Program 2A

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Illustration of Stack

Stack During func3 Looping

Starting state of the stack as laid out by the question.

func3	*running* i = 4
func2	*waiting* i = 4
func1	*waiting* i = 4
main	*waiting*

Stack After func3 Interrupt

The time quantum of 5 seconds has passed. Therefore the alarm flag has been raised and a context change is performed by the scheduler.

func3	*waiting* i = 4
func2	*waiting* i = 4
func1	*running* i = 5
main	*waiting*

The scheduler picks **func1** to be executed. It does this because **func1** is at the front of the thread queue. This is true because it was the first to be added during the calling of $sthread_{create}$ and the subsequent calling of *capture* in $sthread_{init}$.

Compile and Execution

```
[rynlynch@csslab15 hw-2a]$ pwd
/home/NETID/rynlynch/CSS430/hw-2a
[rynlynch@csslab15 hw-2a]$ ls -lt
total 184
-rw-r--r-- 1 rynlynch rynlynch 164104 Jul 13 23:33 Prog2A.pdf
drwxr-xr-x 3 rynlynch rynlynch   4096 Jul 13 23:33 report
-rw-r--r-- 1 rynlynch rynlynch   7917 Jul 13 23:33 sthread.cpp
-rw-r--r-- 1 rynlynch rynlynch    898 Jul 13 23:33 driver.cpp
-rw-r--r-- 1 rynlynch rynlynch    271 Jul 13 23:33 readme.txt
[rynlynch@csslab15 hw-2a]$ g++ driver.cpp
[rynlynch@csslab15 hw-2a]$ ./a.out
scheduler: initialized
func1: Bothell 0
func1: Bothell 1
func1: Bothell 2
func1: Bothell 3
func1: Bothell 4
func2: Seattle 0
func2: Seattle 1
func2: Seattle 2
func2: Seattle 3
func2: Seattle 4
func3: Tacoma 0
func3: Tacoma 1
func3: Tacoma 2
func3: Tacoma 3
func3: Tacoma 4
func1: Bothell 5
func1: Bothell 6
func1: Bothell 7
func1: Bothell 8
func1: Bothell 9
func2: Seattle 5
func2: Seattle 6
func2: Seattle 7
func2: Seattle 8
func2: Seattle 9
func3: Tacoma 5
func3: Tacoma 6
func3: Tacoma 7
func3: Tacoma 8
func3: Tacoma 9
scheduler: no more threads to schedule
[rynlynch@csslab15 hw-2a]$
```

The screenshot to the left shows driver.cpp being compiled on the UW Bothell lab machine.

It also shows the execution of the resulting a.out binary.