

# Developers Document

//The Italic text is used for the input of the program

## 1. Main :

*“Morse Program welcomes you!  
To code press 1:  
To decode press 2:  
To exit press 0:”*

- It includes a switch statement that will allow the user to choose between coding( writing the number 1) and decoding( the number 2), this will continue until the user chooses 0 so the program will stop. If the input is another integer, we will have a loop until getting one of these three numbers.
- For both parts, a file is opened using append so the information would be stored after multiple usages.
- The input and output strings have a maximum size of 100. This can be modified.

## 2. Coding module:

- This module is based on the use of an array that contains all the Morse codes of alphabet letters, and the ASCII code of these letters.
- This module will print the following on the screen and in the file “Coding.txt” (We took the example: Programming is fun)

*“Enter a line of alphabet letters to code it into Morse: Programming is fun*

*the Morse code is: .-.. .-. --- --. .-. .- --- -- .. -. -. / .. ... / ... ..-.*

*dashes: 20*

*dots: 23*

*the string contains*

*A: 1 F: 1 G: 2 I: 2 M: 2 N: 2 O: 1 P: 1 R: 2 S: 1 U: 1”*

Detailed description of each element in the functions of this module exists in form of comments in the program.

### 3. Decoding Module:

- This module is based on the use of binary tree and dynamic memory allocation. Counters are also used for a precision in filling the final string, as we need to fill a temporary string(tmp) each time and which contains the code of each letter, then the program traverses the tree( which was created in a specific order ) to find the correct letter.
- This module will print the following on the screen and in the file "Coding.txt"  
(We took a part from the last example: Programming: .--. .-. --- --. .-. .- ---- .. -. --.)  
*"Enter a line coded in Morse to decode it: .--. .-. --- --. .-. .- ---- .. -. --.*  
*the string decoded is: PROGRAMMING*  
*the number of dashes is 17 and the number of dots is 12*  
*this string contains*  
*A: 1 G: 2 I: 1 M: 2 N: 1 O: 1 P: 1 R: 2"*

Further information of each element in the functions of this module are in form of comments in the program.

### 4. Header:

A header is used to link the modules.