PSP1 Project Plan Summary

Name: James Small
Program: 2B   Number: 4
Instructor: Dr. Concepcion   Language: C++

Summary	Plan	Actual	To Date
LOC/Hour	64	46.9	0

Program Size (LOC)	Plan	Actual	To Date
Base (B)	76	76	
	(Measured)	(Measured)	
Deleted (D)	5	0	
	(Estimated)	(Counted)	
Modified (M)	5	0	
	(Estimated)	(Counted)	
Added (A)	75	75	
	(N-M)	(T-B+D-R)	
Reused (R)	0	0	0
	(Estimated)	(Counted)	
New and Changed (N)	80	75	0
	(Estimated)	(A+M)	
Total LOC (T)	146	151	483
	(N+B-M-D+R)	(Measured)	
Total New Reusable	0	0	

Time in Phase (min.)	Plan	Actual	To Date	To Date %
Planning	3	3	15	3.9
Design	6	15	38	9.9
Code	26	35	134	35
Compile	7	2	30	7.8
Test	26	25	125	32.6
Postmortem	7	16	41	10.7
Total	75	96	383	100

Defects Injected	Actual	To Date	To Date %
Planning	0	0	0
Design	0	1	7.1
Code	3	13	92.9
Compile	0	0	0
Test	0	0	0
Total Development	3	14	100

Defects Removed	Actual	To Date	To Date %
Planning	0	0	0
Design	0	0	0
Code	0	0	0
Compile	0	6	42.9
Test	3	8	57.1
Total Development	3	14	100
After Development			

Test Report Template

Name:	James Small
Program:	2B
Instructor:	Dr. Concepcion

Number:	4
Language:	C++

Test Name/Number	1
Test Objective	To make sure all different aspects of the added functionality work with the filesystem.
Test Description	The test will be the following: 1. Enter all values from table A 2. Replace all values of table A with values from table B 3. Insert each item of table C after the corresponding item in table B in the same position 4. Delete items from table B from list 5. Replace current file with new version 6. Ensure result has only table C items in it.
Test Conditions	Table A: 160 591 114 229 230 270 128 1657 624 1503 Table B: 186 699 132 272 291 331 199 1890 788 1601 Table C: 15.0 69.9 6.5 22.4 28.4 65.9 19.4 198.7 38.8 138.2
Expected Results	15.0 69.9 6.5 22.4 28.4 65.9 19.4 198.7 38.8 138.3
Actual Results	15.0 69.9 6.5 22.4 28.4 65.9 19.4 198.7 38.8 138.3

Test Name/Number	2
Test Objective	To make sure all different aspects of the added functionality work with the filesystem.
Test Description	The test will be the following: 1. Enter the following values [1 2 3 4 5] 2. Replace each number with a version 100 more than it 3. Delete the odd numbers 4. Save as new file
Test Conditions	
Expected Results	102 104
Actual Results	102 104

Test Name/Number	4
Test Objective	To make sure all different aspects of the added functionality work with the filesystem.
Test Description	The test will be the following: 1. Read in the values {1 2 3 4 5 6 7 8 9 10} 2. Accept the first two numbers 3. Delete the next two numbers 4. Accept all remaining numbers 5. Save over original file
Test Conditions	

Expected Results	1 2 5 6 7 8 9 10
Actual Results	1 2 5 6 7 8 9 10

Process Improvement Proposal

Name: James Small

Program: 2B

Number: 4

Instructor: Dr. Concepcion

Language: C++

Problem Description Briefly describe the problems that you encountered.
I've noticed that my testing time seems to be taking a lot of time to complete in comparison to other portions. Most of it is because of defects found that were created during coding. These errors aren't preventing compilation, but more functional errors that effect how the system runs and affects the results.
Proposal Description Briefly describe the process improvements that you propose.
I propose to focus on the coding a bit more. In particular, to go back over the logically once it's compiled. After it's compiled and I know there are no defects that prevent compilation, I should go back through the code step by step to see if I can catch the bugs and problems logically, before spending a lot of time in testing trying to figure the errors out. I can normally see the problems during testing and they seem obvious, to the point where I wonder how they happened in the first place.
Other Notes and Comments Note any other comments or observations that describe your experiences or improvement ideas.

