Assignment 2

Satvik Chauhan (Y9521),Pankaj More (Y94)

Simulation

The Simulation part of the assignment was written in **Haskell** (pure functional programming language).Some of the implementation details are given below:

- We have used **State Monads** to simulate the machine.
- A virtual machine is implemented which requires a scheduler to run.
- The scheduler function requires the readyQueue and returns the pair (selected process,Alloted Burst time).
- The Alloted burst time is same as the next CPU burst for all the schedulers except round robin.
- The time quanta taken for round robin in 6 by default. It can be varied on users choice.
- The parameters to generate the initial data are varied like heavy CPU bound processes or IO bound processes .
- A assumption is made that the process starts with a CPU burst and ends with a CPU burst . So the number of CPU bursts is one more than the number of IO bursts.

We have written a python script to generate the distributions for inter arrival times , priority , IO and CPU bursts

- **Pankaj Report here the number of processes , poisson and exponential parameters and etc You have used.Write a make file if time permits**

We have drawn charts also using the **haskell chart library** . We have shown the Bar graph comparison of average response , turnaround and waiting times for all the standard algorithms.To run use the following steps .

- python *seed_data.py*
- runhaskell *process.hs*
- runhaskell *drawBar.hs*
- runhaskell *drawBarP.hs*

- runhaskell *drawChart.hs*

Then we have shown the comparison of average response .waiting and turnaround times for three priority categories

