format and requirements? **[4 marks]**						
1	2	3	4			

The report does not contain the required information and is formatted poorly.	The report contains the required information only partially but is formatted well.	The report contains all the required information but is formatted poorly.	The report contains all the required information and completely adheres to the given format.			
			Total Marks:			

_____

Teacher's Signature

Term Project Title:
Hangman Game

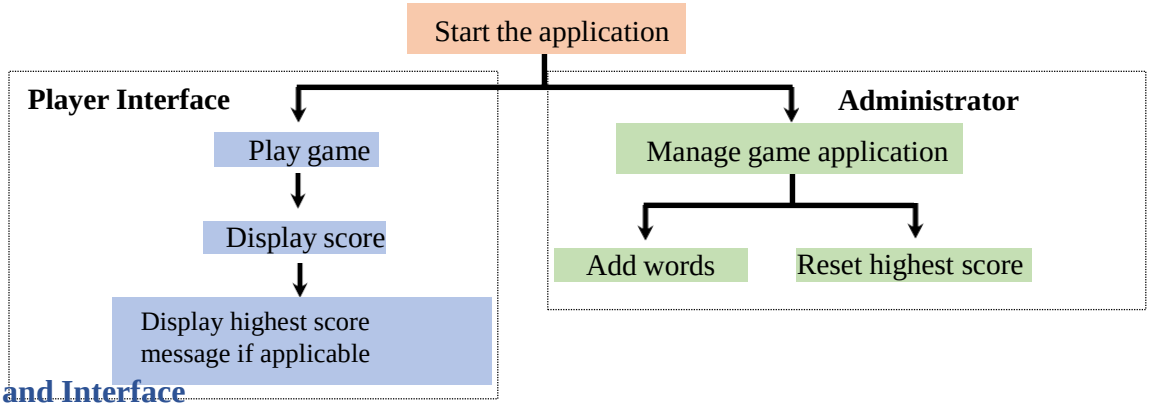
Description:

The user will be able to compete against the computer in the popular word game Hangman using your application. The following flow diagram illustrates how your application maintains two interfaces: one for theadministrator and one for the player. In the game, the computer chooses a word from a list of potential words at random, and the player must predict the word's letters. A predetermined amount of guesses are initially supplied to the player. The interactive nature of the game means that as the user enters their guess, the computer either .

- reveals the letter if it exists in the secret word
- Penalize the user and updates the number of guesses remaining.

The game ends when either the user guesses the secret word, or the user runs out of guesses.The

following flow diagram depicts the overall working of the application.



Game Rules and Interface

- The computer must select a word called secret word at random from the list of available words. A filecalled word.txt is provided with this document that contains 55900 words in lowercase letters. This file must be loaded at the start of the program.
- Users start with 6 guesses and 3 warnings.
- At the start of the game, let the player know how many letters the secret word contains and how manyguesses and warnings are remaining.
- The computer keeps track of all the letters the player has not guessed so far and before each turn showsthe player the remaining letter.
- Ask the player to supply one guess at a time. Immediately after each guess, the player should be told whether the letter is in the secret word. Also, display to the player the secret word, with guessed lettersdisplayed and un_ guessed letters replaced with an underscore and space (“ _”).
- The game accepts both upper and lower case letters as valid guesses. If the player inputs anythingother than alphabets, prompt the user to enter valid input.
- If the player inputs a letter that hasn’t been guessed before and the letter is in the secret word, theplayer does not lose any guesses or warnings.
- If the player inputs a consonant that hasn’t been guessed and the consonant is not in the secret word,the user loses one guess if it’s a consonant.
- If the vowel hasn’t been guessed and the vowel is not in the secret word, the player loses twoguesses.
- Each time the player inputs anything besides an alphabet (symbols, numbers) or a letter that has

