Project 4: Scheduling Algorithms

Name: 韩冰

Number: 516030910523

1.Program

In this project, I will implement a program to simulate the scheduling algorithms such as FCFS, SJF, Priority, RR and RR priority.

The program can be divided into three parts:

1. Read the tasks from the file, create the task link list.
2. Design the task data structure and schedule algorithm.
3. Compute the turnaround time, waiting time, and response time.

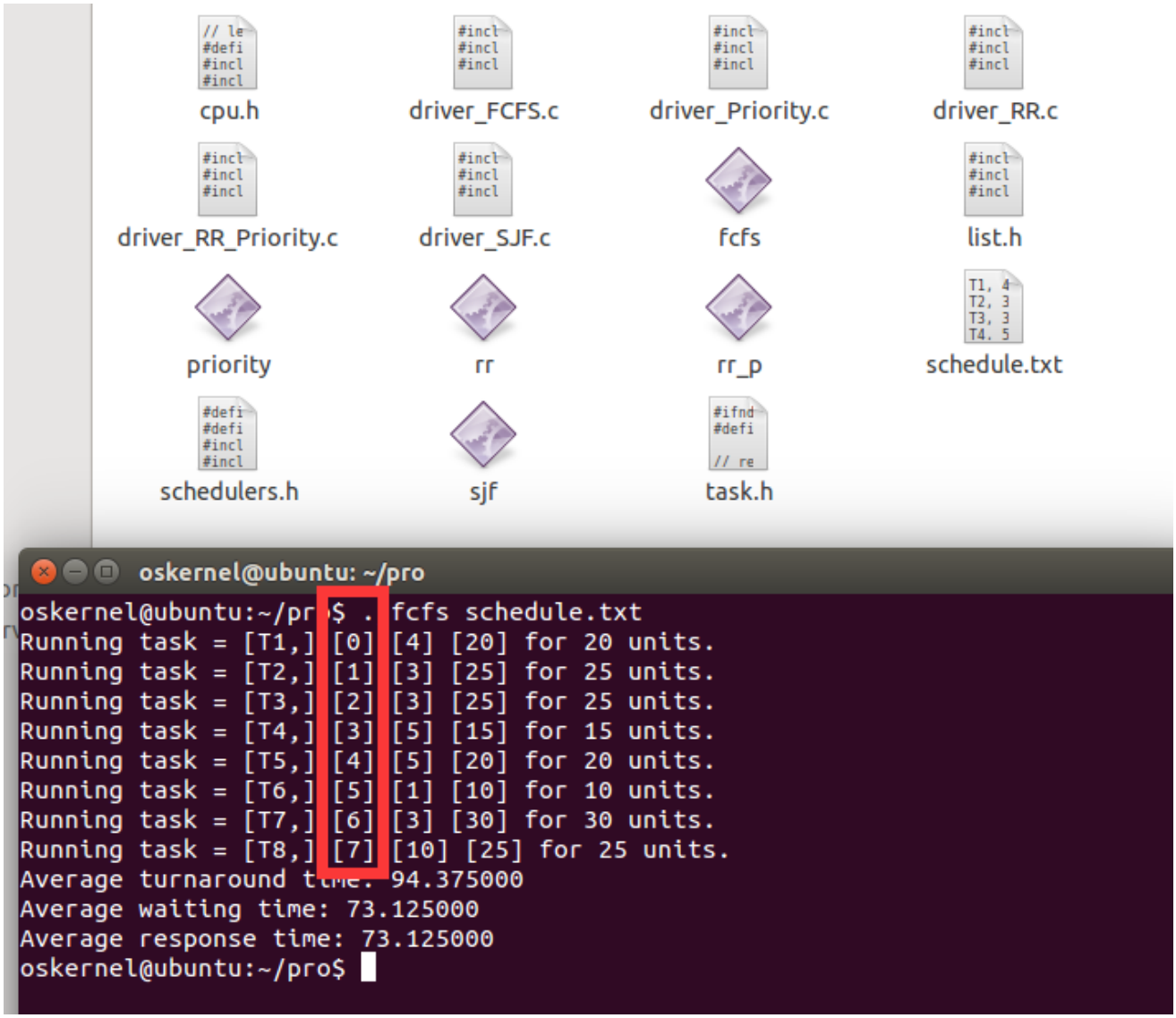
Program file tree structure.

```
.
├── cpu.h     simulate the cpu to run the task, actually print running state of task
├── driver_FCFS.c  The main function to run the FCFS algorithm
├── driver_Priority.c  The main function to run the Priority algorithm
├── driver_RR.c        The main function to run the RR algorithm
├── driver_RR_Priority.c   to run the RR priority algorithm
├── driver_SJF.c        to run the SJF algorithm
├── fcfs
├── list.h          Design the task link list, and operation to insert and delete
├── priority
├── rr
├── rr_p
├── schedulers.h    algorithm implementation
├── schedule.txt    test data
├── sjf
└── task.h          Design the task data structure
```