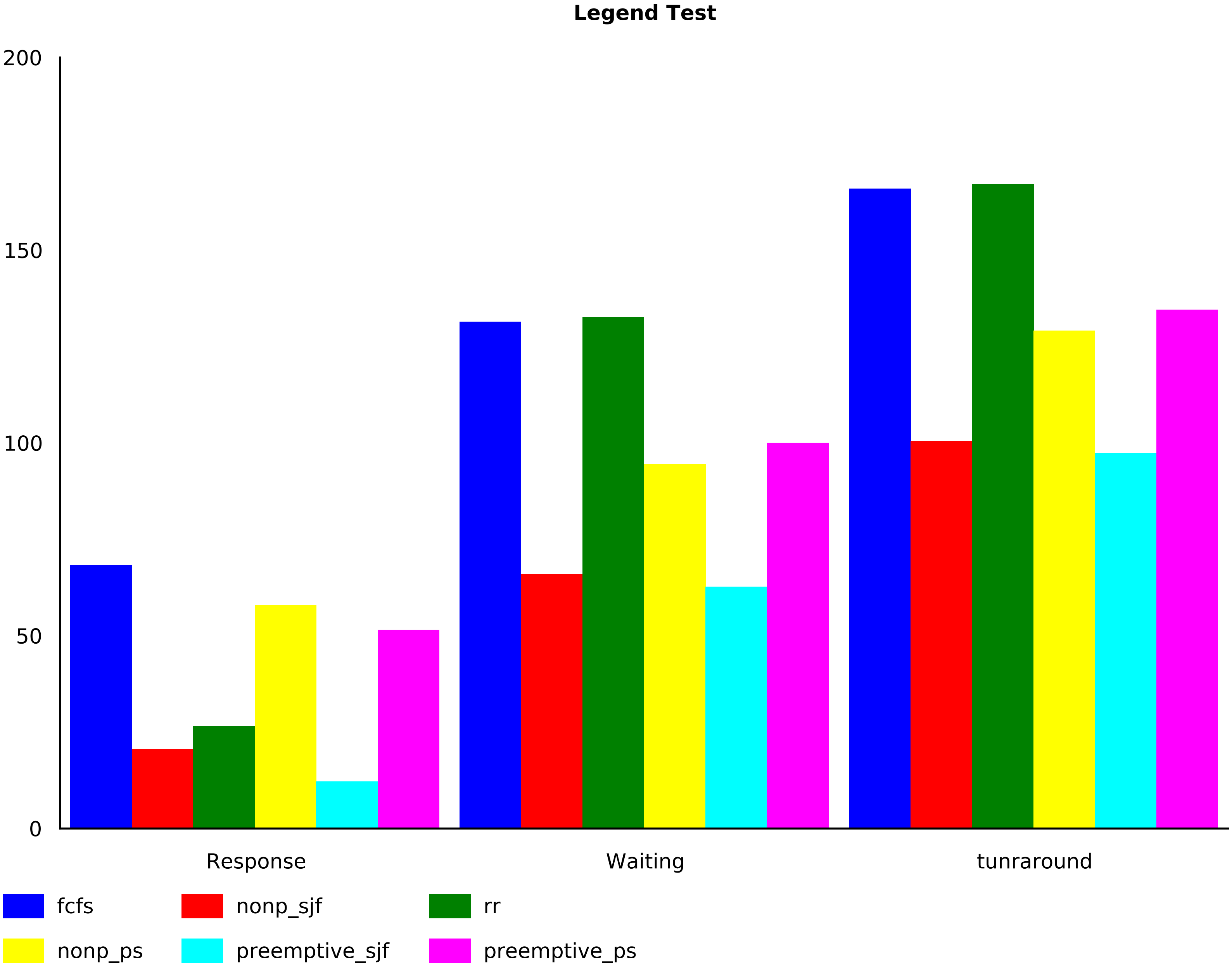

Figure 1: *Averages . Preemptive sjf clearly perform better than others . Round robin has a good response time*

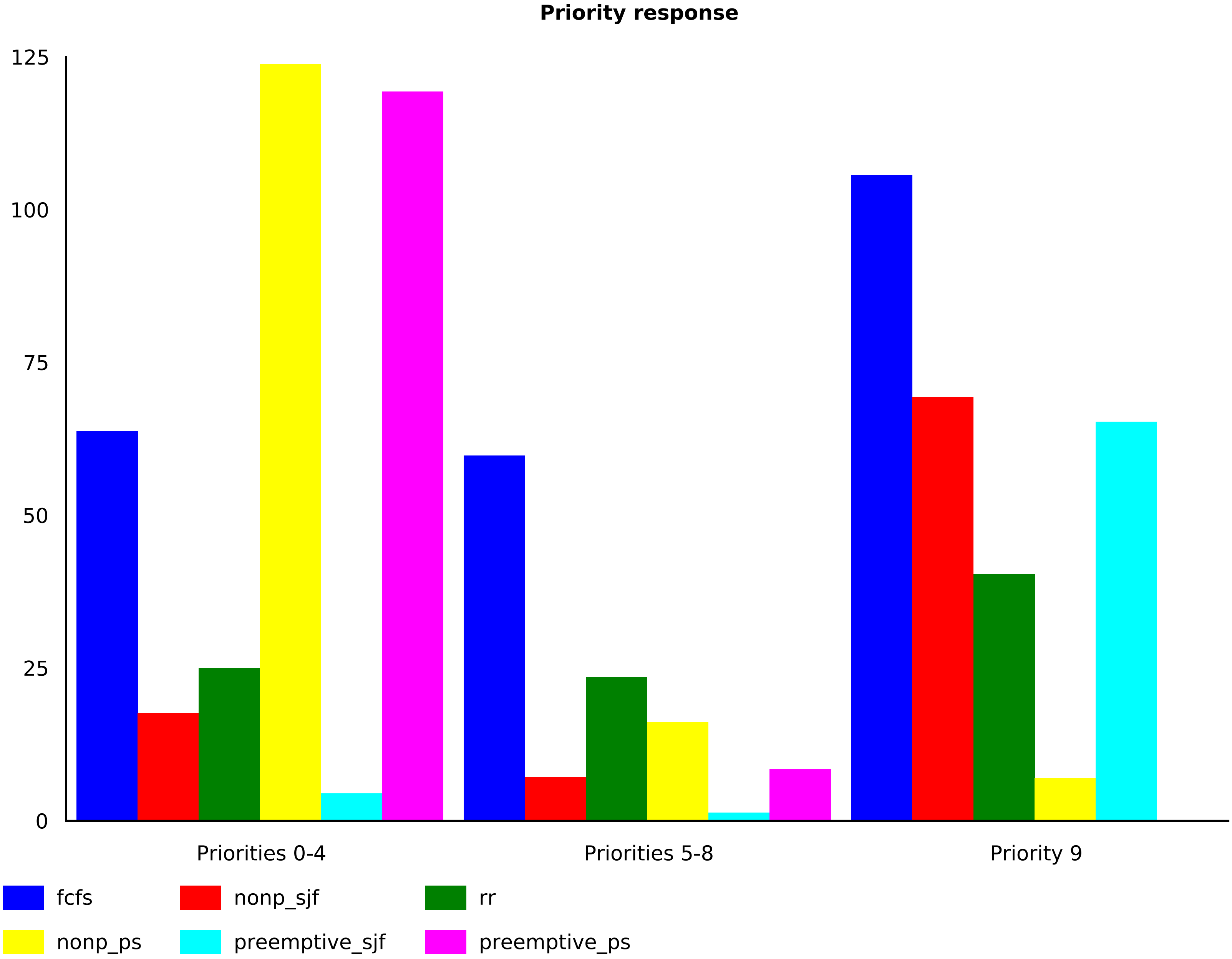

Figure 2: *Average Response time . It can be clearly seen that the average response time for priority 9 is zero for preemptive priority scheduling*

