THREADS AND MUTEXES

TESTING DOCUMENT

Abstract

This document goes over the implementation of a Linux pthread application which has two threads running the same function. The goal is to ensure that one thread updates a shared struct before the second thread prints out the values of the struct. This document shows testing of proposed code.

Justin Cervantes

Cervantes.jfa@gmail.com

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Test Cases

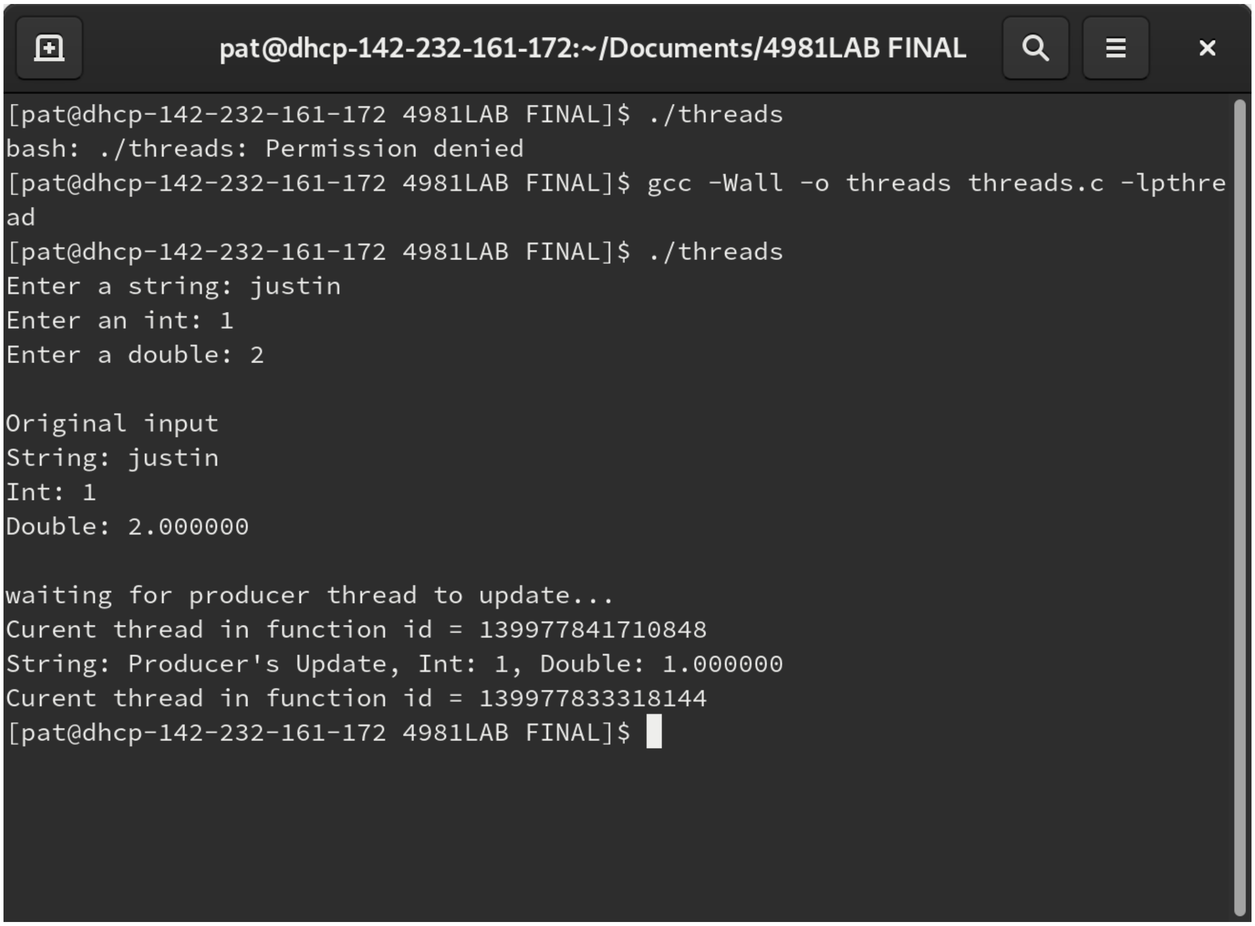
Main Scenario

Description: The user will first launch the program and enter in a valid string, a valid int, and a valid double. The input will be echoed back, and finally the statement which says that the producer updated the struct will be outputted from the consumer thread.

***Note:** The code waits for the correct thread id to be called in the thread.

Success criteria: The program will not crash, and a printout stating the defaults will appear.

