Homework 4 Report

Introduction

In this assignment, we were instructed to implement the Mystring class (which is a copy implementation of the string class, with some methods and features missing). we were given the header file for the class, and were told to implement everything found in the header in the Mystring.cpp file. Our implementation of the functions is supposed to mimic the behavior of the c++ string class functions.

Design and Implementation

My implementation process was somewhat straightforward. I started with the assignment operator, since this was the only method that we were given explicit instructions on implementing. After I finished the assignment operator, I moved on to the other methods, starting with the ones that I expected to use in other implementations. (For example, the push_back(char c) method would be used in my implementation of the append method, which would be used in my += operator method, so I started with push_back() first).

Once I had completed all **non-operator** methods, I moved on to the operators, which almost ALL called either another operator or another method. I did this because I could use code that I had already written to make my implementations simpler. For example, I had the == operator done for the parameters (Mystring &a, Mystring &b), so to write operator==(const char *x, Mystring &b), I simply declared a Mystring object called a using x as the constructor parameter. Then, I returned the value of operator== (a, b). I followed this process for many of my methods.

After writing each method, I did some basic testing to ensure I had the right idea before moving onto another method, but I saved the large-scale testing for the end.

Test Cases

I wrote a modular program to test my code. This would allow me to test over and over without having to hard code the test cases into my main function. However, first I used the test program provided to us to ensure that the output was correct, which it was. At the bottom of this report is a typescript file from my machine that shows my test program running in c++ 98. I go through each test, and the program shows the functionality of each method / operator. I performed far more tests than shown below, but the typescript for all of the tests would be far too long to include in this report. I found one error in my push_back() function, (I was not replacing the null character in the initial cstring), which I quickly corrected. In the end, I was left with no outstanding errors.

Conclusion

In conclusion, this assignment was an extreme success. All of my methods work as intended, and I ended up with a very robust supplement to the c++ string class. I learned a lot in this assignment, including but not limited to how valuable it is to be able to reuse code you've already written in order to speed up the development process.

Typescript

_____HOMEWORK 4 TESTING PROGRAM_____

_____

MENU - Enter the number corresponding to what you want to test (Or e for exit)

1. Reserve function

2. Append (If test passes, both += operator and append function work, assuming += calls append)

3. Insert function

4. Replace function

5. Equivalent test (== operator)

6. Nonequivalent test (!= operator)

7. Concatenation GLOBAL operator (+, not +=)

8. Array notation operator ([])

9. Assignment Operator

e. Exit

_____

1

What string would you like to test?

TestStringA

checking s1 the object

s1 contains TestStringA

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

How much space would you like to reserve?

60

checking s1 the object

s1 contains TestStringA

s1 capacity() is 60

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

Press any key and hit enter to print menu again

j

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_____

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3. Insert function

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e. Exit

_____

2

What would you like to use as your primary string? (Please do not use any spaces)

S TestStringA

checking s1 the object

s1 contains TestStringA

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

What would you like to concatenate to it?

TestSTrin tringB

checking s1 the object

s1 contains TestStringATestStringB

s1 capacity() is 23

s1 length() is 22

s1 size() is 22

s1 max_size() is 1073741820

Press any key and hit enter to print menu again

j

_____HOMEWORK 4 TESTING PROGRAM_____

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e. Exit

_____

3

What would you like to use as your primary string? (Please do not use any spaces)

TestStringA

checking s1 the object

s1 contains TestStringA

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

What would you like to insert into it?

TESTSTRINGB

What position would you like to insert TESTSTRINGB into TestStringA?

4

checking s1 the object

s1 contains TestTESTSTRINGBStringA

s1 capacity() is 23

s1 length() is 22

s1 size() is 22

s1 max_size() is 1073741820

Press any key and hit enter to print menu again

j

_____HOMEWORK 4 TESTING PROGRAM_____

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MENU - Enter the number corresponding to what you want to test (Or e for exit)

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3. Insert function

4. Replace function

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7. Concatenation GLOBAL operator (+, not +=)

8. Array notation operator ([])

9. Assignment Operator

e. Exit

_____

4

What would you like to use as your primary string? (Please do not use any spaces)

Teest stStringA

checking s1 the object

s1 contains TestStringA

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

What would you like to replace a section of that with?

TESTSTRINGB

At what position would you like to start replacing TestStringA with TESTSTRINGB?

4

What would you like the span variable to be? (How much of your second string to replace into s1)

3

checking s1 the object

s1 contains TestTESingA

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

Press any key and hit enter to print menu again

j

_____HOMEWORK 4 TESTING PROGRAM_____

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_____

5

What would you like the first string to be? (Please do not use any spaces)

abc

checking s1 the object

s1 contains abc

s1 capacity() is 4

s1 length() is 3

s1 size() is 3

s1 max_size() is 1073741820

What would you like the second string to be? (Please do not use any spaces)

abc

checking s2 the object

s2 contains abc

s2 capacity() is 4

s2 length() is 3

s2 size() is 3

s2 max_size() is 1073741820

They are equal!

