Instructor: Dr. Jie Shen
Release date: March 24, 2021
Due date: April 14, 2021

Student Name: Demetrius Johnson

*Special note: see my lab uploads of the .CPP and .EXE files for ease of access and testing any of the programs for any question.

Table of Contents

Question 1 – Linked List Stack ADT (30 pts.)

Source code (USED C++ COMPILER on Microsoft Windows 10)

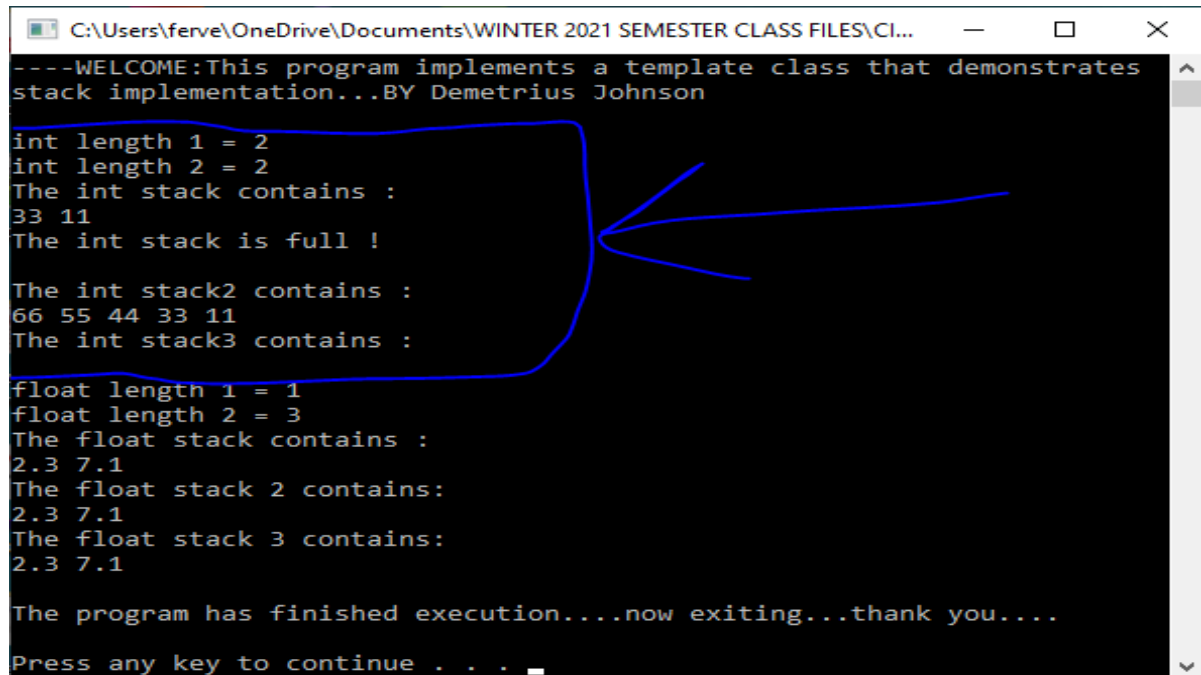***SEE: CIS-200_Assg4-Q1.cpp, stackADT.h, and stackADT.cpp uploaded in canvas.

Test data and expected results

Test Table:

Test #	Valid / Invalid Data	Description of test	Input Value	Expected Output	Actual Output	Test Pass / Fail
1	valid	Testing integer stack ADTs: creation, push, pop, size, make empty, is empty, is full, and print functions, copy constructor with deep copy	Push 11, 22, pop 22, push 33; second stack: push 44, 55, 66	See screenshot; cout for first stack should be 33, 11, since 22 was popped, 33 was the last item pushed; second stack should be 66, 55, 44, 33, 11 since 44, 55, and 66 were pushed in that order	See screenshot	pass
2	valid	Testing float stack ADTs: creation, push, pop, size, make empty, is empty, is full, and print functions, copy constructor with deep copy	Push 7.1, 2.3, 2.1, pop 2.1,	Cout should be 2.3, 7.1 since 2.1 was pushed last and then popped	See screenshot	pass

