

**Assignment 4 - Pointers, Streams, and the STL****1. Importer**Requirements:

Write an application that allows for the following:

- Using the provided file "Assn4-2-Data.txt" write a program that allows the user to import the stored data. Column 1 is the entry number and column 2 is the associated data.
- Use this data to calculate the average which is then printed to the screen.
- Please note that all submissions will be tested using the same input file. The number of inputs is not static and this will change in the testing file.

Grading (10 points):

- 2 points for code style (i.e. does it follow good coding practises, naming conventions etc.)
- 2 points for clarity of code (comments, white space, indents, etc.).
- 1 points for formatting of text being displayed to the screen/user prompts, etc.
- 5 points for importing the data and calculating the average.

Save the source for number 1 as "Assn4-Importer-YourName"

**2. Central Tendency**Requirements:

Write an application that allows for the following:

- Provides a menu that is looped for user selection checking for out of bounds entry
- Allow the user to enter a dynamic custom defined number of integer based entries in either a pointer or vector. Allow the user to select what means of storage to use in addition to the number of the terms. Once the data has been supplied print it once to the screen. Any re-selection will over-write the existing data in memory.
- Sort the data (L to H) and print it to the screen. Use the STL for this function.
- Calculate the max, min, range, mean, median, and mode of the provided data.
- Use functions for the stats/data collection routines above
- Limit statistical calculations to 1 decimal point in the displayed output
- Saves the output to a file based on the user provided path. Each operation, regardless of vector or pointer, will append the file and denote all the terms along with the statistical results. The file should only be saved when a user provided path is present, if it is not do not attempt to save but rather inform the user (with the output stream calculation results) that this could not be saved as no file path has been provided.

Grading (32 points):

- 2 points for code style (i.e. does it follow good coding practises, naming conventions etc.)
- 2 points for clarity of code (comments, white space, indents, etc.).
- 2 points for formatting of text being displayed to the screen/user prompts, etc.
- 3 points for the looping and exit capabilities
- 3 points for the dynamic pointer use
- 3 points for the dynamic vector use
- 2 points for sorting
- 10 points for the statistics
- 5 points for file saving

Name : \_\_\_\_\_

Student Number : \_\_\_\_\_

Sample:        *//red indicates user input*

Available Operations:

*//user input example in red below*

- (1). Store and Compute with Vector
- (2). Store and Compute with Pointer
- (3). Set File Saving Path
- (4). Exit

*//loop until exit selected*

Enter your selection: *1*

How many terms would you like to enter? *6*

Term 1: *22*

*//update on as needed based on user input (vector)*

Term 2: *13*

Term 3: *14*

Term 4: *17*

Term 5: *22*

Term 6: *31*

Provided data: 22, 13, 14, 17, 22, 31

Sorted data: 13, 14, 17, 22, 22, 31

Statistical Results:

*//computed based on provided user data (real time)*

Min: 13

Max: 31

*//allow for floating point data entry*

Range: 18

Mean: 19.8

*//limit all to 1 decimal point for printed solution*

Median: 19.5

Mode: 22

This could not be saved as no file path has been provided by the user.

Available Operations:

*//user input example in red below*

- (1). Store and Compute with Vector
- (2). Store and Compute with Pointer
- (3). Set File Saving Path
- (4). Exit

Enter your selection: *3*

Please enter the file path: JasonsResults.txt

Available Operations:

*//user input example in red below*

- (1). Store and Compute with Vector
- (2). Store and Compute with Pointer
- (3). Set File Saving Path
- (4). Exit

Name : \_\_\_\_\_

Student Number : \_\_\_\_\_

Enter your selection: **2**

How many terms would you like to enter? **6**

Term 1: **22** //update on as needed based on user input (**pointer**)  
Term 2: **13** //data would vary by user, sample uses same as above  
Term 3: **14**  
Term 4: **17**  
Term 5: **22**  
Term 6: **31**

Provided data: 22, 13, 14, 17, 22, 31

Sorted data: 13, 14, 17, 22, 22, 31

Statistical Results: //computed based on provided user data (real time)

Min: 13

Max: 31 //allow for floating point data entry

Range: 18

Mean: 19.8 //limit all to 1 decimal point for printed solution

Median: 19.5

Mode: 22

The results have been saved to: JasonsResults.txt

Available Operations: //user input example in red below

- (1). Store and Compute with Vector
- (2). Store and Compute with Pointer
- (3). Set File Saving Path
- (4). Exit

Enter your selection: **5**

Sorry your input was not understood. Please try again.

Available Operations: //user input example in red below

- (1). Store and Compute with Vector
- (2). Store and Compute with Pointer
- (3). Set File Saving Path
- (4). Exit

Enter your selection: **4**

Merci!

Save the source for number 2 as "Assn4-Central-YourName"