Press any key and hit enter to print menu again

j

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e. Exit

5

What would you like the first string to be? (Please do not use any spaces)

abc

checking s1 the object

s1 contains abc

s1 capacity() is 4

s1 length() is 3

s1 size() is 3

s1 max_size() is 1073741820

What would you like the second string to be? (Please do not use any spaces)

abd

checking s2 the object

s2 contains abd

s2 capacity() is 4

s2 length() is 3

s2 size() is 3

s2 max_size() is 1073741820

They are NOT equal!

Press any key and hit enter to print menu again

j

_____HOMEWORK 4 TESTING PROGRAM_____

_____

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7. Concatenation GLOBAL operator (+, not +=)

8. Array notation operator ([])

9. Assignment Operator

e. Exit

_____

6

What would you like the first string to be? (Please do not use any spaces)

abc

checking s1 the object

s1 contains abc

s1 capacity() is 4

s1 length() is 3

s1 size() is 3

s1 max_size() is 1073741820

What would you like the second string to be? (Please do not use any spaces)

abc

checking s2 the object

s2 contains abc

s2 capacity() is 4

s2 length() is 3

s2 size() is 3

s2 max_size() is 1073741820

They are equal!

Press any key and hit enter to print menu again

j

_____HOMEWORK 4 TESTING PROGRAM_____

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e. Exit

_____

6

What would you like the first string to be? (Please do not use any spaces)

abc

checking s1 the object

s1 contains abc

s1 capacity() is 4

s1 length() is 3

s1 size() is 3

s1 max_size() is 1073741820

What would you like the second string to be? (Please do not use any spaces)

abd

checking s2 the object

s2 contains abd

s2 capacity() is 4

s2 length() is 3

s2 size() is 3

s2 max_size() is 1073741820

They are NOT equal!

Press any key and hit enter to print menu again

j

_____HOMEWORK 4 TESTING PROGRAM_____

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MENU - Enter the number corresponding to what you want to test (Or e for exit)

1. Reserve function

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3. Insert function

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7. Concatenation GLOBAL operator (+, not +=)

8. Array notation operator ([])

9. Assignment Operator

e. Exit

_____

7

What would you like the first string to be? (Please do not use any spaces)

Ses

Te TestStringA

checking s1 the object

s1 contains TestStringA

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

What would you like the second string to be? (Please do not use any spaces)

TestStringB

checking s2 the object

s2 contains TestStringB

s2 capacity() is 12

s2 length() is 11

s2 size() is 11

s2 max_size() is 1073741820

checking s3 the object

s3 contains TestStringATestStringB

s3 capacity() is 23

s3 length() is 22

s3 size() is 22

s3 max_size() is 1073741820

Press any key and hit enter to print menu again

j

_____HOMEWORK 4 TESTING PROGRAM_____

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MENU - Enter the number corresponding to what you want to test (Or e for exit)

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3. Insert function

4. Replace function

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7. Concatenation GLOBAL operator (+, not +=)

8. Array notation operator ([])

9. Assignment Operator

e. Exit

_____

8

What string would you like to test?

TestStringA

checking s1 the object

s1 contains TestStringA

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

What index would you like to use to test []?

5

s1[5] is t

Press any key and hit enter to print menu again

j

_____HOMEWORK 4 TESTING PROGRAM_____

_____

MENU - Enter the number corresponding to what you want to test (Or e for exit)

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2. Append (If test passes, both += operator and append function work, assuming += calls append)

3. Insert function

4. Replace function

5. Equivalent test (== operator)

6. Nonequivalent test (!= operator)

7. Concatenation GLOBAL operator (+, not +=)

8. Array notation operator ([])

9. Assignment Operator

e. Exit

9

What would you like your first string to be? (Please no spaces)

TestStringA

checking s1 the object

s1 contains TestStringA

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

What would you like the second string to be? (Please no spaes)

TESTSTRINGB

checking s2 the object

s2 contains TESTSTRINGB

s2 capacity() is 12

s2 length() is 11

s2 size() is 11

s2 max_size() is 1073741820

s1 will now be assigned s2 (s1 = s2)

checking s1 the object

s1 contains TESTSTRINGB

s1 capacity() is 12

s1 length() is 11

s1 size() is 11

s1 max_size() is 1073741820

]0;jdf028@drakelinux: ~/CLionProjects/PF2_HW4[01;32mjdf028@drakelinux[00m:[01;34m~/CLionProjects/PF2_HW4[00m$
exit

exit

Script done on 2021-10-27 08:48:45-05:00 [COMMAND_EXIT_CODE="0"]