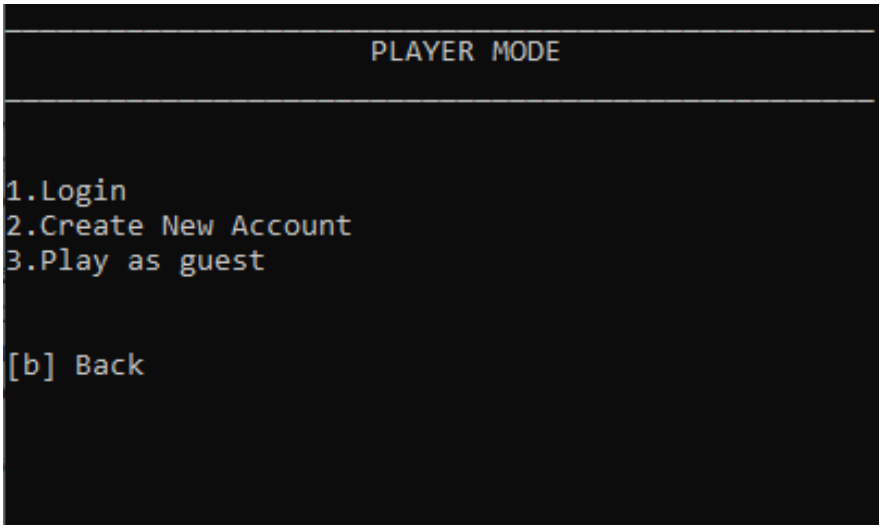
already been guessed, the player loses a warning. If no warnings are left, the player loses a guess.

- The game should end when the player constructs the full word or runs out of guesses.
- If the player runs out of guesses before completing the word, tell them that the game has been lostand reveal the word. The game ends.
- If the player wins, print a congratulatory message and tell the player the score calculated as follows:
- Total score = number of guesses remaining x number unique letters in the secret word
- The game must also keep track of the highest score along with the name of the player and displays aspecial message if the player achieves a new high score.
- Add an administrator interface which allow the administrator to:
    - Add new words to the word file,
    - Reset the highest score and name of the player.

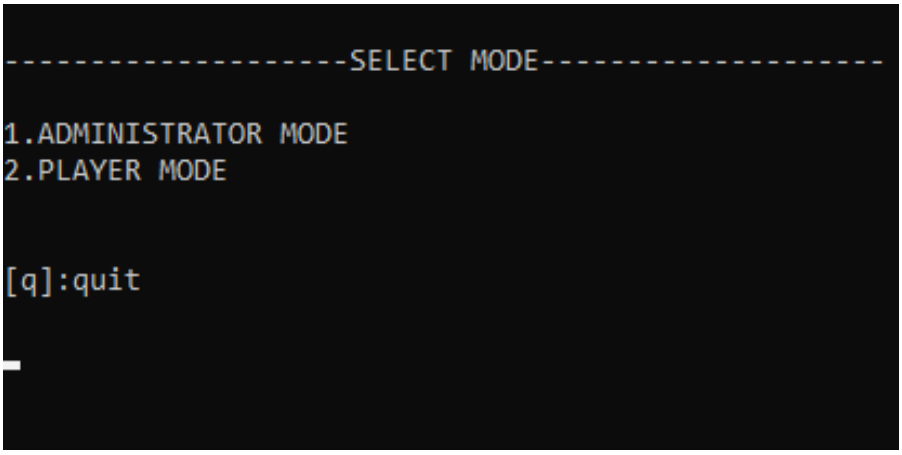
Features of our project

User friendly:

The application is designed in such a way that the user feels comfortable while navigating across different menus or modes. For example: the user or player has the facility to switch modes i.e the player can go from player to administrator mode very easily by a simple key press.



The user can simply press the ‘b’ and enter key to exit player mode and return to the main menu.



Fulfillment of all the given requirements:

The project briefly fulfills all the requirements that were asked. The rules and conditions of the game that were provided in the description were given top priority while developing the game and we ensure that the user or player will not have any troubles while running the game.

Joint collaboration and enhancement of user experience:

The project was not designed by a single person alone rather every member has equal efforts in the development of the project in this way different ideas were first taken from each group member and his point of view about how an application should be designed in a way that any layman or a person with no programming experience feels comfortable while using it. In this way the user experience has been greatly enhanced.