2. FCFS

After create the task list, everytime return the first task to run in the cpu.

Result:

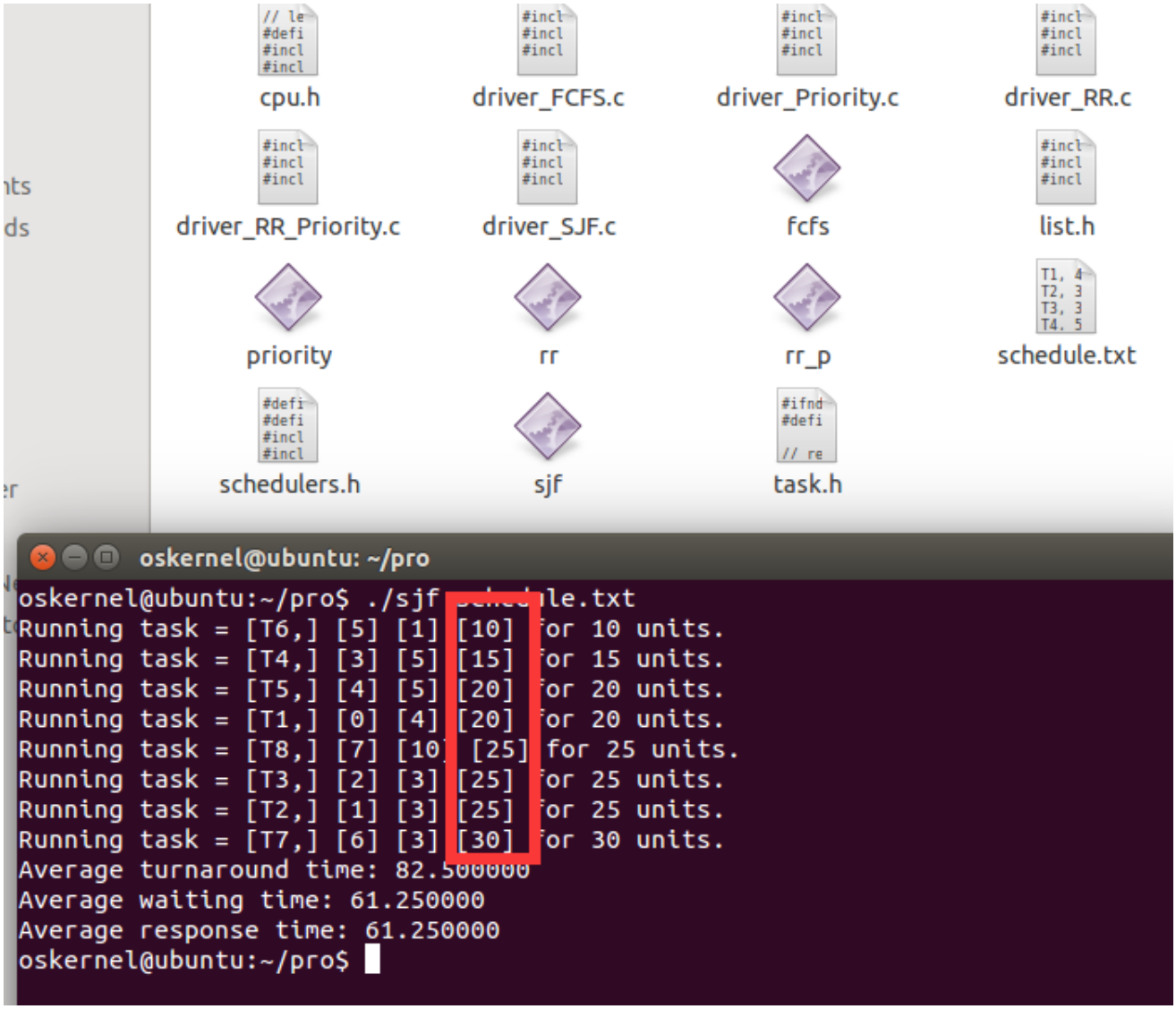


We can see that the **tid** is increasing. It's said that the task first come first served.

