Week 3- Assignment (3 marks)

Note: All programs must use the appropriate C++ features.

Objective: The objective of this assignment is to practice using various C++ features such as vectors, iterators, algorithms (for_each, count_if, sort, remove, binary_search).

Task Description:
You are given a vector of integers representing the scores of students in a test. Your task is to perform the following operations on the vector:

Task1: Use **count_if** and a custom function to count the number of scores that are greater than 85, and print this number.
Task2: Use **binary_search** to check if the score -1 exists in the vector, and print the search result.
Task3: If score -1 exists, use **remove** to remove all occurrences of -1 from the vector, and then print the average of the scores.
Task4: Use **for_each** and **a custom function** to modify all the scores in the vector according to the rules below, and print the average of the updated scores.

- change score >= 85 into 7
- change 75<= score < 85 into 6
- change 65<= score < 75 into 5
- change 50<= score < 65 into 4
- change score < 50 into 3

The input and output should be like below:

Input:

Please use the provided week3.cpp

Output:

```
Task1: Number of scores greater than 85: 5
Task2: Score -1 exists
Task3: Average of scores after removing -1: 58.2333
Task4: Average of updated scores: 4.76667
```

Submit:

1, **all C++ source code**: *.cpp and *.hpp if your code is organized into separate files.

Organizing the source code into separate files is not mandatory.

You can consolidate all code into a single cpp file.

2, **week3.txt**: a txt file contains all the source code.

3, **output.jpg**, or output.png, or output.bmp: a screenshot of the output by your program

Please refer to the submission page for the Marking Rubric.