COSC 4740 Program 2 Fall 2024

Christopher Edmunds October 3, 2024

Repo: https://github.com/cosc4740fa24/os_program2-SeaJay39673

Lab: 11

Statement of Help

Kyler Legault

Kyler has helped me quite a bit with this project. He mostly warned me about bugs he came across, as well as rubber ducky-ed for me when I came across bugs. Most importantly, he showed me the following stack overflow link to help me get started with reading input from the pipes.

https://stackoverflow.com/questions/22189637/creating-or-passing-a-string-from-a-pipe.

We also discussed quite heavily different ways we could implement our code, and talked at a higher level of how we were implementing our own code.

Howard Shaw

I helped Howard with getting his pipes set up (showed him the same link Kyler showed me). I also explained how the program is supposed to work and helped talk him through his code for the first few commands.

Isaiah

So far, I helped him set up his pipes (also showed him the same link).

Driver Output

0:

```
*******************
The current system state is as follows :
****************
CURRENT TIME: 0
RUNNING PROCESS:
PID Priority Value Start Time Total CPU time
            0
                       0
                                0
BLOCKED PROCESS:
Queue of processes Blocked for resource 0 is empty
Queue of processes Blocked for resource 1 is empty
Queue of processes Blocked for resource 2 is empty
PROCESSES READY TO EXECUTE:
Queue of processes with priority 0 is empty
Queue of processes with priority 1 is empty
Queue of processes with priority 2 is empty
Queue of processes with priority 3 is empty
******************
```

```
****************
  The current system state is as follows :
   ****************
  CURRENT TIME: 6
  RUNNING PROCESS:
  PID Priority Value Start Time Total CPU time
       0 10
                 5 0
  BLOCKED PROCESS:
  Queue of processes Blocked for resource 0 is empty
  Queue of processes Blocked for resource 1 is empty
  Queue of processes Blocked for resource 2 is empty
  PROCESSES READY TO EXECUTE:
  Queue of processes with priority 0 is empty
  Queue of processes with priority 1 is empty
  Queue of processes with priority 2 is empty
  Queue of processes with priority 3 is empty
   **************
11:
   **************
   The current system state is as follows :
   **************
  CURRENT TIME: 11
  RUNNING PROCESS:
  PID Priority Value Start Time Total CPU time
           7
                        6
  BLOCKED PROCESS:
  Queue of processes Blocked for resource 0 is empty
  Queue of processes Blocked for resource 1 is empty
  Queue of processes Blocked for resource 2 is empty
  PROCESSES READY TO EXECUTE:
  Queue of processes with priority 0 is empty
  Queue of processes with priority 1:
  PID Priority Value Start Time Total CPU time
             1
                        6
   Queue of processes with priority 2:
  PID Priority Value Start Time Total CPU time
             42
   Queue of processes with priority 3 is empty
   ****************
   ****************
   The current system state is as follows :
   **************
  CURRENT TIME: 11
  RUNNING PROCESS:
  PID Priority Value Start Time Total CPU time
             7
                   6
                               1
```

BLOCKED PROCESS:							
Queue of processes Blocked for resource 0 is empty							
Queue of processes Blocked for resource 1 is empty							
Queue of processes Blocked for resource 2 is empty							
PROCESSES READY TO EXECUTE:							
Queue of processes with priority 0:							
PID Priority Value Start Time Total CPU time							
5 0 6 11 0							
6 0 6 11 0							
Queue of processes with priority 1:							
PID Priority Value Start Time Total CPU time							
4 1 1 6 1							
Queue of processes with priority 2:							
PID Priority Value Start Time Total CPU time							
2 2 42 5 3							
Queue of processes with priority 3 is empty							
************************************	ķ:						
*****************	٠ ـــ						
	Γ.						
The current system state is as follows: ************************************	ψ.						
**************************************	Γ.						
CURRENT TIME: 11							
COUNTENT TIME. II							
RUNNING PROCESS:							
PID Priority Value Start Time Total CPU time							
5 0 6 11 0							
5 0 0 11 0							
BLOCKED PROCESS:							
Queue of processes Blocked for resource 0 is empty							
Queue of processes Blocked for resource 1 is empty							
Queue of processes Blocked for resource 2:							
PID Priority Value Start Time Total CPU time							
3 0 7 6 1							
PROCESSES READY TO EXECUTE:							
Queue of processes with priority 0:							
PID Priority Value Start Time Total CPU time							
6 0 6 11 0							
Queue of processes with priority 1:							
PID Priority Value Start Time Total CPU time							
4 1 1 6 1							
Queue of processes with priority 2:							
PID Priority Value Start Time Total CPU time							
2 2 42 5 3							
Queue of processes with priority 3 is empty							
**************************************	*:						
******************	*:						
The current system state is as follows :							
***************************************	*:						
CURRENT TIME: 11							
RUNNING PROCESS:							
PID Priority Value Start Time Total CPU time							
6 0 6 11 0							
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	BLOCKED PROCESS:			
	Queue of processe	es Blocked	for resoure	ce 0 is empty
	Queue of processe	es Blocked	for resoure	ce 1:
	PID Priority Val			
	5 0 6		11	0
	Queue of processe	es Blocked	for resour	ce 2:
	PID Priority Val			
	3 0 7		6	1
			· ·	_
	PROCESSES READY T	O EXECUTE:		
	Queue of processe			emntv
	Queue of processe			Сшроу
	PID Priority Val	_	-	l CDII +imo
	4 1 1	ide Start	6	1
	Queue of processe	a with pri	-	1
	PID Priority Val			CDII +ima
	2 2 42	ide Stait	5	3
			-	-
	Queue of processe ************	-	•	- *
	*****	*****	****	*****
15 :				
	******	*******	******	******
	The current syste			