3. SJF

After create the task list, everytime return the shortest task to run in the cpu.

Result:

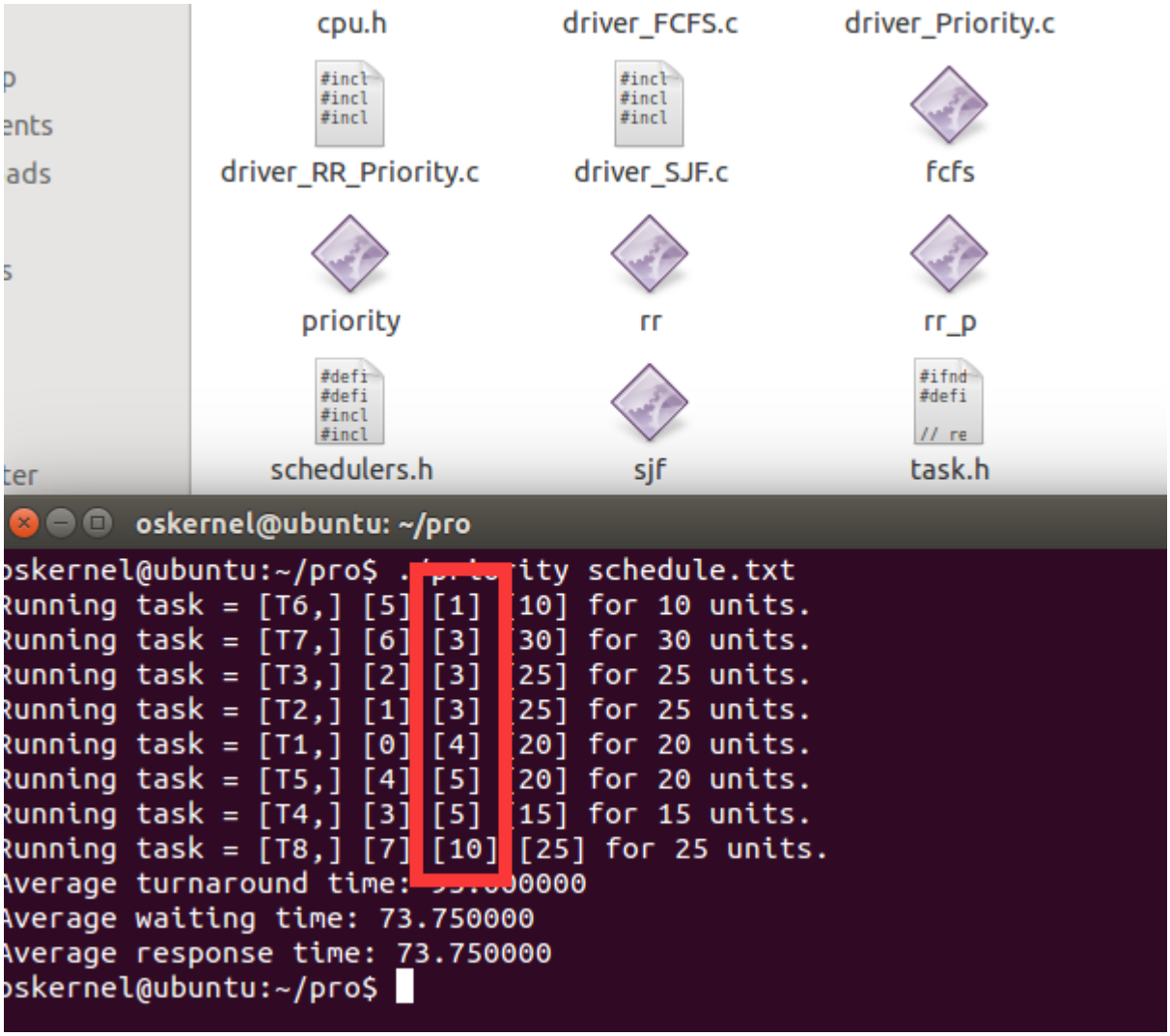


We can see that the **burst time** is increasing. It's said that the task shortest first served.

