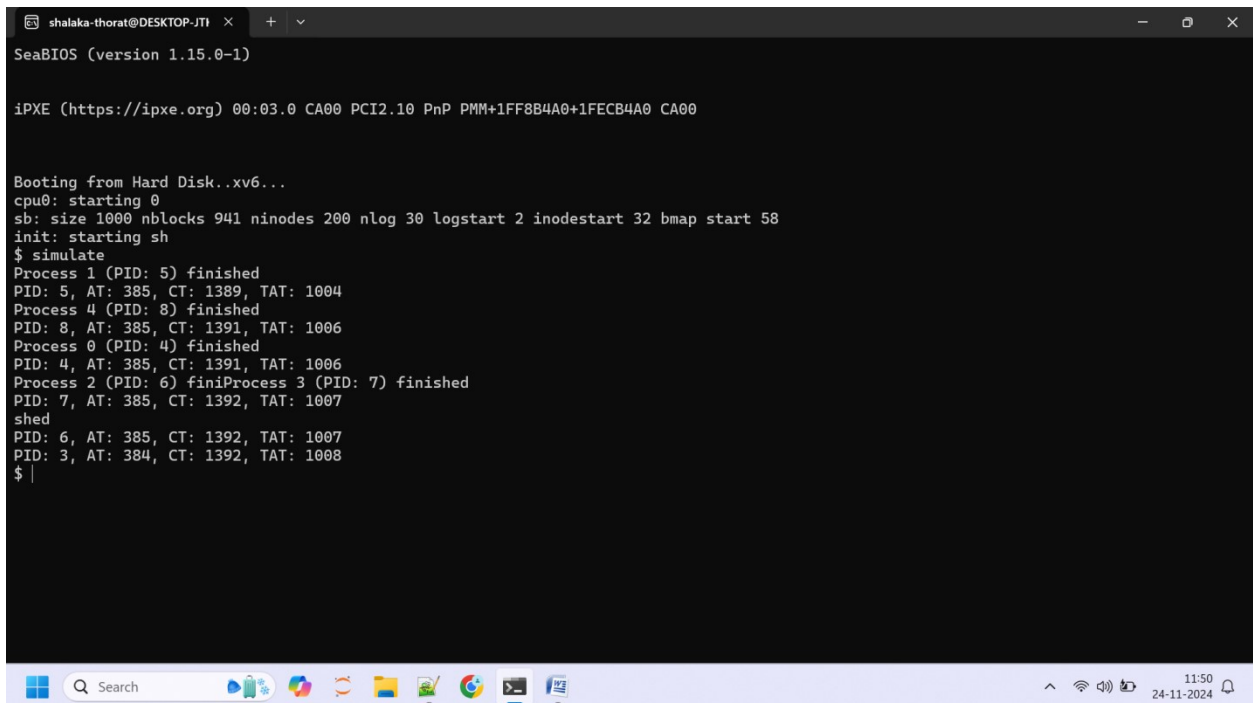


Changes in file proc.h:

```
// Per-process state
struct proc {
    uint sz; // Size of process memory (by
    pde_t* pgdir; // Page table
    char *kstack; // Bottom of kernel stack for
    enum procstate state; // Process state
    int pid; // Process ID
    struct proc *parent; // Parent process
    struct trapframe *tf; // Trap frame for current sys
    struct context *context; // swtch() here to run proces
    void *chan; // If non-zero, sleeping on c
    int killed; // If non-zero, have been kil
    struct file *ofile[NOFILE]; // Open files
    struct inode *cwd; // Current directory
    char name[16]; // Process name (debugging)
```

ROUND ROBIN:



```
shalaka-thorat@DESKTOP-JTI X + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate
Process 1 (PID: 5) finished
PID: 5, AT: 385, CT: 1389, TAT: 1004
Process 4 (PID: 8) finished
PID: 8, AT: 385, CT: 1391, TAT: 1006
Process 0 (PID: 4) finished
PID: 4, AT: 385, CT: 1391, TAT: 1006
Process 2 (PID: 6) finiProcess 3 (PID: 7) finished
PID: 7, AT: 385, CT: 1392, TAT: 1007
shed
PID: 6, AT: 385, CT: 1392, TAT: 1007
PID: 3, AT: 384, CT: 1392, TAT: 1008
$ |
```

