

CS111 Lab 21

(From prac2.pdf)

Problem 1 Write a complete C++ program that does the following. (Programs that correctly carry out some of the tasks will receive partial credit.)

The program asks the user to enter 1000 single digit integers. It then outputs the number of times that each digit was seen.

For example, if the user enters 3, 1, 4, 1, 5, 9, ..., 9, 8 where 0 appears 93 times, 1 appears 116 times, ..., 9 appears 105 times, the output would be:

```
0 count 93, 1 count 116, 2 count 103, 3 count 103, 4 count 93,  
5 count 97, 6 count 94, 7 count 95, 8 count 101, 9 count 105.
```

(From prac3.pdf)

Problem 2 Write a function called *sumSq* that determines the sum of the squares of the digits in a parameter.

For example, a program that uses the function *sumSq* follows.

```
int main() {
    cout << sumSq(34) << endl;    // prints 25 because this is 9 + 16
    cout << sumSq(11113) << endl; // prints 13 found as 1+1+1+1+9
    cout << sumSq(9) << endl;     // prints 81
    return 0;
}
```

Problem 3 Write a function called *smallestPositive* that finds the smallest positive entry in a 2-dimensional array of decimals that has 4 columns. The array and the capacities are parameters. If no entry in the array is positive, the function should return an answer of 0.0. (Note that 0 is not positive.)

For example, a program that uses the function follows.

```
int main() {
    double d[2][4] = {{2, 4, -6, 8}, {-1, -3, 5, 1.5}};
    cout << smallestPositive(d, 2, 4) << endl;
    // prints    1.5
    return 0;
}
```