

CS636 Analysis of Concurrent Programs

Assignment 1

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SAHIL BASIA
241110061

Note

- I have included my test_trace.txt. Manual checking the trace we can check the races that are possible. And on using the code and opening the trace file we can see same races as output.
- There are 3 options in algo option of command line [djit, fasttrack, all]
- All the reported time in the report and program code is in seconds
- I have created 2 header files ; djit.h and fasttrack.h because it helped me in debugging the code more easily.

Ans: Problem - 1

Commands Used

g++ code.cpp

1. For DJIT = ./a.out -algo=djit -trace=absolutepath_name_of_trace_file
2. For FASTTRACK = ./a.out -algo=fasttrack -trace=absolutepath_name_of_trace_file
3. For performance measure = ./a.out -algo=all -trace=path_name_of_trace_file

Results

1. DJIT output - ...
./a.out -algo=djit -trace=../trace.log

```

0x74538c80695e +11 W-W TID:1 TID:2 3
0x745378df8c91 +11 W-W TID:1 TID:2 5
0x74538c80696b +2 W-W TID:1 TID:2 3
0x74538c80696b +4 W-W TID:1 TID:2 3
0x74538c80696b +5 W-W TID:1 TID:2 3
0x74538c80696b +7 W-W TID:1 TID:2 3
0x74538c80696b +9 W-W TID:1 TID:2 3
0x74538c80696b +12 W-W TID:1 TID:2 3
0x745378a44ed7 +2 W-W TID:2 TID:1 1
0x745378df299b +0 W-W TID:1 TID:2 4
0x74538c814c92 +3 W-W TID:0 TID:2 15
0x74538c80d151 +5 W-W TID:2 TID:1 10
0x745378df299b +3 W-W TID:1 TID:2 4

```

DJIT algo execuion time = 2.49263

2. FASTTRACK output - ...

`./a.out -algo=fasttrack -trace=../trace.log`

```

0x745378df52d2 +6 W-W TID:2 TID:1 1
0x745378df36fb +6 W-W TID:2 TID:1 2
0x745378df52dd +1 W-W TID:2 TID:1 1
0x74538c828021 +5 W-W TID:2 TID:1 5
0x745378a9c823 +7 W-W TID:2 TID:1 1
0x745378df52dd +3 W-W TID:2 TID:1 1
0x74538c80353e +7 W-W TID:1 TID:2 5
0x745378df52dd +7 W-W TID:2 TID:1 1
0x74538c828019 +6 W-W TID:1 TID:2 6
0x745378df3585 +3 W-W TID:2 TID:1 3
0x74538c814c7d +2 W-W TID:2 TID:1 3
0x745378df3585 +7 W-W TID:2 TID:1 3
FASTTRACK algo execuion time = 1.74751

```

3. Speedup comparisons

`./a.out -algo=all -trace=../trace.log`

1. DJIT algo execuion time = 2.39593

FASTTRACK algo execuion time = 1.69103

Speedup of FASTTRACK over DJIT is = 1.41684

2. DJIT algo execuion time = 2.4236

FASTTRACK algo execuion time = 1.70663
Speedup of FASTTRACK over DJIT is = 1.42011

3. DJIT algo execuion time = 2.4454
FASTTRACK algo execuion time = 1.67731
Speedup of FASTTRACK over DJIT is = 1.45793

4. DJIT algo execuion time = 2.45208
FASTTRACK algo execuion time = 1.73179
Speedup of FASTTRACK over DJIT is = 1.41592

5. DJIT algo execuion time = 2.48676
FASTTRACK algo execuion time = 1.70615
Speedup of FASTTRACK over DJIT is = 1.45752

AVG speedup - 1.433655