FCFS:

```
shalaka-thorat@DESKTOP-JTI x + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate
Process 0 (PID: 4) finished
PID: 4, AT: 401, CT: 619, TAT: 218
Process 1 (PID: 5) finished
PID: 5, AT: 401, CT: 851, TAT: 450
Process 2 (PID: 6) finished
PID: 6, AT: 402, CT: 1078, TAT: 676
Process 3 (PID: 7) finished
PID: 7, AT: 402, CT: 1309, TAT: 907
Process 4 (PID: 8) finished
PID: 8, AT: 402, CT: 1527, TAT: 1125
PID: 3, AT: 400, CT: 1527, TAT: 1127
$ |
```

PRIORITY:

```
shalaka-thorat@DESKTOP-JTI x + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate_priority
Process 0 (PID: 4) (Pri: 1) finished
PID: 4, AT: 679, CT: 870, TAT: 191
Process 2 (PID: 6) (Pri: 1) finished
PID: 6, AT: 679, CT: 1060, TAT: 381
Process 1 (PID: 5) (Pri: 2) finished
PID: 5, AT: 679, CT: 1253, TAT: 574
Process 4 (PID: 8) (Pri: 3) finished
PID: 8, AT: 679, CT: 1445, TAT: 766
Process 3 (PID: 7) (Pri: 4) finished
PID: 7, AT: 679, CT: 1638, TAT: 959
PID: 3, AT: 678, CT: 1638, TAT: 960
$ |
```

PRIORITY WITH AGING:

```
shalaka-thorat@DESKTOP-JTI X + | v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate_priority
Process 0 (PID: 4) (Pri: 1) finished
PID: 4, AT: 587, CT: 775, TAT: 188
Process 2 (PID: 6) (Pri: 1) finished
PID: 6, AT: 587, CT: 968, TAT: 381
Priority Changed, PID: 3 (5) -> (4)
Priority Changed, PID: 7 (4) -> (3)
Priority Changed, PID: 8 (3) -> (2)
Process 1 (PID: 5) (Pri: 2) finished
PID: 5, AT: 587, CT: 1161, TAT: 574
Process 4 (PID: 8) (Pri: 2) finished
PID: 8, AT: 587, CT: 1349, TAT: 762
Priority Changed, PID: 3 (4) -> (3)
Process 3 (PID: 7) (Pri: 3) finished
PID: 7, AT: 587, CT: 1540, TAT: 953
PID: 3, AT: 586, CT: 1540, TAT: 954
Priority Changed, PID: 2 (5) -> (4)
$ |
```

VARIED ARRIVAL TIMES:

ROUND ROBIN:

```
shalaka-thorat@DESKTOP-JTI x + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate
Process 2 (PID: 6) finished
PID: 6, AT: 384, CT: 1387, TAT: 1003
Process 1 (PID: 5) finished
PID: 5, AT: 384, CT: 1390, TAT: 1006
Process 0 (PID: 4) finished
PID: 4, AT: 384, CT: 1398, TAT: 1014
Process 3 (PID: 7) finished
PID: 7, AT: 388, CT: 1400, TAT: 1012
Process 4 (PID: 8) finished
PID: 8, AT: 398, CT: 1400, TAT: 1002
PID: 3, AT: 383, CT: 1400, TAT: 1017
$ |
```

FCFS:

```
shalaka-thorat@DESKTOP-JTI x + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate
Process 0 (PID: 4) finished
PID: 4, AT: 204, CT: 397, TAT: 193
Process 1 (PID: 5) finished
PID: 5, AT: 204, CT: 589, TAT: 385
Process 2 (PID: 6) finished
PID: 6, AT: 205, CT: 780, TAT: 575
Process 3 (PID: 7) finished
PID: 7, AT: 206, CT: 968, TAT: 762
Process 4 (PID: 8) finished
PID: 8, AT: 207, CT: 1160, TAT: 953
PID: 3, AT: 203, CT: 1160, TAT: 957
$ |
```

PRIORITY:

```
shalaka-thorat@DESKTOP-JTI x + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate_priority
Process 0 (PID: 4) (Pri: 1) finished
PID: 4, AT: 348, CT: 542, TAT: 194
Process 1 (PID: 5) (Pri: 2) finished
PID: 5, AT: 542, CT: 735, TAT: 193
Process 2 (PID: 6) (Pri: 1) finished
PID: 6, AT: 735, CT: 929, TAT: 194
Process 3 (PID: 7) (Pri: 4) finished
PID: 7, AT: 930, CT: 1125, TAT: 195
Process 4 (PID: 8) (Pri: 3) finished
PID: 8, AT: 1126, CT: 1318, TAT: 192
PID: 3, AT: 348, CT: 1320, TAT: 972
$ |
```