Efficient:

The game is designed in such a way that it consumes less human as well as computer resources. Many features have been provided to the user which saves time of the user while running the application. The user can freely switch to different modes with just a press of button without exiting the application which can save player's time. The game/application makes an efficient use of storage space and execute commands smoothly.

Flexible:

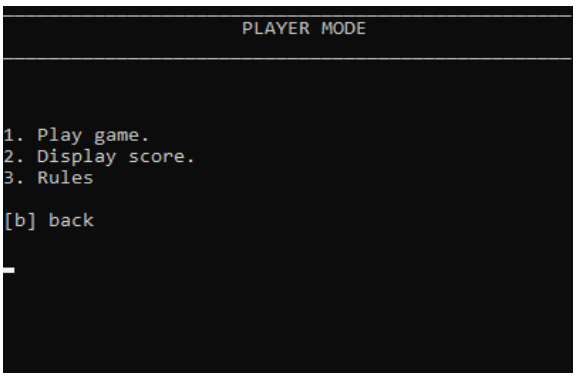
Flexibility of a software refers to the ability of a software to adapt to potential or future changes in it without interfering in the current functioning of the software. The functions are organized in files with simple name conventions in order to make it easy to make changes in the application for instance: the file containing the basic functions in 'functions.py' has the main game logic which is defined by the name '`game()`'.

Portable:

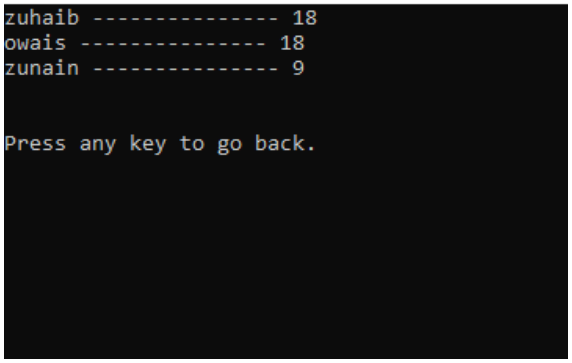
The application is portable. It can easily be used on any system having python in it because the game is written in python which it itself a portable language plus there are no external libraries used in its code.

Other feathers:

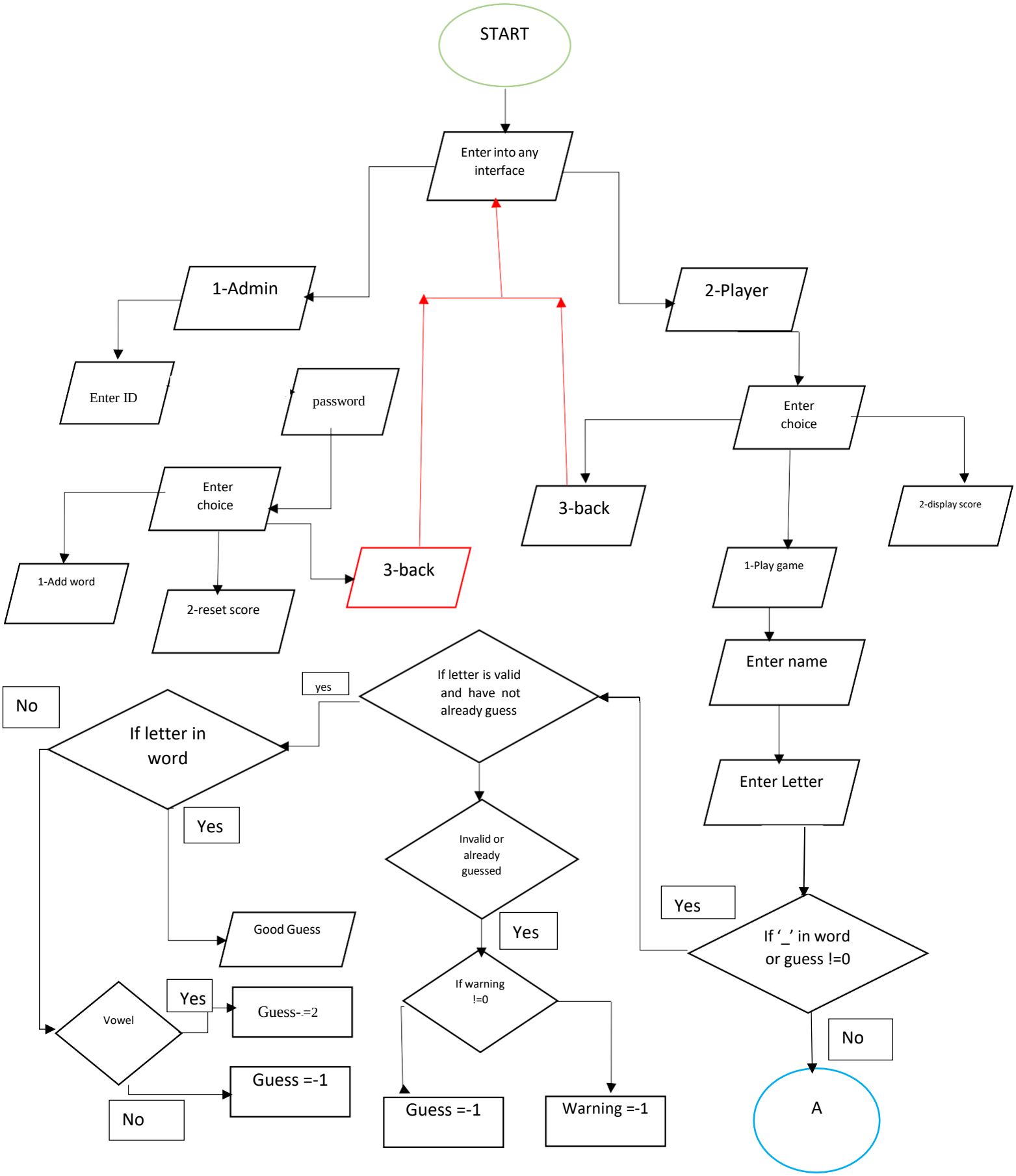
We have provided option for the user to view the rules of the game by simply going to the player mode and view them by giving the relevant input required to view it:

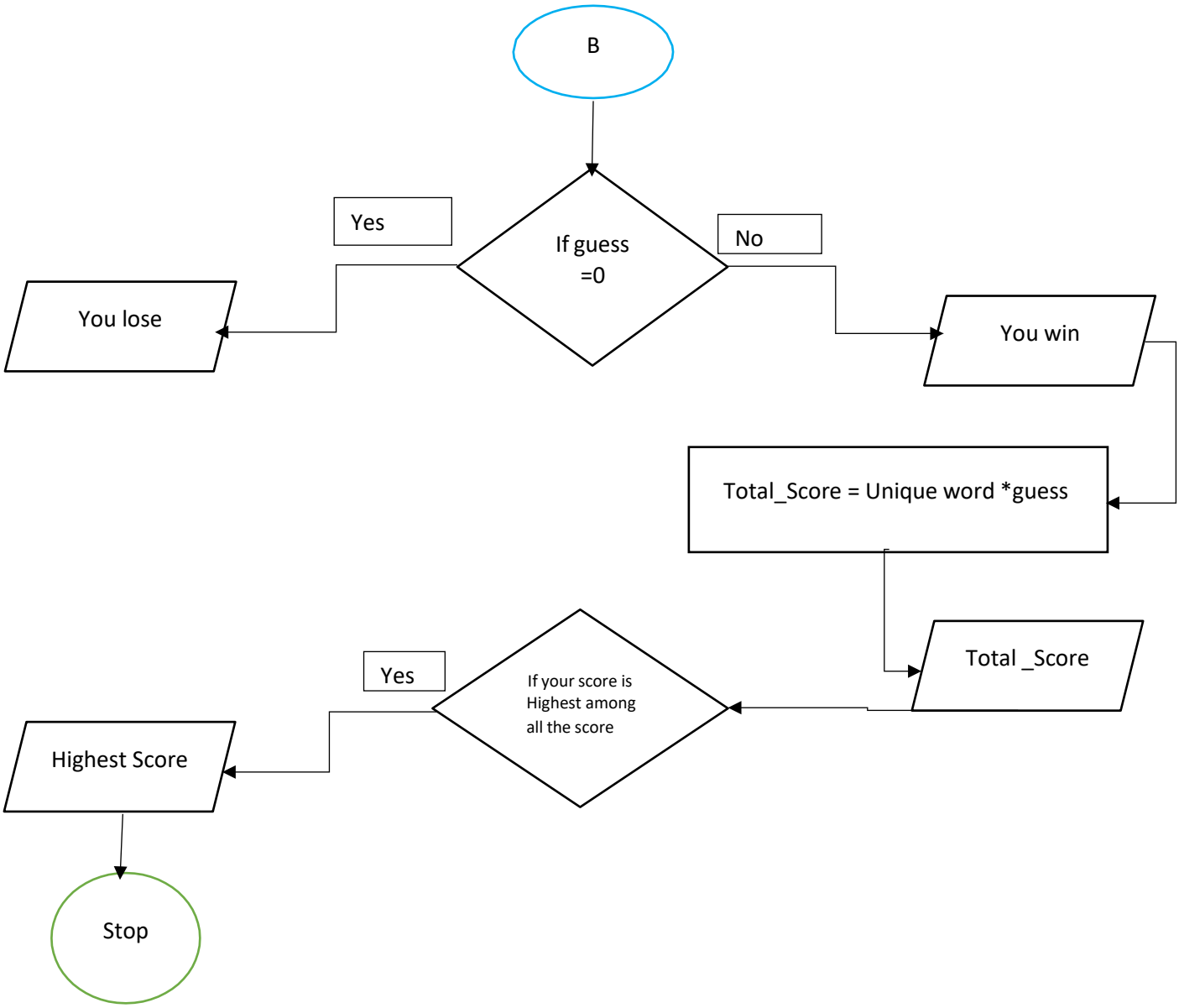


As you can see the player also has the facility to display all the scores of all the users that have played the game before.


zuhaib ---------- 18
owais ---------- 18
zunain ---------- 9
Press any key to go back.

Flow of the project




B
If guess =0
Yes
No
You lose
You win
Total_Score = Unique word *guess
Total _Score
If your score is Highest among all the score
Yes
Highest Score
Stop

THE MOST CHALLENGING PART:

The most difficult element was organizing the scores in the text file because we keep score records with player names, which made it difficult to sort scores in descending order while keeping player names.

In the game, we've added a feature for the back. Since we utilized the while loop for the back, putting it together and managing the code was a significant challenge for us.

THE NEW THING WE LEARN FROM HANGMAN PROJECT:

We learned so many things from hangman project.

- **Join Function,** to replace underscores with the letter our first problem arise there that how to replace underscore so we use join function." *Join function is a built in function used to join the elements of the sequence separated by a string operator. This function joins element and make it as a string."*

```
if letter in secret_word:
    unique_word += letter
    for i in range(len(secret_word)):
        if secret_word[i] == letter:
            L[i] = letter
    print(f"Good guess: {''.join(L)}")
    print()
```

According to the length of the secret word, we initialize the list of underscores. The code above replaced the underscore with the enter letter whenever it appeared in the secret word. The join function is then used to get rid of the brackets and join the list as a string.

```
Enter any letter: t
t_ _ t
Enter any letter: a
ta_ t
Enter any letter: c
tact
```

- **Clear screen module,** In order to clear the screen, we utilized [os.system ('cls')] from the library (import os). This is something brand-new for us.