Status: Passed



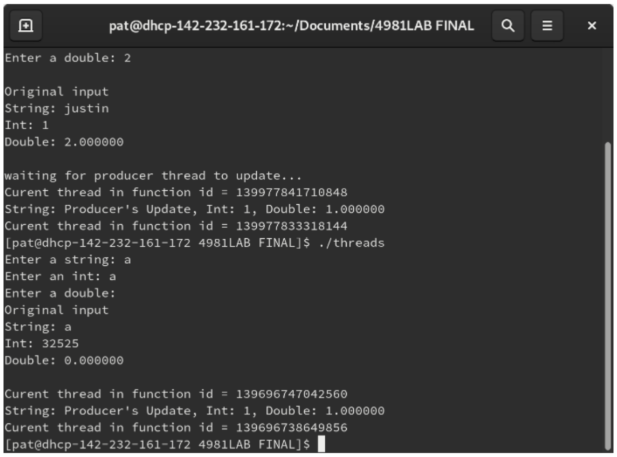
```
[pat@dhcp-142-232-161-172 4981LAB FINAL]$ ./threads
bash: ./threads: Permission denied
[pat@dhcp-142-232-161-172 4981LAB FINAL]$ gcc -Wall -o threads threads.c -lpthre
ad
[pat@dhcp-142-232-161-172 4981LAB FINAL]$ ./threads
Enter a string: justin
Enter an int: 1
Enter a double: 2

Original input
String: justin
Int: 1
Double: 2.000000

waiting for producer thread to update...
Curent thread in function id = 139977841710848
String: Producer's Update, Int: 1, Double: 1.000000
Curent thread in function id = 139977833318144
[pat@dhcp-142-232-161-172 4981LAB FINAL]$ 
```

Alternate Scenario: Entering a non-integer from user input to the struct

Description: The program has not been written to incorporate input validation, and so there is no expectation that the program will continue to run if a non integer is inputted into the initial user prompt.

Description: The program should either crash or convert a char into an ASCII code numeric equivalent.

Status: Passed



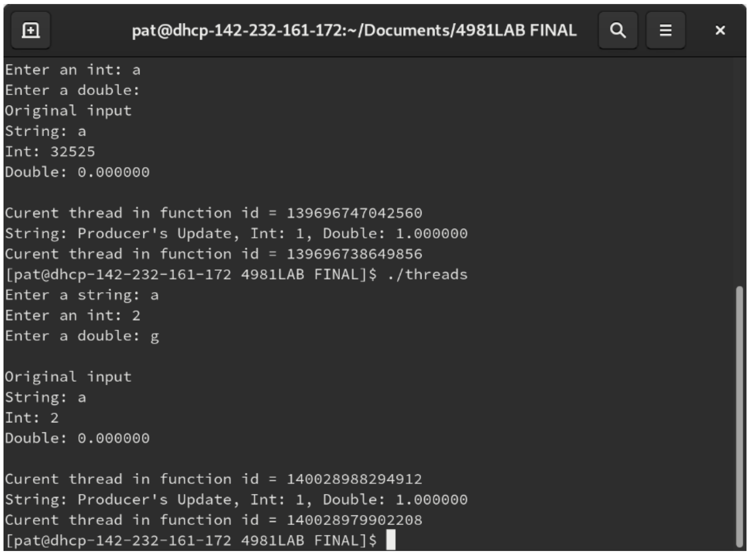
```
Enter a double: 2

Original input
String: justin
Int: 1
Double: 2.000000

waiting for producer thread to update...
Curent thread in function id = 139977841710848
String: Producer's Update, Int: 1, Double: 1.000000
Curent thread in function id = 139977833318144
[pat@dhcp-142-232-161-172 4981LAB FINAL]$ ./threads
Enter a string: a
Enter an int: a
Enter a double:
Original input
String: a
Int: 32525
Double: 0.000000

Curent thread in function id = 139696747042560
String: Producer's Update, Int: 1, Double: 1.000000
Curent thread in function id = 139696738649856
[pat@dhcp-142-232-161-172 4981LAB FINAL]$
```

Alternate Scenario: Entering a non-double from user input to the struct

Description: The program has not been written to incorporate input validation, and so there is no expectation that the program will continue to run if a non double is inputted into the initial user prompt.

Description: The program should either crash or convert a char into an ASCII code numeric equivalent.

Status: Passed



```
Enter an int: a
Enter a double:
Original input
String: a
Int: 32525
Double: 0.000000

Curent thread in function id = 139696747042560
String: Producer's Update, Int: 1, Double: 1.000000
Curent thread in function id = 139696738649856
[pat@dhcp-142-232-161-172 4981LAB FINAL]$ ./threads
Enter a string: a
Enter an int: 2
Enter a double: g

Original input
String: a
Int: 2
Double: 0.000000

Curent thread in function id = 140028988294912
String: Producer's Update, Int: 1, Double: 1.000000
Curent thread in function id = 140028979902208
[pat@dhcp-142-232-161-172 4981LAB FINAL]$
```