PRIORITY WITH AGING:

```
shalaka-thorat@DESKTOP-JTI x + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate_priority
Process 0 (PID: 4) (Pri: 1) finished
PID: 4, AT: 457, CT: 648, TAT: 191
Process 1 (PID: 5) (Pri: 2) finished
PID: 5, AT: 457, CT: 843, TAT: 386
Process 2 (PID: 6) (Pri: 1) finished
PID: 6, AT: 844, CT: 1032, TAT: 188
Process 3 (PID: 7) (Pri: 4) finished
PID: 7, AT: 1032, CT: 1221, TAT: 189
Process 4 (PID: 8) (Pri: 3) finished
PID: 8, AT: 1223, CT: 1412, TAT: 189
PID: 3, AT: 456, CT: 1414, TAT: 958
Priority Changed, PID: 2 (5) -> (4)
$ |
```

VARIED WORKLOADS:

ROUND ROBIN:

```
shalaka-thorat@DESKTOP-JTI X + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate
Process 2 (PID: 6) finished
PID: 6, AT: 182, CT: 433, TAT: 251
Process 4 (PID: 8) finished
PID: 8, AT: 182, CT: 434, TAT: 252
Process 0 (PID: 4) finished
PID: 4, AT: 182, CT: 434, TAT: 252
Process 3 (PID: 7) finished
PID: 7, AT: 182, CT: 731, TAT: 549
Process 1 (PID: 5) finished
PID: 5, AT: 182, CT: 732, TAT: 550
PID: 3, AT: 181, CT: 732, TAT: 551
$ |
```

FCFS:

```
shalaka-thorat@DESKTOP-JTI X + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate
Process 0 (PID: 4) finished
PID: 4, AT: 246, CT: 294, TAT: 48
Process 1 (PID: 5) finished
PID: 5, AT: 246, CT: 483, TAT: 237
Process 2 (PID: 6) finished
PID: 6, AT: 247, CT: 531, TAT: 284
Process 3 (PID: 7) finished
PID: 7, AT: 247, CT: 721, TAT: 474
Process 4 (PID: 8) finished
PID: 8, AT: 247, CT: 768, TAT: 521
PID: 3, AT: 246, CT: 768, TAT: 522
$ |
```

PRIORITY:

```
shalaka-thorat@DESKTOP-JTI X + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate_priority
Process 0 (PID: 4) (Pri: 1) finished
PID: 4, AT: 502, CT: 552, TAT: 50
Process 2 (PID: 6) (Pri: 1) finished
PID: 6, AT: 502, CT: 601, TAT: 99
Process 1 (PID: 5) (Pri: 2) finished
PID: 5, AT: 502, CT: 808, TAT: 306
Process 4 (PID: 8) (Pri: 3) finished
PID: 8, AT: 502, CT: 856, TAT: 354
Process 3 (PID: 7) (Pri: 4) finished
PID: 7, AT: 502, CT: 1053, TAT: 551
PID: 3, AT: 501, CT: 1054, TAT: 553
$ |
```

PRIORITY WITH AGING:

```
shalaka-thorat@DESKTOP-JTI X + v
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+1FF8B4A0+1FECB4A0 CA00

Booting from Hard Disk..xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ simulate_priority
Process 0 (PID: 4) (Pri: 1) finished
PID: 4, AT: 383, CT: 430, TAT: 47
Process 2 (PID: 6) (Pri: 1) finished
PID: 6, AT: 383, CT: 477, TAT: 94
Process 1 (PID: 5) (Pri: 2) finished
PID: 5, AT: 383, CT: 668, TAT: 285
Process 4 (PID: 8) (Pri: 3) finished
PID: 8, AT: 383, CT: 715, TAT: 332
Priority Changed, PID: 3 (5) -> (4)
Process 3 (PID: 7) (Pri: 4) finished
PID: 7, AT: 383, CT: 902, TAT: 519
PID: 3, AT: 382, CT: 903, TAT: 521
Priority Changed, PID: 2 (5) -> (4)
$ |
```