

# CS 150 Lab 11

## Files

The purpose of today's lab is for you to get some hands-on experience with how to read data from files.

**Be sure to answer the given questions before you start**

Be sure your output looks exactly like the specified output

Be sure to submit your solution to CS150-01 Lab when you are done (By Friday, Nov xx, 5pm)

Show the instructor or TA your solution before submitting it

## Lab 11.1

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "11a-AveragesXXXXXXXX", replacing the XXXXXXXX with your PUNetID.

Write a program that will open a file called **numbers.txt** and read in all of the integers until the end of the file. You are to display to the screen the average of the numbers that were read in. The datafile contains one value per line.

You can read in data from the file until the end of file is encountered by using the following. The segment below outputs the contents of a file to the screen.

```
while(inputFile >> num)
{
    cout << num << " ";
}
```

```
 /-----/
 / File Average /
 /-----/
```

**The average of the numbers in the file is: 7.9**

1. List each variable declaration necessary to store the data and information in your program. The variable name and type must be enough information to describe the information the variable holds.

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2. Briefly describe the calculations you will need to perform in your program. Be sure to explain which variables from 1. will be used in each calculation.

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3. For each loop used in your program, discuss what will happen in the loop and what data and conditions will be used by the program to stop the loop.

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## Lab 11.2

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "11b-GrossPayXXXXXXXX", replacing the XXXXXXXX with your PUNetID.

You are to write a program that will process a collection of pay data where each line contains an (a) Employee ID, (b) Hours Worked, and (c) Hourly Wage. You are to calculate the gross pay as Hourly Wage times the Hours Worked. The first line of the file contains the date in the form Month, Day, and Year where each piece of data is separated by one or more white space characters. Each subsequent line contains an employess's payroll information.

A simple data file might look like the following:

```
November 3 2009
123 35 9.50
456 40 10.00
789 45 10.50
999 99 9.99
```

```
*****
*   Payroll Information   *
*****
```

```
November 3, 2009
```

Account ID	Hours Worked	Hourly Wage(\$)	Gross Pay (\$)
-----	-----	-----	-----
#####	xx.xx	#####.##	#####.##
#####	xx.xx	#####.##	#####.##
#####	xx.xx	#####.##	#####.##

1. List each variable declaration necessary to store the data and information in your program. The variable name and type must be enough information to describe the information the variable holds.

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2. Briefly describe the calculations you will need to perform in your program. Be sure to explain which variables from 1. will be used in each calculation.

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3. For each loop used in your program, discuss what will happen in the loop and what data and conditions will be used by the program to stop the loop.

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