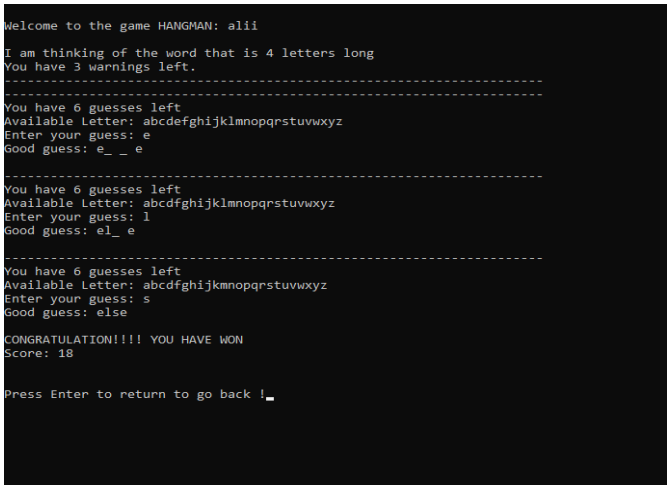
- This assignment also aids in our understanding of various **file** concepts with which we had previously struggled.

INDIVIDUAL CONTRIBUTION:

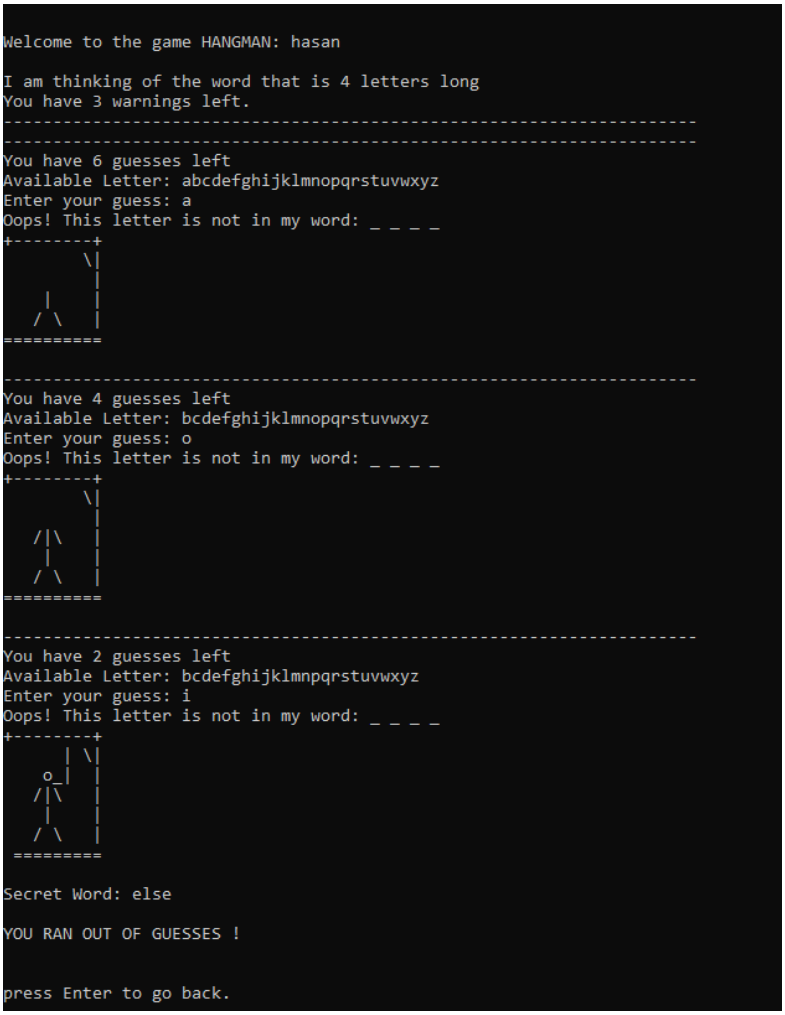
MEMBER NAME	CONTRIBUTION
1- Muhammad Zunain(CS-86)	Administrator mode.
2-Muhammad Zuhaib Noor(CS-81)	Player mode.
3-Muhammad Owais(CS-80)	Main game.