3. Priority

After create the task list, everytime return the highest priority task to run in the cpu.

Result:

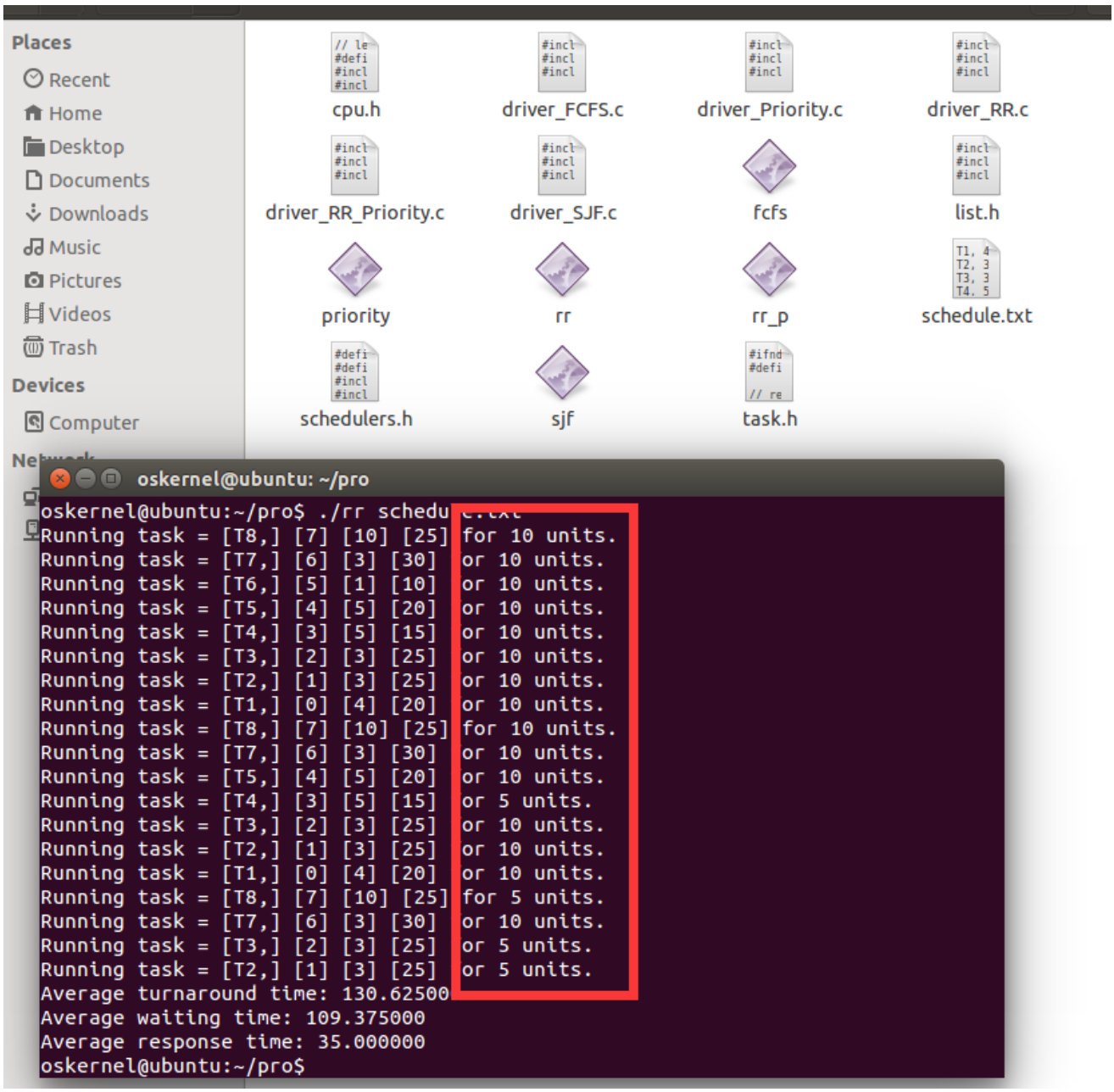


We can see that the **priority** is increasing. It's said that the task highest priority first served.

