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Professor Shah

COMP-SCI 303

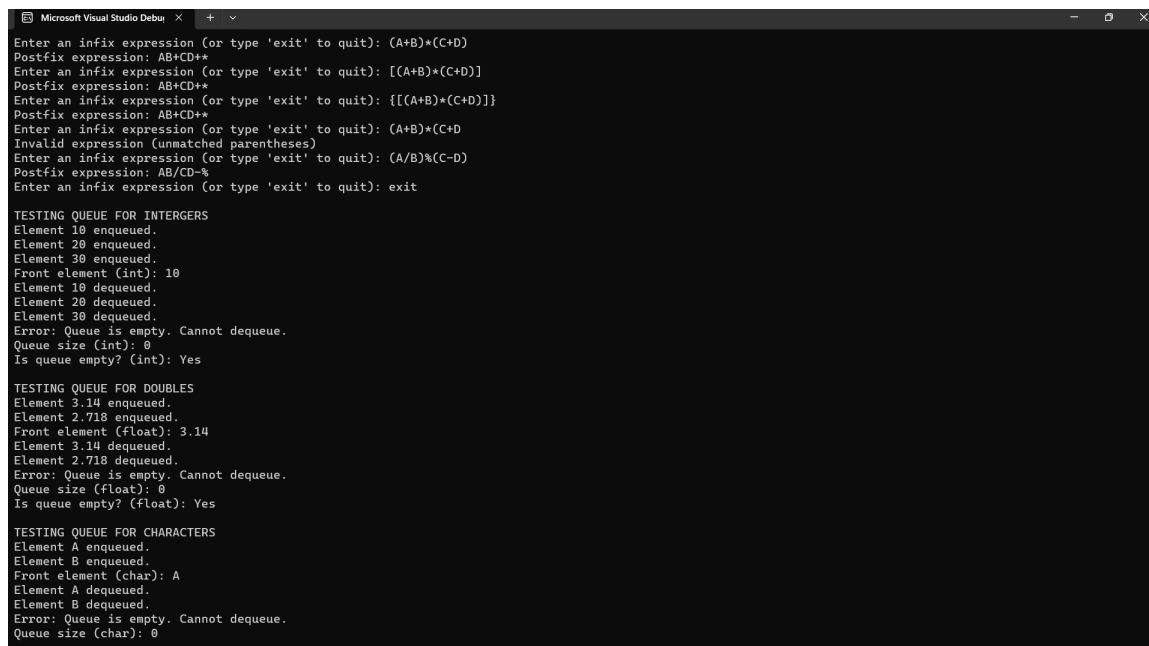
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My Assignment 3 Notes

How to Run my Program

1. For question one, my code utilizes a stack and reads an infix from the user. Through a function, my code checks if the parentheses [], {}, or () are present and evaluates if they are balanced. If they are not, the program throws a message to the user that they are not balanced and returns the input prompt once again. If they are balanced, the program continues and evaluates the infix into a postfix expression. This will continue to loop until the user types “exit”.
2. For question two, my program tests and allows a queue with 4 different data types: Integers, Strings, Doubles, and Characters. This is done via template class instantiation. The queue list is flexible to these various data types depending on what instantiation type is used.

Screenshots



```
Microsoft Visual Studio Debug
Enter an infix expression (or type 'exit' to quit): (A+B)*(C+D)
Postfix expression: AB+CD**
Enter an infix expression (or type 'exit' to quit): [(A+B)*(C+D)]
Postfix expression: AB+CD**
Enter an infix expression (or type 'exit' to quit): {[ (A+B)*(C+D) ]}
Postfix expression: AB+CD**
Enter an infix expression (or type 'exit' to quit): (A+B)*(C+D
Invalid expression (unmatched parentheses)
Enter an infix expression (or type 'exit' to quit): (A/B)%(C-D)
Postfix expression: AB/CD-%
Enter an infix expression (or type 'exit' to quit): exit

TESTING QUEUE FOR INTERGERS
Element 10 enqueued.
Element 20 enqueued.
Element 30 enqueued.
Front element (int): 10
Element 10 dequeued.
Element 20 dequeued.
Element 30 dequeued.
Error: Queue is empty. Cannot dequeue.
Queue size (int): 0
Is queue empty? (int): Yes

TESTING QUEUE FOR DOUBLES
Element 3.14 enqueued.
Element 2.718 enqueued.
Front element (float): 3.14
Element 3.14 dequeued.
Element 2.718 dequeued.
Error: Queue is empty. Cannot dequeue.
Queue size (float): 0
Is queue empty? (float): Yes

TESTING QUEUE FOR CHARACTERS
Element A enqueued.
Element B enqueued.
Front element (char): A
Element A dequeued.
Element B dequeued.
Error: Queue is empty. Cannot dequeue.
Queue size (char): 0
```

```
Microsoft Visual Studio Debug Console
Element 10 dequeued.
Element 20 dequeued.
Element 30 dequeued.
Error: Queue is empty. Cannot dequeue.
Queue size (int): 0
Is queue empty? (int): Yes

TESTING QUEUE FOR DOUBLES
Element 3.14 enqueued.
Element 2.718 enqueued.
Front element (float): 3.14
Element 3.14 dequeued.
Element 2.718 dequeued.
Error: Queue is empty. Cannot dequeue.
Queue size (float): 0
Is queue empty? (float): Yes

TESTING QUEUE FOR CHARACTERS
Element A enqueued.
Element B enqueued.
Front element (char): A
Element A dequeued.
Element B dequeued.
Error: Queue is empty. Cannot dequeue.
Queue size (char): 0
Is queue empty? (char): Yes

TESTING QUEUE FOR STRINGS
Element Hello enqueued.
Element World enqueued.
Front element (string): Hello
Element Hello dequeued.
Element World dequeued.
Error: Queue is empty. Cannot dequeue.
Queue size (string): 0
Is queue empty? (string): Yes

C:\Users\owner\Source\Repos\CS303---Assignment-3\x64\Debug\Assignment 3.exe (process 26916) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```