	CURRENT TIME: 15			
	COLUMNI TIME: TO			
	RUNNING PROCESS:			
	PID Priority Val	lua Start	Time Tota	l CDII time
	10 0 20		11	0
	10 0 20	,	11	O
	BLOCKED PROCESS:			
	Queue of processe	as Blocked	for resour	re O is empty
	Queue of processe			
	PID Priority Val			
	5 0 6	ide Start	111110 1008.	0
	Queue of processe	as Blackad		•
	PID Priority Val			
	3 0 7	ide Start	6	1
	5 0 1		O	1
	PROCESSES READY T	ro execute.		
	Queue of processe			emnt v
	Queue of processe			Сшрсу
	PID Priority Val	-	•	l CDII time
	4 1 1	ide Start	6	1
	6 1 6		11	1
	8 1 9		11	1
	9 1 8		11	1
	Queue of processe	ac with ari		1
	PID Priority Val			l CDII +imo
	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{42}$	rue Stali	5	3
	Queue of processe	ac with ari	•	•
	********	=	=	= -
	The second secon		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
110	1			
118	•			
	******	******	*****	******
	The current syste	em state is	as follows	s :

4

```
RUNNING PROCESS:
  PID Priority Value Start Time Total CPU time
  31
            250
                       115
  BLOCKED PROCESS:
  Queue of processes Blocked for resource 0:
  PID Priority Value Start Time Total CPU time
          1
   19 0
                        77
                                 0
  21
        0
               8
                         77
                                  0
       1
              9
   8
                        11
  Queue of processes Blocked for resource 1:
  PID Priority Value Start Time Total CPU time
       1 3
                    6 4
   Queue of processes Blocked for resource 2:
  PID Priority Value Start Time Total CPU time
   5
        0
               6
                   11
                                 2
   25
        0
              70
                         88
                                  1
  PROCESSES READY TO EXECUTE:
  Queue of processes with priority 0:
  PID Priority Value Start Time Total CPU time
  32
        0 125
                 118 0
  Queue of processes with priority 1 is empty
  Queue of processes with priority 2:
  PID Priority Value Start Time Total CPU time
              25
                        77
        2
                       82
  22
        2
             15
                                 3
       2 135
2 20
2 105
2 15
  23
                       83
                                  3
   10
                        11
                                 5
   24
                        84
  26
                       90
                                  3
       2 1350
  27
                       93
                                  3
       2 135
2 112
  28
                        96
  29
                       106
  30
        2
            125
                        110
  Queue of processes with priority 3:
  PID Priority Value Start Time Total CPU time
   13
              299
                         31
        3
                                 7
   17
        3
              10
                        51
                                 7
              10
       3
                        11
                                 15
   *************
125
   **************
   The current system state is as follows :
   ****************
  CURRENT TIME: 125
```

RUNNING PROCESS:

CURRENT TIME: 118

PID Priority Value Start Time Total CPU time 33 1 62 121 2

BLOCKED PROCESS:

Queue of processes Blocked for resource 0: PID Priority Value Start Time Total CPU time

19 0	1	77	0					
21 0	_	77	0					
8 1	-	11	4					
	-	cked for resourc	=					
	ority Value S		CPU time					
3 1	·	6	4					
		cked for resourc						
	_	tart Time Total						
25 0	•	88	1					
20 0	70	00	-					
PROCESSE	S READY TO EXE	CUTE:						
Queue of	processes wit	h priority 0:						
	ority Value S	-	CPU time					
5 0	6	11	2					
Queue of	processes wit	h priority 1 is	empty					
Queue of	processes wit	h priority 2:						
PID Pri	ority Value S	tart Time Total	CPU time					
20 2	25	77	3					
22 2	15	82	3					
23 2	135	83	3					
10 2	20	11	5					
24 2	105	84	3					
26 2	15	90	3					
27 2	1350	93	3					
28 2	135	96	3					
29 2	112	106	3					
30 2	125	110	3					
31 2	250	115	3					
32 2	125	118	3					
Queue of processes with priority 3:								
PID Pri	ority Value S	tart Time Total	CPU time					
13 3		31	7					
17 3		51	7					
9 3	10	11	15					

The average Turnaround Time: 23.5455

Extra information you might want to know: 11 processes finished in a total of 259 seconds