

A TEXT FILE SEARCH APPLICATION – C PROGRAMMING ASSIGNMENT

The problem

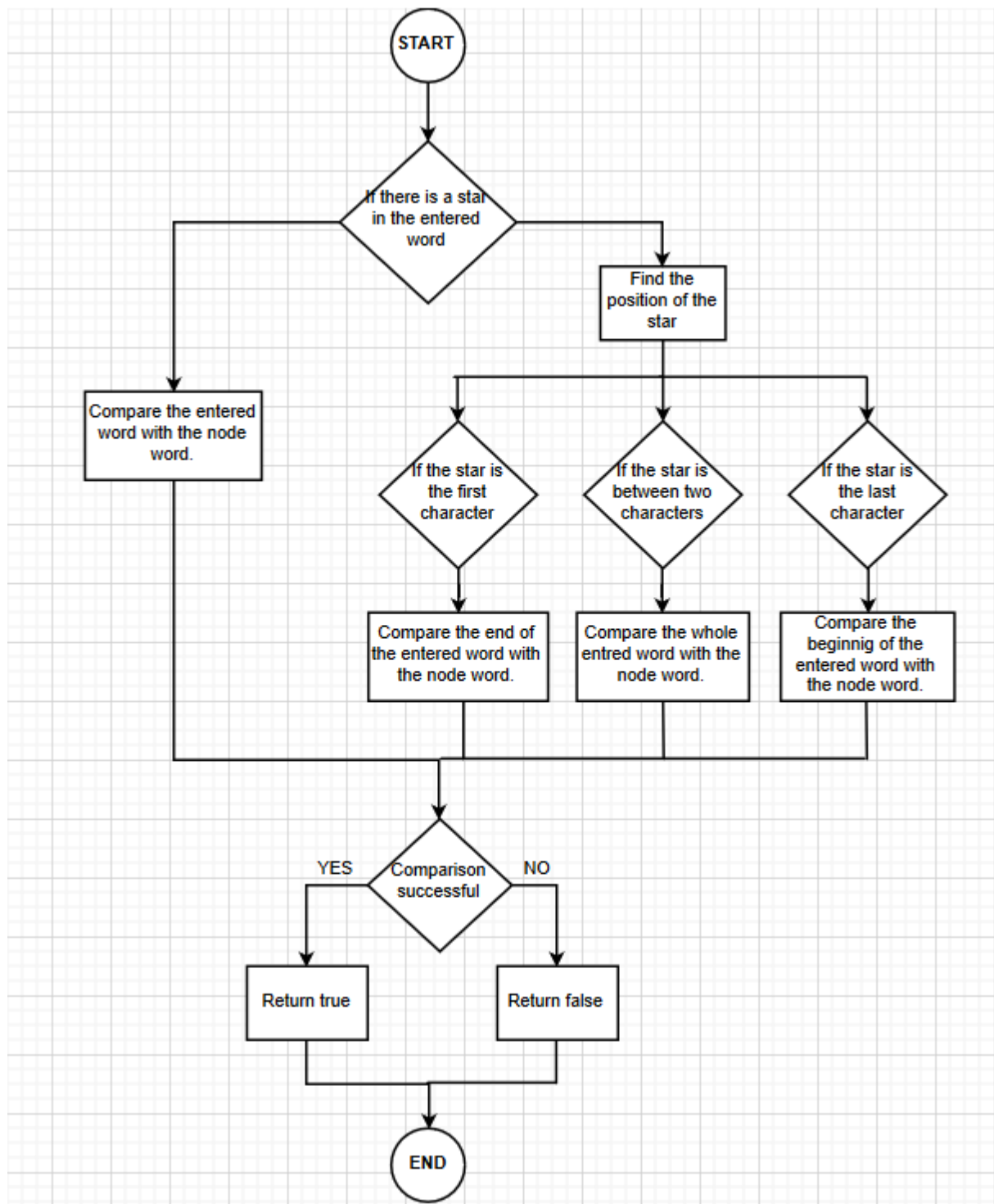
For this assignment, there was two main steps, the first one was to create the structure which will contains all the word of the dictionary. I had to start by this because this structure has an impact on all different functions used in the code for the game.

For the choice of the structure, I chose to work with a Binary Search Tree. Indeed, with a BST in which each node contains two ways to a left and a right node, the complexity to find a word can be defines in function of the first power of two superior to the number of elements:

For example, if we have 100 word in an array or a list, the maximal step number is around 50 with a dichotomic research. But with a binary search tree, the maximal step number is 8. Because $2^7 - 1 = 127$ and $100 < 127$. So, a BST with 7 level (and 8 steps) can contains 127 word.

Then the other main function was the function which will compare the entered word with the BST words. The better way should be to traverse the BST with the entered word and find it or not in the BST but it's a little complicated in C, then I decided to compare the entered word with all the word of the BST.

Flowchart



How to Run the program

When you launch the program, there is a little interface which asks you which functions you want to use: you can count the frequency of the entered word (tape 'C'), search and print all entered word (tape 'S') or do the both (tape 'B'). The user has to tape those letters in uppercase.

OUTPUT

Here are the different words in the dictionary file:

Hello – Warn – Warm – Loose – Square – Hope – Care – Take – Shape – Tape – Vape – Wrap – Belt – Bolt

Word without star

```
Hello !
Welcome in dictionnary function.

What do you want to do ? :
    -Search a word in the dictionnary? Then write 'S'.
    -Count the number of a defined word? Then write 'C'.
    -If you want search and count, then write 'B'.
B
Now, write the word with which the function will works :
hello

    Hello
The frequency of the word Hello is 1.
Thanks for playing ! Have a nice day and come back when you want :)
```

Word with a star at the beginning

```
Hello !
Welcome in dictionnary function.

What do you want to do ? :
    -Search a word in the dictionnary? Then write 'S'.
    -Count the number of a defined word? Then write 'C'.
    -If you want search and count, then write 'B'.
B
Now, write the word with which the function will works :
*ape

    Shape    Vape    Tape
The frequency of the word *ape is 3.
Thanks for playing ! Have a nice day and come back when you want :)
```

Word with a star at the end

```
Hello !
Welcome in dictionary function.

What do you want to do ? :
    -Search a word in the dictionary? Then write 'S'.
    -Count the number of a defined word? Then write 'C'.
    -If you want search and count, then write 'B'.
B
Now, write the word with which the function will works :
war*

    Warm    Warn
The frequency of the word War* is 2.
Thanks for playing ! Have a nice day and come back when you want :)
```

Word with a star between two characters

```
Hello !
Welcome in dictionary function.

What do you want to do ? :
    -Search a word in the dictionary? Then write 'S'.
    -Count the number of a defined word? Then write 'C'.
    -If you want search and count, then write 'B'.
B
Now, write the word with which the function will works :
b*lt

    Bolt    Belt
The frequency of the word B*lt is 2.
Thanks for playing ! Have a nice day and come back when you want :)
```

Word does not present in the dictionary

```
Hello !
Welcome in dictionary function.

What do you want to do ? :
    -Search a word in the dictionary? Then write 'S'.
    -Count the number of a defined word? Then write 'C'.
    -If you want search and count, then write 'B'.
B
Now, write the word with which the function will works :
Nasi

The frequency of the word Nasi is 0.
The word Nasi is not in the dictionary.
Thanks for playing ! Have a nice day and come back when you want :)
```