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COSC 220

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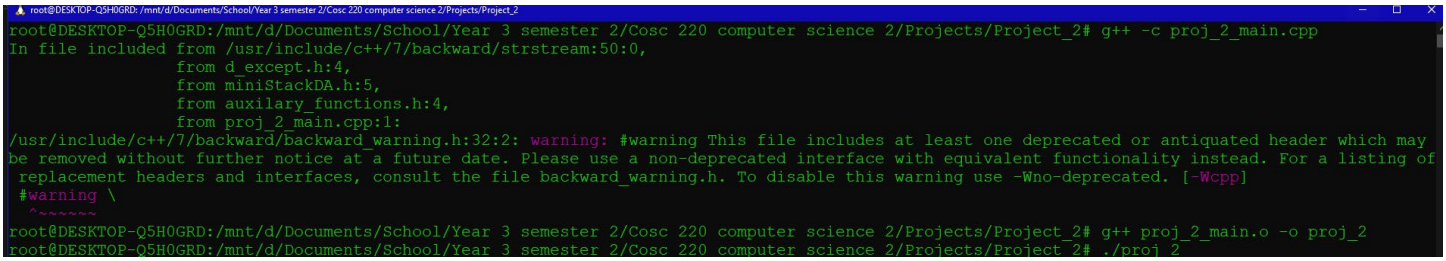
Project 2 writeup

Testing Plan (all recored in this pdf)

The plan is to make sure that I can add remove print and print top for all 4 implementations of stack and all 4 implementations of queue, I shall try to test it all in one go to make sure I do not get segfaults like I did with the last project. I shall post the output in this pdf.

Building in linux environment



(warning about header files dosen’t affect running of program

Stack Vector

Add elements

```
1
Choose the implementation you would like to use
1: Vector
2: Dynamic Array
3: List
4: Doubly Linked List
1

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the stack
23

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the stack
54

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Print and Print top

```
3

Stack (VT): 54 23

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
4

Top (VT):54

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Remove elements (and do it until exception handling kicks in

```
Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2

miniStack pop is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

The stack (VT) is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

```
Top (VT):miniStack top is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

As we can see exceptions were raised and a message similar showed up when trying to print empty stack (same with printing the top)

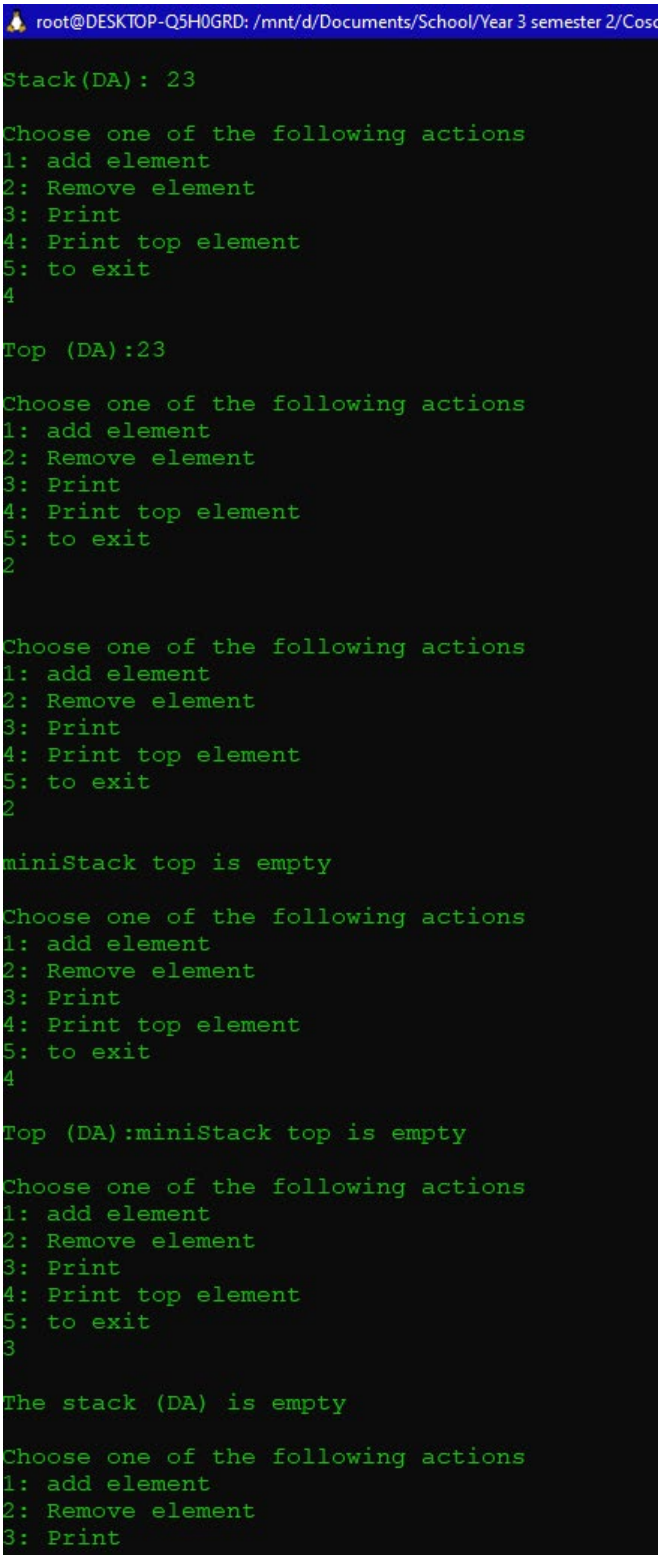
Exit and tried again with a different implementation

```
Repeat with a different implementation?
Y for yes and N for no
y

Enter 1 for Stack or 2 for Queue
```

