Name: Ningyuan Zhang

Lab Section: G

**Lab 5 A: Process Scheduling Report**

**Summary**

In this lab, I learned the three different process scheduling methods that the Linux Operating System often uses in process scheduling. They are First Come First Serve (FCFS), Shortest First (SF) and Robin Round(RR). Each of them is organized by their own rules. As covered in class, FCFS will process the process that with the first arrive time, SF will focus on the process with shortest process time, and RR will give each process a certain time to process but after the certain time, the current process must yield to the next coming process according to the arrive times. I implement the three scheduling methods with C programming language as well as a required modified RR method. All source codes were included in the file scheduling.c, along with a make file called *makefile*.

Source code:

// to ensure if you could not see the file

//output: (with seed 0xC0FFEE)

ElideMacdeMacBook-Pro:lab5 Eli$ ./scheduling

Process arrival runtime priority

0 4 38 1

1 52 17 2

2 40 16 2

3 11 17 0

4 31 16 1

5 65 38 0

6 18 37 1

7 58 17 1

8 46 13 0

9 84 34 1

10 47 24 1

11 13 10 2

12 22 35 2

13 10 22 0

14 97 34 0

15 36 11 1

16 76 17 0

17 58 29 0

18 1 12 0

19 6 35 2

First come first served

Process 18 started at time 1

Process 18 finished at time 13

Process 0 started at time 13

Process 0 finished at time 51

Process 19 started at time 51

Process 19 finished at time 86

Process 13 started at time 86

Process 13 finished at time 108

Process 3 started at time 108

Process 3 finished at time 125

Process 11 started at time 125

Process 11 finished at time 135

Process 6 started at time 135

Process 6 finished at time 172

Process 12 started at time 172

Process 12 finished at time 207

Process 4 started at time 207

Process 4 finished at time 223

Process 15 started at time 223

Process 15 finished at time 234

Process 2 started at time 234

Process 2 finished at time 250

Process 8 started at time 250

Process 8 finished at time 263

Process 10 started at time 263

Process 10 finished at time 287

Process 1 started at time 287

Process 1 finished at time 304

Process 7 started at time 304

Process 7 finished at time 321

Process 17 started at time 321

Process 17 finished at time 350

Process 5 started at time 350

Process 5 finished at time 388

Process 16 started at time 388

Process 16 finished at time 405

Process 9 started at time 405

Process 9 finished at time 439

Process 14 started at time 439

Process 14 finished at time 473

Average time from arrival to completion is 202 seconds

Shortest remaining time

Process 18 started at time 1

Process 18 finished at time 13

Process 11 started at time 13

Process 11 finished at time 23

Process 3 started at time 23

Process 3 finished at time 40

Process 15 started at time 40

Process 15 finished at time 51

Process 8 started at time 51

Process 8 finished at time 64

Process 2 started at time 64

Process 2 finished at time 80

Process 4 started at time 80

Process 4 finished at time 96

Process 1 started at time 96

Process 1 finished at time 113

Process 7 started at time 113

Process 7 finished at time 130

Process 16 started at time 130

Process 16 finished at time 147

Process 13 started at time 147

Process 13 finished at time 169

Process 10 started at time 169

Process 10 finished at time 193

Process 17 started at time 193

Process 17 finished at time 222

Process 9 started at time 222

Process 9 finished at time 256

Process 14 started at time 256

Process 14 finished at time 290

Process 12 started at time 290

Process 12 finished at time 325

Process 19 started at time 325

Process 19 finished at time 360

Process 6 started at time 360

Process 6 finished at time 397

Process 0 started at time 397

Process 0 finished at time 435

Process 5 started at time 435

Process 5 finished at time 473

Average time from arrival to completion is 155 seconds

Round Robin

Process 18 started at time 1

Process 18 finished at time 81

Process 11 started at time 17

Process 11 finished at time 150

Process 15 started at time 36

Process 15 finished at time 208

Process 3 started at time 11

Process 3 finished at time 249

Process 8 started at time 55

Process 8 finished at time 270

Process 4 started at time 31

Process 4 finished at time 282

Process 2 started at time 40

Process 2 finished at time 296

Process 13 started at time 12

Process 13 finished at time 329

Process 1 started at time 65

Process 1 finished at time 335

Process 7 started at time 71

Process 7 finished at time 338

Process 16 started at time 78

Process 16 finished at time 343

Process 10 started at time 56

Process 10 finished at time 395

Process 19 started at time 6

Process 19 finished at time 431

Process 17 started at time 61

Process 17 finished at time 438

Process 0 started at time 4

Process 0 finished at time 445

Process 12 started at time 25

Process 12 finished at time 454

Process 6 started at time 23

Process 6 finished at time 461

Process 9 started at time 91

Process 9 finished at time 468

Process 14 started at time 114

Process 14 finished at time 471

Process 5 started at time 69

Process 5 finished at time 473

Average time from arrival to completion is 307 seconds

Round Robin with priority

Process 11 started at time 13

Process 11 finished at time 37

Process 2 started at time 41

Process 2 finished at time 99

Process 19 started at time 6

Process 19 finished at time 104

Process 1 started at time 53

Process 1 finished at time 111

Process 12 started at time 22

Process 12 finished at time 119

Process 15 started at time 119

Process 15 finished at time 190

Process 4 started at time 121

Process 4 finished at time 222

Process 7 started at time 123

Process 7 finished at time 229

Process 10 started at time 125

Process 10 finished at time 259

Process 9 started at time 124

Process 9 finished at time 289

Process 0 started at time 4

Process 0 finished at time 292

Process 6 started at time 122

Process 6 finished at time 294

Process 18 started at time 1

Process 18 finished at time 364

Process 8 started at time 294

Process 8 finished at time 388

Process 16 started at time 297

Process 16 finished at time 415

Process 3 started at time 300

Process 3 finished at time 417

Process 13 started at time 295

Process 13 finished at time 435

Process 17 started at time 298

Process 17 finished at time 458

Process 14 started at time 296

Process 14 finished at time 468

Process 5 started at time 301

Process 5 finished at time 473

Average time from arrival to completion is 244 seconds