

Assignment-2

Problem-1 (7 points):

Write a recursive function that returns the number of even digits in an integer using the following header:

```
int evenCount(int value)
```

Write a test program that prompts the user to enter an integer, invokes the function and displays the number of even digits in it. Zero is an even digit.

Here are some sample run:

```
Enter the number 4
The number of even digits is 1

Enter the number 1
The number of even digits is 0

Enter the number 0
The number of even digits is 1

Enter the number 10434052
The number of even digits is 5
```

Problem-2 (8 points):

Craps is a popular dice game played in casinos. Write a program to play a variation of the game, as follows:

Roll two dice. Each die has six faces representing values 1, 2, ... , and 6, respectively. Check the sum of the two dice. If the sum is 2, 3, or 12 (called craps), you lose; if the sum is 7 or 11 (called natural), you win; if the sum is another value (i.e., 4, 5, 6, 8, 9, or 10), a point is established. Continue until you roll either a 7 (you lose) or the same point value (you win). Check the craps game rules online if something is unclear.

Your program acts as a single player. Here are some sample runs:

```
You rolled 5 + 6 = 11  
You win
```

```
You rolled 1 + 2 = 3  
You lose
```

```
You rolled 4 + 4 = 8  
point is 8  
You rolled 6 + 2 = 8  
You win
```

```
You rolled 3 + 2 = 5  
point is 5  
You rolled 2 + 5 = 7  
You lose
```

Problem-3 (7 points):

Write a program that reads integers, finds the largest of them, and counts its occurrences. Assume that the input ends with number 0. Suppose that you entered 3 5 2 5 5 5 0; the program finds that the largest is 5 and the occurrence count for 5 is 4.

Hint: Maintain two variables, `max` and `count`. `max` stores the current max number, and `count` stores its occurrences. Initially, assign the first number to `max` and 1 to `count`. Compare each subsequent number with `max`. If the number is greater than `max`, assign it to `max` and reset `count` to 1. If the number is equal to `max`, increment `count` by 1.

```
Enter numbers: 3 5 2 5 5 5 0   
The largest number is 5  
The occurrence count of the largest number is 4
```

Problem-4 (8 points):

Write a function that counts the occurrence of each letter in the string using the following header:

```
void count(const string & s)
```

Write a test program that reads a string, invokes the `count` function, and displays the non-zero counts.

Here is a sample run:

```

Enter a string: Welcome to New York!
c: 1 times
e: 3 times
k: 1 times
l: 1 times
m: 1 times
n: 1 times
o: 3 times
r: 1 times
t: 1 times
w: 2 times
y: 1 times

```

Rubric for Implementation Problems

0%	25%	50%	75%	100%
Source code files were not provided. Problem solution was not submitted.	Significant assignment requirements were ignored or violated. Program doesn't compile.	The output of the program was not shown. Lack of comments. Poor code readability (inconsistent indentation, variable naming, general organization)	Choosing a poorly approach to solve a problem, for example, solving a problem with hard coding instead of using a loop. Minor details of the program specifications were violated.	Program works correctly and meets the requirements of the assignment. Code is clean, well-organized, and well commented.

What to Hand In

Save your cpp files as FirstName_LastName_ProbX_Assignment2.cpp (for example, **Carina_Winters_Prob3_Assignment2.cpp**). Please submit (upload) your source codes (four cpp files) and provide snapshots of all your results after running your code. Use a word or pdf file to show your results.