Size Estimating Template

Name: James Small

Program: 2B   Number: 4

Instructor: Dr. Concepcion   Language: C++

BASE PROGRAM LOC				ESTIMATE	ACTUAL
BASE SIZE (B)				76	76
LOC DELETED (D)				5	0
LOC MODIFIED (M)				5	0

OBJECT LOC

BASE ADDITIONS	TYPE	METHODS	REL. SIZE	LOC	LOC
Input	I/O	5	Medium	83	123
TOTAL BASE ADDITIONS (BA)				83	123

NEW OBJECTS	TYPE	METHODS	REL. SIZE	LOC (New Reuse*)	
TOTAL NEW OBJECTS				0	0

REUSED OBJECTS

REUSED TOTAL	0	0

		SIZE	TIME
PROBE Estimating Method:		C	C
Estimated Object LOC (E):	E=BA+NO+M	88	
Regression Parameters:	β_0(size and time)	0	0
Regression Parameters:	β_1(size and time)	1.45185	1.72593
Estimated New and Changed LOC (N):	N=β_0+β_1*E	127.8	
Estimated Total LOC:	T=N+B-D-M+R	193.8	
Estimated Total New Reuse (sum of * LOC):		0	
Estimated Total Development Time:	Time=β_0+β_1*E		151.9
Prediction Range:	Range	10	10
Upper Prediction Interval:		137.8	161.9
Lower Prediction Interval:		117.8	141.9
Prediction Interval Percent:		N/A	N/A

Time Recording Log

Name: James Small

Program: 2B   Number: 4

Instructor: Dr. Concepcion   Language: C++

Date	Start	Stop	Int. Time	Delta Time	Phase	Comments
2014-02-08	17:32	17:35	0	3	Planning	Read question and made guesses for size and time
2014-02-08	17:35	17:50	0	15	Design	Created Design Diagrams
2014-02-09	13:50	14:25	0	35	Code	Wrote Code
2014-02-09	14:25	14:27	0	2	Compile	Compiled Code, No Errors First Try
2014-02-09	14:27	14:52	0	25	Test	Tested Code and Removed Bugs
2014-02-09	14:52	15:08	0	16	Postmortem	Filled out paperwork and took screenshots of results

Total: 96

Defect Recording Log

Name:	James Small	
Program:	2B	Number: 4
Instructor:	Dr. Concepcion	Language: C++

Date	Number	Type	Inject	Remove	Fix Time	Fix Ref.
2014-02-09	1	80 - Function	Code	Test	2	

Description: When all remaining option selected, forgot to add current number to list

Date	Number	Type	Inject	Remove	Fix Time	Fix Ref.
2014-02-09	2	80 - Function	Code	Test	2	

Description: last number was always duplicated in results, fix involved changing output format of file.

Date	Number	Type	Inject	Remove	Fix Time	Fix Ref.
2014-02-09	3	80 - Function	Code	Test	1	

Description: when all remaining option selected, menu would continue to pop up asking user what to do.

Date	Number	Type	Inject	Remove	Fix Time	Fix Ref.

Description:

Date	Number	Type	Inject	Remove	Fix Time	Fix Ref.

Description:

Date	Number	Type	Inject	Remove	Fix Time	Fix Ref.

Description:

Date	Number	Type	Inject	Remove	Fix Time	Fix Ref.

