CSCE 221 Cover Page

Programming Assignment #1

Due by February 4 midnight to eCampus

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Please list all sources in the table below including web pages which you used to solve or implement the current homework. If you fail to cite sources you can get a lower number of points or even zero, read more: Aggie Honor System Office

Types of Sources			
People	TA sec 501		
Web Pages	https://piazza.com	C++ Templates Tutorial	Use of template <class T> in C++ when declaring classes and functions - Stack Overflow
Printed material	-		
Other Sources	Lecture Slides		

I certify that I have listed all the sources that I used to develop the solutions/codes to the submitted work.
"On my honor as an Aggie, I have neither given nor received any unauthorized help on this academic work."

Name : Aldo Leon Marquez Date: 02/04/2019

Program purpose:

The purpose of the program is to design and work on a data structure able to allocate an object in a two-dimensional space, regardless of the data type (i.e generic). To do so a matrix class will be implemented and tested.

Description of Data Structures:

The Data structure used in this assignment is a Dynamic Matrix, A two-dimensional structure that allows us to dynamically allocate arrays of values which in simple word it allows us to assign the size of an array during runtime. The Structure will also be generic meaning that it could be used for different types of data using the Template function on c++.

Instructions to run:

The code is divided in two folders one for each phase, make all and ./main should be sufficient. The data files used are inside of the folder and are named test.txt and Output. txt

Exceptions:

While I was able to demonstrate the overloaded operators for phase 1 I could not resolve the undefined reference issue while trying to use them during phase 2

```
Aldo Leon@DESKTOP-HGJFJ2J /cygdrive/c/users/aldo leon/desktop/college/sophomore/spring 2019/csce 221/ho
mework/A1/phase 2
$ make all
c++ -std=c++11 -c -g main.cpp
c++ -std=c++11 My_matrix.o main.o -o main
main.o: In function `main':
/cygdrive/c/users/aldo leon/desktop/college/sophomore/spring 2019/csce 221/homework/A1/phase 2/main.cpp
:81: undefined reference to `My_matrix<long> operator+<long>(My_matrix<long> const&, My_matrix<long> co
nst&)'
/cygdrive/c/users/aldo leon/desktop/college/sophomore/spring 2019/csce 221/homework/A1/phase 2/main.cpp
:81:(.text+0x45d): relocation truncated to fit: R_X86_64_PC32 against undefined symbol `My_matrix<long>
 operator+<long>(My_matrix<long> const&, My_matrix<long> const&)'
collect2: error: ld returned 1 exit status
make: *** [Makefile:2: all] Error 1
```

Features:

The code is a generic object oriented solution for a matrix, it makes use of the class function of c++ as well as the template function . Functions that allows us to describe an object in code and make it available for various types of desired data

Evidences

Phase 1

```
Aldo Leon@DESKTOP-HGJFJ2J /cygdrive/c/users/aldo leon/desktop/college/sophomore/spring 2019/csce 221/homework/A1/phase 1
$ ./main.exe
12 12 12
12 12 12
12 12 12


m6




12 12 12
12 12 12
12 12 12
copy m3 using copy constructor

12 12 12
12 12 12
12 12 12
copy m4 using  copy assignment



432 432 432
432 432 432
432 432 432
Number of Rows: 3
Number of Columns: 3
Valid Multiplication


invalid operation

24 24 24
24 24 24
24 24 24
Number of Rows: 3
Number of Columns: 3
Valid Sum

invalid operation
```

Phase 2

```
Aldo Leon@DESKTOP-HGJFJ2J /cygdrive/c/users/aldo leon/desktop/college/sophomore/spring 2019/csce 221/homework/A1/phase 2
$ ./main.exe
1.1 1.1 1.1
1.1 1.1 1.1
1.1 1.1 1.1
double type matrix

1.1 1.1 1.1
1.1 1.1 1.1
1.1 1.1 1.1
copy of double type matrix with assignment

22.22 22.22 22.22
22.22 22.22 22.22
22.22 22.22 22.22
float type matrix




22.22 22.22 22.22
22.22 22.22 22.22
22.22 22.22 22.22
copy of float type matrix with constuctor
```