Test case runs:

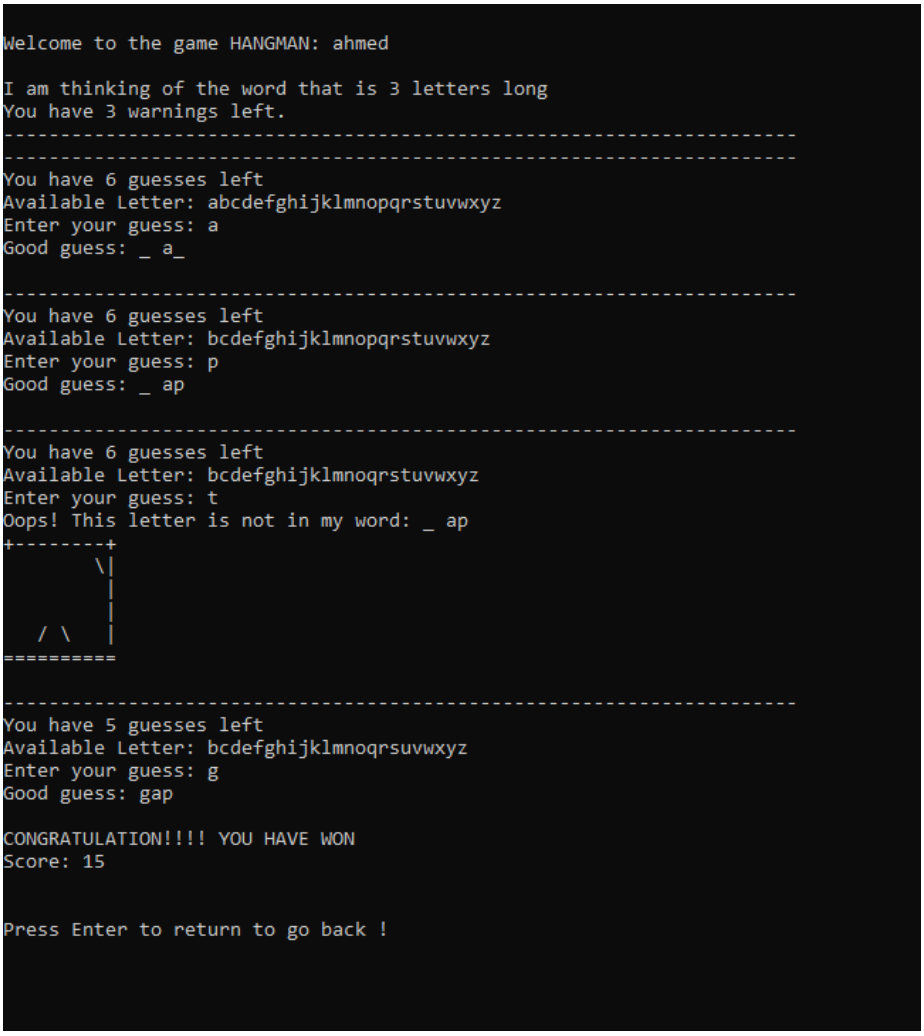
- Test 1



- Test 2



- Test 3


Welcome to the game HANGMAN: ahmed
I am thinking of the word that is 3 letters long
You have 3 warnings left.
You have 6 guesses left
Available Letter: abcdefghijklmnopqrstuvwxyz
Enter your guess: a
Good guess: _ a_
You have 6 guesses left
Available Letter: bcdefghijklmnopqrstuvwxyz
Enter your guess: p
Good guess: _ ap
You have 6 guesses left
Available Letter: bcdefghijklmnoqrstuvwxyz
Enter your guess: t
Oops! This letter is not in my word: _ ap
+--------+
\|
|
|
/ \ |
==========
You have 5 guesses left
Available Letter: bcdefghijklmnoqrsuvwxyz
Enter your guess: g
Good guess: gap
CONGRATULATION!!!! YOU HAVE WON
Score: 15
Press Enter to return to go back !