Description:

```cpp
// Name: James Small
// Program: 2B
// Class: CSE455
// Description: Program to input, output, or modify a file.

#include <iostream>
#include <string>
#include "Input.h"

using namespace std;

int main()
{
    int choice = 0;

    cout << "What would you like to do?\n";
    cout << "Enter 1 to read from file.\n";
    cout << "Enter 2 to write to file.\n";
    cout << "Enter 3 to modify a file.\n";
    cout << "Enter 0 to quit.\n";
    cout << "Choice: ";

    cin >> choice;

    if (choice != 0) {

        string file;

        cout << "Enter the file name to access: ";
        cin >> file;

        Input input(file);

        if (choice == 1)
            input.readFromFile();
        else if (choice == 2)
            input.writeToFile();
        else if (choice == 3)
            input.modifyFile();
    }

    return 0;
}
```

```
// Name: James Small
// Program: 2B
// Class: CSE455
// Description: Input class Header File

#ifndef INPUT_H
#define INPUT_H

#include <string>

using namespace std;

class Input
{
    public:
        Input(string fileName);
        void writeToFile();
        void readFromFile();
        void modifyFile();

    private :
        string fileToRead;
        float enterNumber();

};
#endif
```

```cpp
// Name: James Small
// Program: 2B
// Class: CSE455
// Description: Input class Implementation File

#include "Input.h"
#include <fstream>
#include <iostream>
#include <vector>

using namespace std;

// This is the default constructor

Input::Input(string fileName)
{
    this->fileToRead = fileName;
}

// This method asks user for a set of numbers and outputs them to a file

void Input::writeToFile()
{
    int count = 0;
    float currentValue;

    cout << "Enter the amount of numbers to write: ";

    cin >> count;

    ofstream outfile;

    outfile.open(fileToRead.c_str());

    for (int i = 0; i < count; i++) {

        cout << "Enter number " << i + 1 << ": ";

        cin >> currentValue;

        if (i == count - 1)
            outfile << currentValue;
        else
            outfile << currentValue << " ";
    }

    outfile.close();
}

// This method reads in a set of numbers from a file and displays them on screen

void Input::readFromFile()
{
    ifstream infile;

    infile.open(fileToRead.c_str());
```

```cpp
        float currentValue = 0;

        while (!infile.eof()) {
            infile >> currentValue;
            cout << currentValue << endl;
        }

        infile.close();
    }

    // This method modifies an existing file one line at a time.

    void Input::modifyFile()
    {
        ifstream infile;

        infile.open(fileToRead.c_str());

        float currentValue = 0;
        int choice;
        vector<float> currentNumbers;
        bool acceptAllNumbers = false;

        while (!infile.eof()) {
            infile >> currentValue;

            if (acceptAllNumbers) {
                currentNumbers.push_back(currentValue);
            } else {
                cout << "\nWhat would you like to do with this number, " <<
                    currentValue << "?\n";
                cout << "Enter 1 to accept this number.\n";
                cout << "Enter 2 to replace this number.\n";
                cout << "Enter 3 to delete this number.\n";
                cout << "Enter 4 to insert a new number after current number.\n";
                cout << "Enter 5 to accept the remainder of the numbers.\n";
                cout << "Choice: ";

                cin >> choice;

                switch (choice) {
                    case 1:
                        currentNumbers.push_back(currentValue);
                        break;
                    case 2:
                        currentNumbers.push_back(enterNumber());
                        break;
                    case 3:
                        break;
                    case 4:
                        currentNumbers.push_back(currentValue);
                        currentNumbers.push_back(enterNumber());
                        break;
                    case 5:
                        currentNumbers.push_back(currentValue);
```

```cpp
                        acceptAllNumbers = true;
                        break;
                    default:
                        break;
                }
            }
        }

        infile.close();

        cout << "\nWould you like to replace the current file or create a new file?
            \n";
        cout << "Enter 1 to replace the current file's contents.\n";
        cout << "Enter 2 to create a new file.\n";
        cout << "Choice: ";

        cin >> choice;

        if (choice == 2) {
            cout << "Enter the file name to access: ";
            cin >> fileToRead;
        }

        ofstream outfile;

        outfile.open(fileToRead.c_str());

        for (int i = 0; i < currentNumbers.size(); i++) {
            if (i == currentNumbers.size() - 1)
                outfile << currentNumbers[i];
            else
                outfile << currentNumbers[i] << " ";
        }
}

float Input::enterNumber()
{
    float current = 0;

    cout << "\nEnter number: ";

    cin >> current;

    return current;
}
```

Compilation

```
jamess-imac:program AcousticTime$ g++ -c Input.cpp
jamess-imac:program AcousticTime$ g++ -o program2b program2b.cpp
Input.o
jamess-imac:program AcousticTime$
```

Test 1

```
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 2
Enter the file name to access: test1
Enter the amount of numbers to write: 10
Enter number 1: 160
Enter number 2: 591
Enter number 3: 114
Enter number 4: 229
Enter number 5: 230
Enter number 6: 270
Enter number 7: 128
Enter number 8: 1657
Enter number 9: 624
Enter number 10: 1503
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 3
Enter the file name to access: test1

What would you like to do with this number, 160?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 186

What would you like to do with this number, 591?
```

Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 699

What would you like to do with this number, 114?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 132

What would you like to do with this number, 229?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 272

What would you like to do with this number, 230?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 291

What would you like to do with this number, 270?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 331

What would you like to do with this number, 128?

```
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 199

What would you like to do with this number, 1657?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 1890

What would you like to do with this number, 624?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 788

What would you like to do with this number, 1503?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 1601

Would you like to replace the current file or create a new file?
Enter 1 to replace the current file's contents.
Enter 2 to create a new file.
Choice: 1
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 3
```

```
Enter the file name to access: test1

What would you like to do with this number, 186?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

Enter number: 15.0

What would you like to do with this number, 699?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

Enter number: 69.9

What would you like to do with this number, 132?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

Enter number: 6.5

What would you like to do with this number, 272?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

Enter number: 22.4

What would you like to do with this number, 291?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4
```