Try it again for stack dynamic array also see input validation in the menu

```
Enter 1 for Stack or 2 for Queue

1
Choose the implementation you would like to use
1: Vector
2: Dynamic Array
3: List
4: Doubly Linked List
2

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the stack
23

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
134
Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Removed Element and saw exception handling messages occur



Keep going and do it again with STL list

```
5: to exit
5

Repeat with a different implementation?
Y for yes and N for no
y

Enter 1 for Stack or 2 for Queue
1
Choose the implementation you would like to use
1: Vector
2: Dynamic Array
3: List
4: Doubly Linked List
3

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Added 3 elements to the stack and printed it out

```
Please enter a value to add to the stack
2

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the stack
76

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the stack
56

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

Stack(LT): 56 76 2

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Remove them all and show exception messages happen for deleting and printing

```
4: Print top element
5: to exit
2


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2

miniStack pop is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

The stack (LT) is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
4

Top (LT):miniStack top is empty

Choose one of the following actions
1: add element
2: Remove element
```

Repeat process with doubly linked list

```
4: Print top element
5: to exit
5

Repeat with a different implementation?
Y for yes and N for no
y

Enter 1 for Stack or 2 for Queue
1
Choose the implementation you would like to use
1: Vector
2: Dynamic Array
3: List
4: Doubly Linked List
4

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Add element remove and show error messages

```
4

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the stack
89

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2

miniStack top is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

```
3

The stack is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Exit now test process with Queues starting with queue vector

```
5

Repeat with a different implementation?
Y for yes and N for no
Y

Enter 1 for Stack or 2 for Queue
2
Choose the implementation you would like to use
1: Vector
2: Dynamic Array
3: List
4: Doubly Linked List
1

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Add some elements and print the queue and the queue front

```
Please enter a value to add to the queue
54

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the queue
87

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

Queue (VT): 54 87

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
4

Front (VT):54

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Remove elements and trigger exception for empty stack and print exception messages

```
4

Front (VT):54

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2

miniQueue front is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

The queue (VT) is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
4

Front (VT):miniQueue front is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
```