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TEST 1:

```
C:\Users\ferve\OneDrive\Documents\WINTER 2021 SEMESTER CLASS FILES\CI...     —     □     ×

----WELCOME:This program implements a template class that demonstrates
stack implementation...BY Demetrius Johnson

int length 1 = 2
int length 2 = 2
The int stack contains :
33 11
The int stack is full !

The int stack2 contains :
66 55 44 33 11
The int stack3 contains :

float length 1 = 1
float length 2 = 3
The float stack contains :
2.3 7.1
The float stack 2 contains:
2.3 7.1
The float stack 3 contains:
2.3 7.1

The program has finished execution....now exiting...thank you....

Press any key to continue . . . _
```
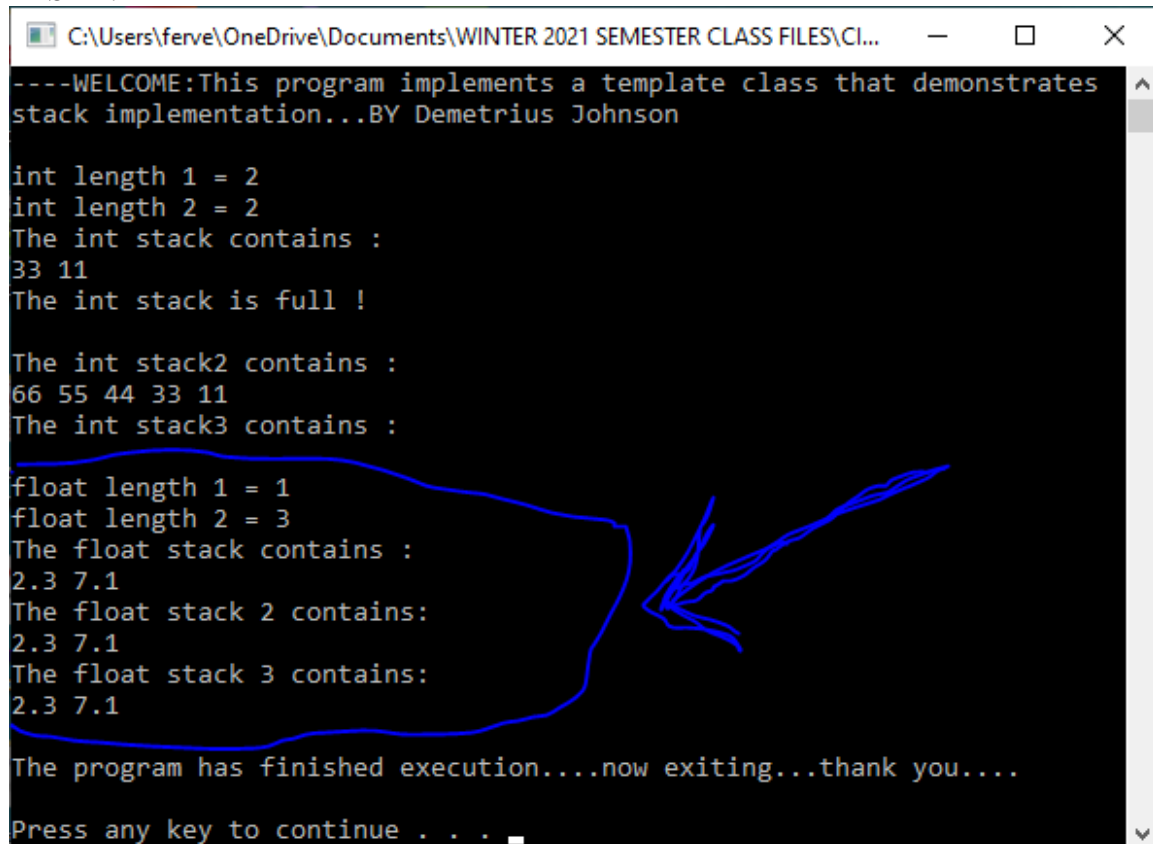
*note above, the int stack3 contains nothing so output is void; stack3 output is a result of making intStack empty using the makeEmpty function; also int stack is full after output of 33 and 11 since 44, 55, and 66 was added to the stack before isFull was called.

TEST 2:

```
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----WELCOME:This program implements a template class that demonstrates
stack implementation...BY Demetrius Johnson

int length 1 = 2
int length 2 = 2
The int stack contains :
33 11
The int stack is full !

The int stack2 contains :
66 55 44 33 11
The int stack3 contains :

float length 1 = 1
float length 2 = 3
The float stack contains :
2.3 7.1
The float stack 2 contains:
2.3 7.1
The float stack 3 contains:
2.3 7.1

The program has finished execution....now exiting...thank you....

Press any key to continue . . . _
```

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Question 2 -Linked List Queue ADT (30 pts.)

Source code (USED C++ COMPILER on Microsoft Windows 10)

***SEE: CIS-200_Assg4-Q2.cpp, queueADT.h, and queueADT.cpp uploaded in canvas.

Test data and expected results

Test Table:

Test #	Valid / Invalid Data	Description of test	Input Value	Expected Output	Actual Output	Test Pass / Fail
1	valid	Testing integer queue ADTs: creation, enqueue, dequeue, size, make empty, is empty, is full, and print functions, copy constructor with deep copy	Enqueue 10, 20, 30, 40, dequeue 10	See screenshot; cout should be 20, 30, 40, since 10 was dequeued from front	See screenshot	pass
2	valid	Testing float queue ADTs: creation, enqueue, dequeue, size, make empty, is empty, is full, and print functions, copy constructor with deep copy	Enqueue 7.1, 2.3, 3.1, dequeue 7.1	See screenshot; output of queue should just be 2.3, 3.1, since 7.1 was dequeued from the front	See screenshot	pass

TEST 1:

```
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----WELCOME:This program implements a template class that demonstrates
queue implementation...BY Demetrius Johnson

~queue is empty; no item dequeued...~int Length 3 = 4
int Length 4 = 3
The int queue contains :
20 30 40
The int queue is not full !
~queue is empty; no item dequeued...~


float Length 3 = 1
float Length 4 = 2
The float queue contains :
2.3 3.1
The float queue 2 contains:
2.3 3.1
The float queue 3 contains:
2.3 3.1

The program has finished execution....now exiting...thank you....

Press any key to continue . . .
```

TEST 2:

```
C:\Users\ferve\OneDrive\Documents\WINTER 2021 SEMESTER CLASS FILES\C...    —    □    ×

----WELCOME:This program implements a template class that demonstrates
queue implementation...BY Demetrius Johnson

~queue is empty; no item dequeued...~int Length 3 = 4
int Length 4 = 3
The int queue contains :
20 30 40
The int queue is not full !
~queue is empty; no item dequeued...~


float Length 3 = 1
float Length 4 = 2
The float queue contains :
2.3 3.1
The float queue 2 contains:
2.3 3.1
The float queue 3 contains:
2.3 3.1

The program has finished execution....now exiting...thank you....

Press any key to continue . . .
```

Submission

Provide an MS word document or a pdf file with the following information:

1. Cover page with lab number and title, your name, date
2. Test data and expected results
3. Running log/output (screen shots should be provided)
4. Insert the source code and screenshots into the word document
5. You should submit your work through Canvas site for cis 200 lab.
6. The filename of the word document should follow the convention: FirstName_LastName_Cis200Lab3.doc or pdf.