Enter number: 28.4

What would you like to do with this number, 331?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

Enter number: 65.9

What would you like to do with this number, 199?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

Enter number: 19.4

What would you like to do with this number, 1890?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

Enter number: 198.7

What would you like to do with this number, 788?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

Enter number: 38.8

What would you like to do with this number, 1601?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 4

```
Enter number: 138.2

Would you like to replace the current file or create a new file?
Enter 1 to replace the current file's contents.
Enter 2 to create a new file.
Choice: 1
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 3
Enter the file name to access: test1

What would you like to do with this number, 186?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 15?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 699?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 69.9?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 132?
Enter 1 to accept this number.
Enter 2 to replace this number.
```

Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 6.5?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 272?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 22.4?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 291?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 28.4?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 331?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.

Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 65.9?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 199?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 19.4?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 1890?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 198.7?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 788?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

```
What would you like to do with this number, 38.8?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 1601?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 138.2?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

Would you like to replace the current file or create a new file?
Enter 1 to replace the current file's contents.
Enter 2 to create a new file.
Choice: 1
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 1
Enter the file name to access: test1
15
69.9
6.5
22.4
28.4
65.9
19.4
198.7
38.8
138.2
```

Test 2

```
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 2
Enter the file name to access: test2
Enter the amount of numbers to write: 5
Enter number 1: 1
Enter number 2: 2
Enter number 3: 3
Enter number 4: 4
Enter number 5: 5
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 3
Enter the file name to access: test2

What would you like to do with this number, 1?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 101

What would you like to do with this number, 2?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 102

What would you like to do with this number, 3?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
```

```
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 103

What would you like to do with this number, 4?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 104

What would you like to do with this number, 5?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 2

Enter number: 105

Would you like to replace the current file or create a new file?
Enter 1 to replace the current file's contents.
Enter 2 to create a new file.
Choice: 1
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 3
Enter the file name to access: test2

What would you like to do with this number, 101?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 102?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
```

```
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 103?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 104?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 105?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

Would you like to replace the current file or create a new file?
Enter 1 to replace the current file's contents.
Enter 2 to create a new file.
Choice: 2
Enter the file name to access: newtest2
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 1
Enter the file name to access: newtest2
102
104
```

Test 3

```
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 2
Enter the file name to access: test3
Enter the amount of numbers to write: 10
Enter number 1: 1
Enter number 2: 2
Enter number 3: 3
Enter number 4: 4
Enter number 5: 5
Enter number 6: 6
Enter number 7: 7
Enter number 8: 8
Enter number 9: 9
Enter number 10: 10
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 3
Enter the file name to access: test3

What would you like to do with this number, 1?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 2?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 1

What would you like to do with this number, 3?
Enter 1 to accept this number.
```

Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 4?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 3

What would you like to do with this number, 5?
Enter 1 to accept this number.
Enter 2 to replace this number.
Enter 3 to delete this number.
Enter 4 to insert a new number after current number.
Enter 5 to accept the remainder of the numbers.
Choice: 5

Would you like to replace the current file or create a new file?
Enter 1 to replace the current file's contents.
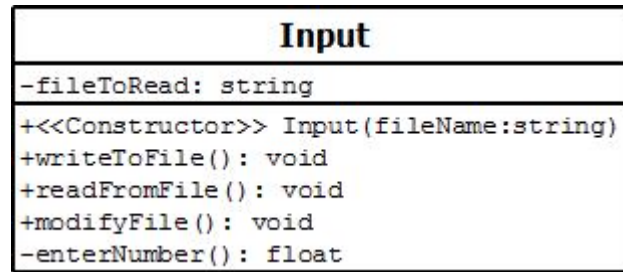Enter 2 to create a new file.
Choice: 1
jamess-imac:program AcousticTime$ ./program2b
What would you like to do?
Enter 1 to read from file.
Enter 2 to write to file.
Enter 3 to modify a file.
Enter 0 to quit.
Choice: 1
Enter the file name to access: test3
1
2
5
6
7
8
9
10

UML Class Diagram

Input
-fileToRead: string
+<<Constructor>> Input(fileName:string) +writeToFile(): void +readFromFile(): void +modifyFile(): void -enterNumber(): float

UML Use Case Diagram