

CS 150 Lab 8 - Files

The purpose of today's lab is for you to get some hands-on experience with how to read and write 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 CS150-02 Drop when you are done (By Friday, Oct 22, 5pm)
- Show the instructor or TA your solution before submitting it

Lab 8.1 Reading data from a file

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "08Lab_1_XXXXXXXX", replacing the XXXXXXXX with your PUNetID.

Write a program that will open a file called **numbers.txt** and read **six** integers from the file. You are to display to the screen the average of the numbers that were read from the file. The datafile contains one value per line and **you need to create the data file by hand in Visual Studio**.

Build the following data file and name it **numbers.txt**.

```
10
5
100
89
1
16
```

Refer to your lecture notes on how to create a Data File for your program to read.

Sample output

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

The average of the numbers in the file is: 36.83

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.

2. 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.

Lab 8.2 Writing data to a file.

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "08Lab_2_XXXXXXXX", replacing the XXXXXXXX with your PUNetID.

Build a program that will read 9 integers from the user and write each integer to a file named **UserInts.txt**. Print one integer per line in the file. Print the average, labeled with the text "Average: ", as the last line in the file.

A sample **output file** is shown at right for the case when the user inputs the integers 1 through 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.

| |
|------------|
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| Average: 5 |

2. 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.

Challenge

You do not need to submit this project!

You are to write a program that will process a collection student records. Each line in the file contains a PUNetID and three exam scores. You need find each student's average grade and display the class report listed below. The last line in the file contains all nines and should not be considered a student record.

A simple data file might look like the following:

```
will4614 99 87 73
khoj4242 95 91 92
hall1234 86 99 91
99999999 9 9 9
```

Use the grading scale for this class (A, A-, B+) to determine the grades.

Print the following output to a file named Results.txt.

```
*****
* Class Report *
*****
```

| PUNetID | Average | Grade |
|----------|---------|-------|
| will4614 | 86.3 | B |
| khoj4242 | 92.7 | A |
| hall1234 | 92.0 | A |

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.

2. 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.
