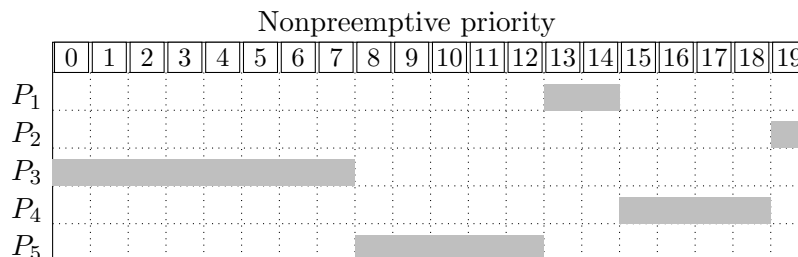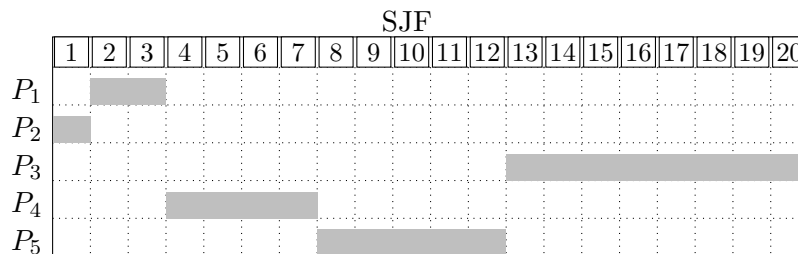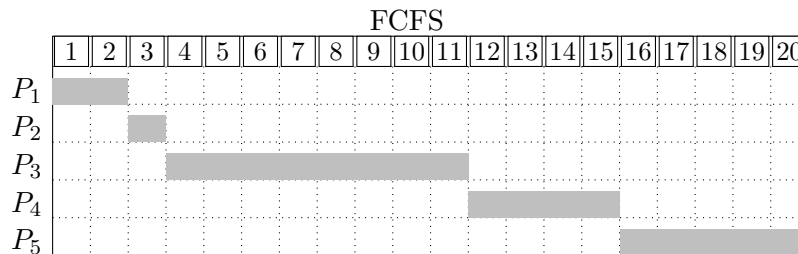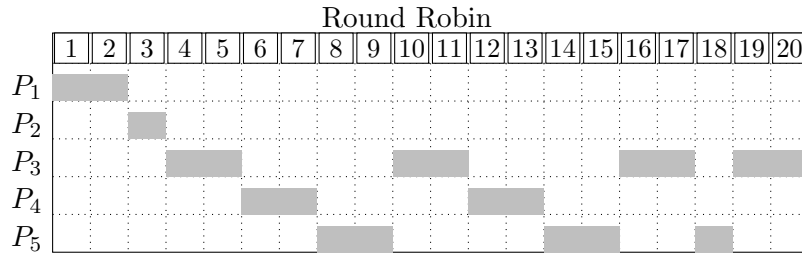1)

they both end with 4 processes but the first program makes 6 prints to the terminal, 2 being duplicates from the loop. Also every once in a while when I run these programs the third process thats created claims that one of my systemd processes is its parent, when its parent should be the initial process. If you know why this happens please email me because I can't find and explination jvincent@iastate.edu.

```
[collin@DankMeMeS classwork]$ coms352/hw4/bin/test.exe 2
1129,3682
3682,3684
3682,3683
3683,3685
[collin@DankMeMeS classwork]$ coms352/hw4/bin/test.exe 2
1129,3686
3686,3687
3687,3689
724,3688
[collin@DankMeMeS classwork]$ ps -e | grep 724
  724 ?        00:00:00 systemd
[collin@DankMeMeS classwork]$ 
```

6.16)

FCFS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
P_1	█	█																		
P_2			█																	
P_3				█	█	█	█	█	█	█	█	█								
P_4													█	█	█					
P_5																█	█	█	█	█

SJF

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
P_1		█	█																	
P_2	█																			
P_3													█	█	█	█	█	█	█	█
P_4				█	█	█														
P_5							█	█	█	█	█									

Nonpreemptive priority

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
P_1														█	█					
P_2																				█
P_3	█	█	█	█	█	█	█	█												
P_4																█	█	█		
P_5									█	█	█	█	█							

Round Robin

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
P_1	■	■																		
P_2			■																	
P_3				■	■					■	■					■	■		■	■
P_4						■	■					■	■							
P_5								■	■					■	■			■		

b)

FCFS
$$P_1 = 2, P_2 = 3, P_3 = 11, P_4 = 15, P_5 = 20$$
SJF
$$P_1 = 3, P_2 = 1, P_3 = 20, P_4 = 7, P_5 = 12$$
Nonpreemptive priority
$$P_1 = 15, P_2 = 20, P_3 = 8, P_4 = 19, P_5 = 13$$
Round Robin
$$P_1 = 2, P_2 = 3, P_3 = 20, P_4 = 13, P_5 = 18$$

c)

FCFS
$$P_1 = 0, P_2 = 2, P_3 = 3, P_4 = 11, P_5 = 15$$
SJF
$$P_1 = 1, P_2 = 0, P_3 = 12, P_4 = 3, P_5 = 7$$
Nonpreemptive priority
$$P_1 = 12, P_2 = 19, P_3 = 7, P_4 = 19, P_5 = 12$$
Round Robin
$$P_1 = 2, P_2 = 3, P_3 = 20, P_4 = 13, P_5 = 18$$