4. RR

After create the task list, everytime return the task in order.

Result:

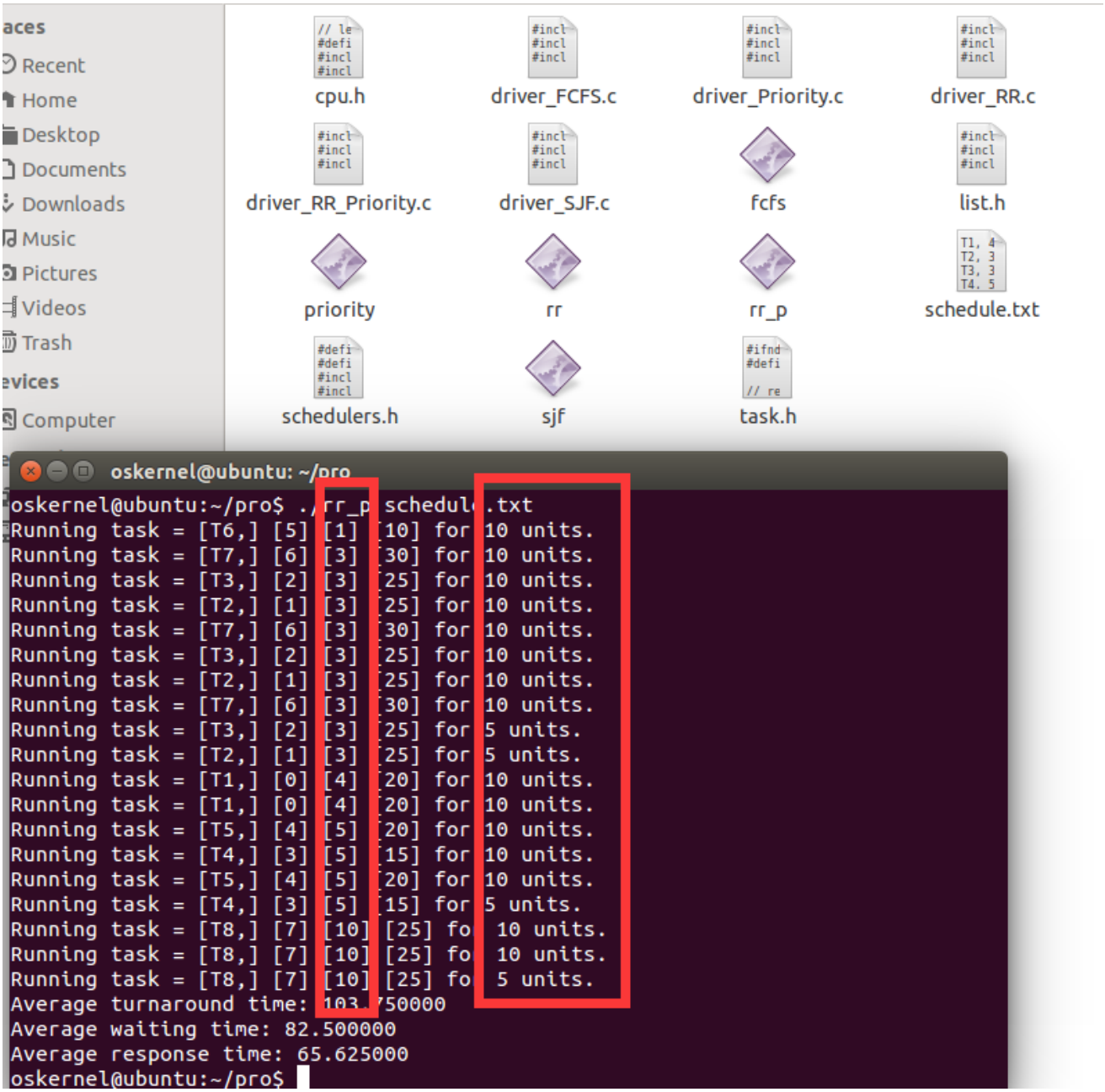


We can see that the **runing time** is under **QUANTUM**. It's said that the task run in round robin.

5.RR_Priority

After create the task list, everytime return the tasks which are the highest priority in order.

Result:



We can see that the **runing time** is under **QUANTUM** and the **priority** is increasing. It's said that the task run in round robin of priority.