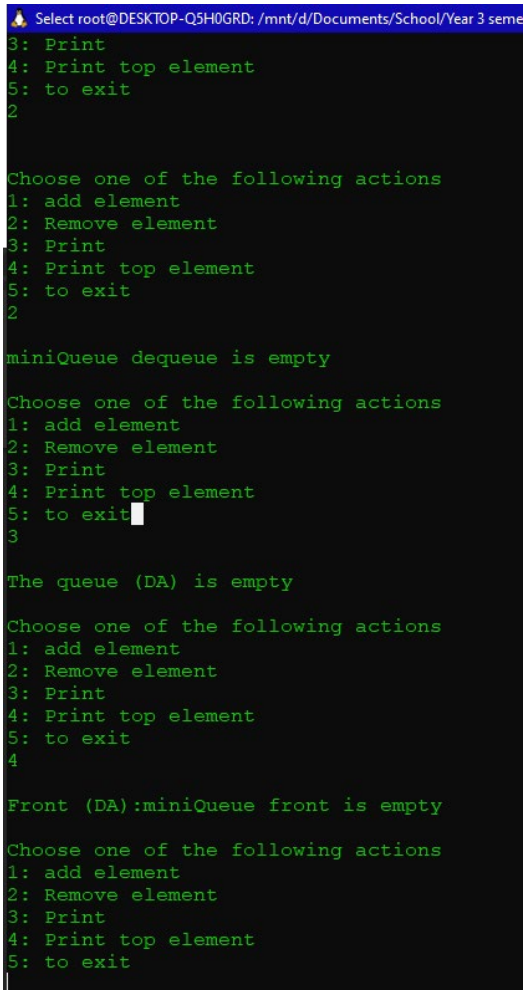
Retry with queue dynamic array

```
4: Print top element
5: to exit
5

Repeat with a different implementation?
Y for yes and N for no
y

Enter 1 for Stack or 2 for Queue
2
Choose the implementation you would like to use
1: Vector
2: Dynamic Array
3: List
4: Doubly Linked List
2

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

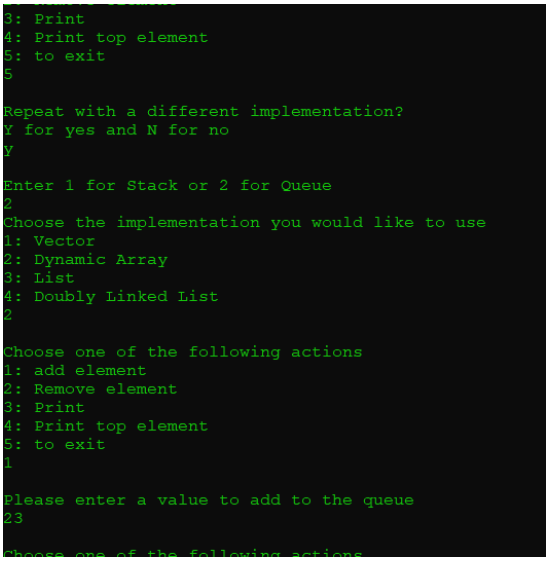
Added some elements and printed them out

```
Select root@DESKTOP-QJH0GRD: /mnt/d/Documents/School/Year 3 semester 2/Cosc
Please enter a value to add to the queue
1

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the queue
45

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

Queue (DA): 23 1 45

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
4

Front (DA):23

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Remove elements until nothing is left and exception messages appear



Restart with stl list



```
5: to exit
1

Please enter a value to add to
76

Choose one of the following act
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to
40

Choose one of the following act
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

Queue(LT): 23 76 40

Choose one of the following act
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
4

Front (LT):23

Choose one of the following act
1: add element
2: Remove element
3: Print
4: Print top element
```

Finally test with queue doubly linked list

```
5

Repeat with a different implementation?
Y for yes and N for no
y

Enter 1 for Stack or 2 for Queue
2
Choose the implementation you would like to use
1: Vector
2: Dynamic Array
3: List
4: Doubly Linked List
4

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Add some elements to it

```
root@DESKTOP-Q5H0GRD: /mnt/d/Documents/School/Year 3 semester 2/Cosc 220
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the queue
34

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the queue
76

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
1

Please enter a value to add to the queue
4

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

Queue(DL): 34 76 4


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
4

Front (DL):34

Choose one of the following actions
1: add element
2: Remove element
3: Print
```

Now remove them all and make sure remove print and print front exceptions work

```
4: Print top element
5: to exit
2


Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
2

miniQueue top is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
3

The queue (DL) is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
4

Front (DL):miniQueue top is empty

Choose one of the following actions
1: add element
2: Remove element
3: Print
4: Print top element
5: to exit
```

Exit and don’t repeat

```
Repeat with a different implementation?
Y for yes and N for no
n

root@DESKTOP-Q5H0GRD:/mnt/d/Documents/School/Year 3 semester 2/Cosc 220 computer science 2/Projects/Project_2#
```

All possible cases tested no errors occurred!

😊