

CS 150 Lab 8

Files & Loops

The objective of today's lab is to practice do-while loops, for loops, and reading from files.

- Be sure your output looks exactly like the specified output.
- Be sure to submit the completed project to CS150-01 Lab by Friday at 5pm.
- Be sure to follow the coding standards and add comments to your code!

We are going to create another solution **PUNetIDLabsSecond** and write all labs for the second half of the course in this new solution. Only submit this new solution with the labs from the second half of the course.

Show the instructor or TA your solution after part is implemented below.

Lab 8.1

Write a complete C++ program in a project called **08_1_Money** that will determine whether you'd prefer to be paid \$1,000.00 a day for 25 days or a penny the first day, two pennies the second, four pennies the third day and so on, doubling the amount you made the previous day. There is no user input to this program and you *must* use a *for* loop.

Your output must look like the following. The x's should be replaced by the doubling amount on the 25th day and the total after summing all of the doubling amounts:

```
*** Makin' Money ***
```

Day	Thousands	Doubling
1	1000.00	0.01
2	1000.00	0.02

And so on until you reach the 25th day

25	1000.00	xxxx.xx
Total	25000.00	xxxx.xx

Show the instructor or TA your solution

Lab 8.2

Write a complete C++ program in a project called **08_2_IsSorted** that reads a number of integers from a text file named **numbers.txt**. The sentinel value is -999. The following data file has 12 values and a sentinel value of -999.

```
2  3  5  7  8  10  12  13  15  1 11 15 -999
```

Your program must print out to the screen each integer value (five values per line right justified in a field of 3). After outputting all values, output the number of integers read (excluding the sentinel value), the sum of all numbers, and SORTED if the values are in order from smallest to largest; otherwise, output NOT SORTED.

```
*** Number Cruncher ***
```

```
   2   3   5   7   8
  10  12  13  15   1
  11  15
```

```
Count: 12
Sum: 102
NOT SORTED
```

Show the instructor or TA your solution

Testing: Test your input on these input files.

Test1.txt

```
1  2  3  4  5  6  7  8 -999
```

Test2.txt

```
2  3  5  7  8  10  12  13  15  1 11 15 -999
```

Test3.txt

```
-999
```

Test4.txt

```
1  -999
```

Lab 8.3 Optional Challenge (Good exam review)

Write a complete C++ program in a project called **08_3_Alphabet** that asks the user to enter any uppercase character in the alphabet. Print the alphabet starting from the character entered by the user to the character Z. Make sure the user enters an uppercase letter.

```
*** Alphabet ***
```

```
Enter an uppercase letter: a
```

```
Enter an uppercase letter: W
```

```
WXYZ
```

Show the instructor or TA your solution

- 1) Your programs are to compile without any errors or warnings.
- 2) Do not use any magic constants in your program. Define your constants before defining the rest of your program's variables.

Once your projects are complete, place your solution into the CS150-01 Drop folder on grace. Your solution is to have ALL previous projects completely working and correct.