Lab 9 File IO

Please test the correctness of your program in **Q1, Q2** and **Q3** on **PASS**.

Q1. [For Practice]

Write a program in C++ to read the integers from a file named **Q1input.txt**, calculate sum of them and then write the expected output to both screen *(standard output/console)* and the file named **Q1output.txt**.

Sample Input:

Q1input.txt *(Not changed by program):*

```
1 2 3 4 5 6 8 9 10 23
```

Sample Output:

Screen Output:

```
Sum of 1 2 3 4 5 6 8 9 10 23 is 71
```

Q1output.txt *(After program is run):*

```
Sum of 1 2 3 4 5 6 8 9 10 23 is 71
```

Q2. [For Practice]

Write a program that opens the file named **Q2input.txt** and counts the number of characters ('a' - 'z' and 'A' - 'Z'), digits ('0'-'9'), and other characters in that file. Print out the expected output on the screen.

Sample Input:

Q2input.txt

```
a s w d 1 2 3 ^ 2 * 2 d ) j # k > w ? | S I M - ! B W
```

Sample Output:

Screen Output:

```
The number of characters is 13
The number of integer numbers is 5
The number of other characters is 9
```

Q3. [will be marked]

You must click submit to submit your solution. Deadline is 11:59pm, Mar 21, 2023.

Write a program that reads a file name as a **cstring** (provided by user; maximum of 15 characters, including the filename extension) and *counts the occurrence of letters* that occur in that file (count uppercase and lowercase versions of a letter as the same letter, and ignore all other characters). *Output the letters in alphabetical order* and *list only those letters that occur in the input file*. Write letters that occur in the input file to the file named **Q3output.txt**.

Sample Input:

Q3input.txt

```
The quick brown fox jumps over the lazy dog 1234567890
```

Sample Output:

Screen Output:

```
Enter file name (maximum of 15 characters):
Q3input.txt
The occurrence of 'a' is 1
The occurrence of 'b' is 1
The occurrence of 'c' is 1
The occurrence of 'd' is 1
The occurrence of 'e' is 3
The occurrence of 'f' is 1
The occurrence of 'g' is 1
The occurrence of 'h' is 2
The occurrence of 'i' is 1
The occurrence of 'j' is 1
The occurrence of 'k' is 1
The occurrence of 'l' is 1
The occurrence of 'm' is 1
The occurrence of 'n' is 1
The occurrence of 'o' is 4
The occurrence of 'p' is 1
The occurrence of 'q' is 1
The occurrence of 'r' is 2
The occurrence of 's' is 1
The occurrence of 't' is 2
The occurrence of 'u' is 2
The occurrence of 'v' is 1
The occurrence of 'w' is 1
The occurrence of 'x' is 1
The occurrence of 'y' is 1
The occurrence of 'z' is 1
```

Q3output.txt *(After program is run):*

```
a b c d e f g h i j k l m n o p q r s t u v w x y z
```