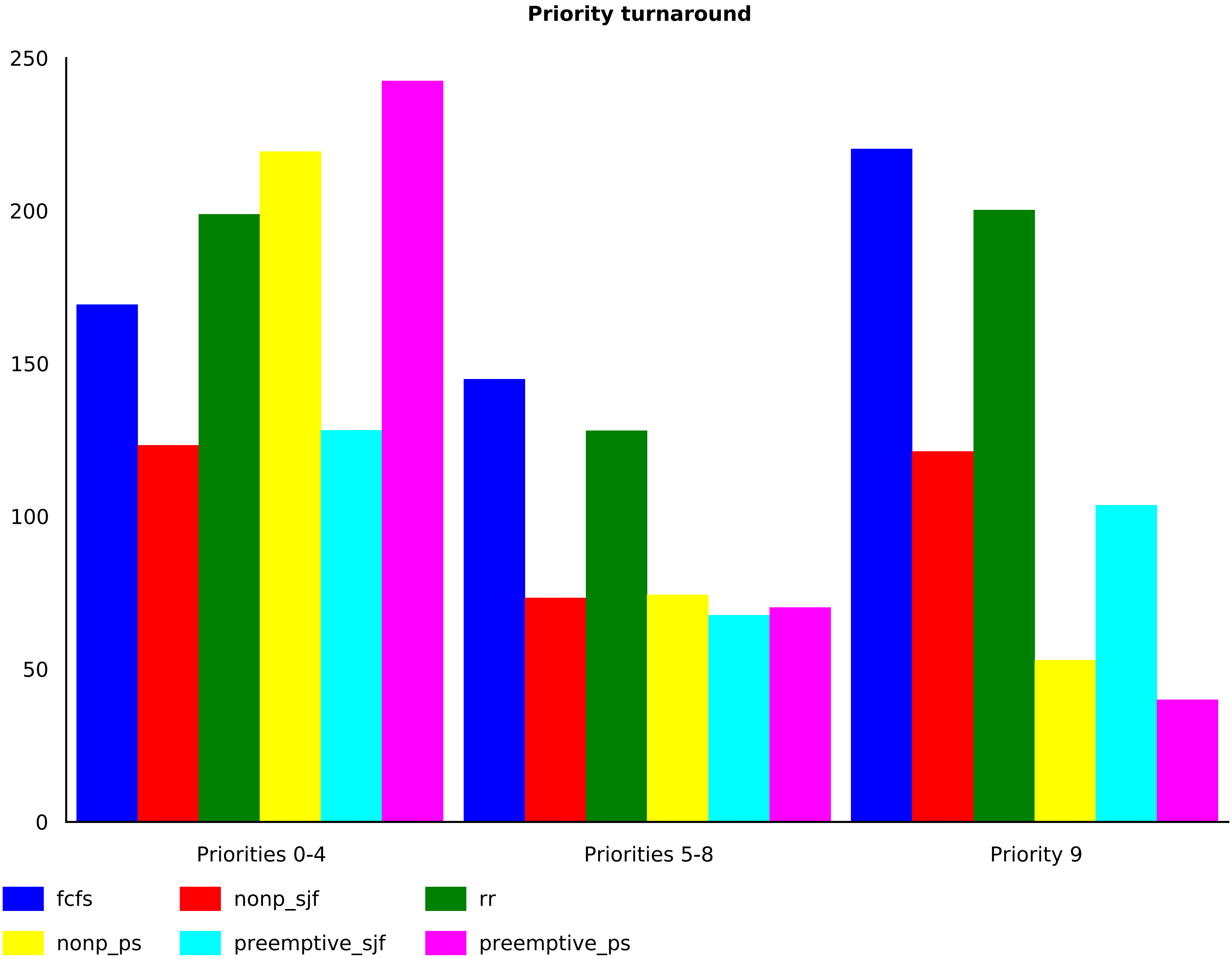

Figure 3: *Average turnaround time. Again preemptive priority scheduling for priority 9 beats other*

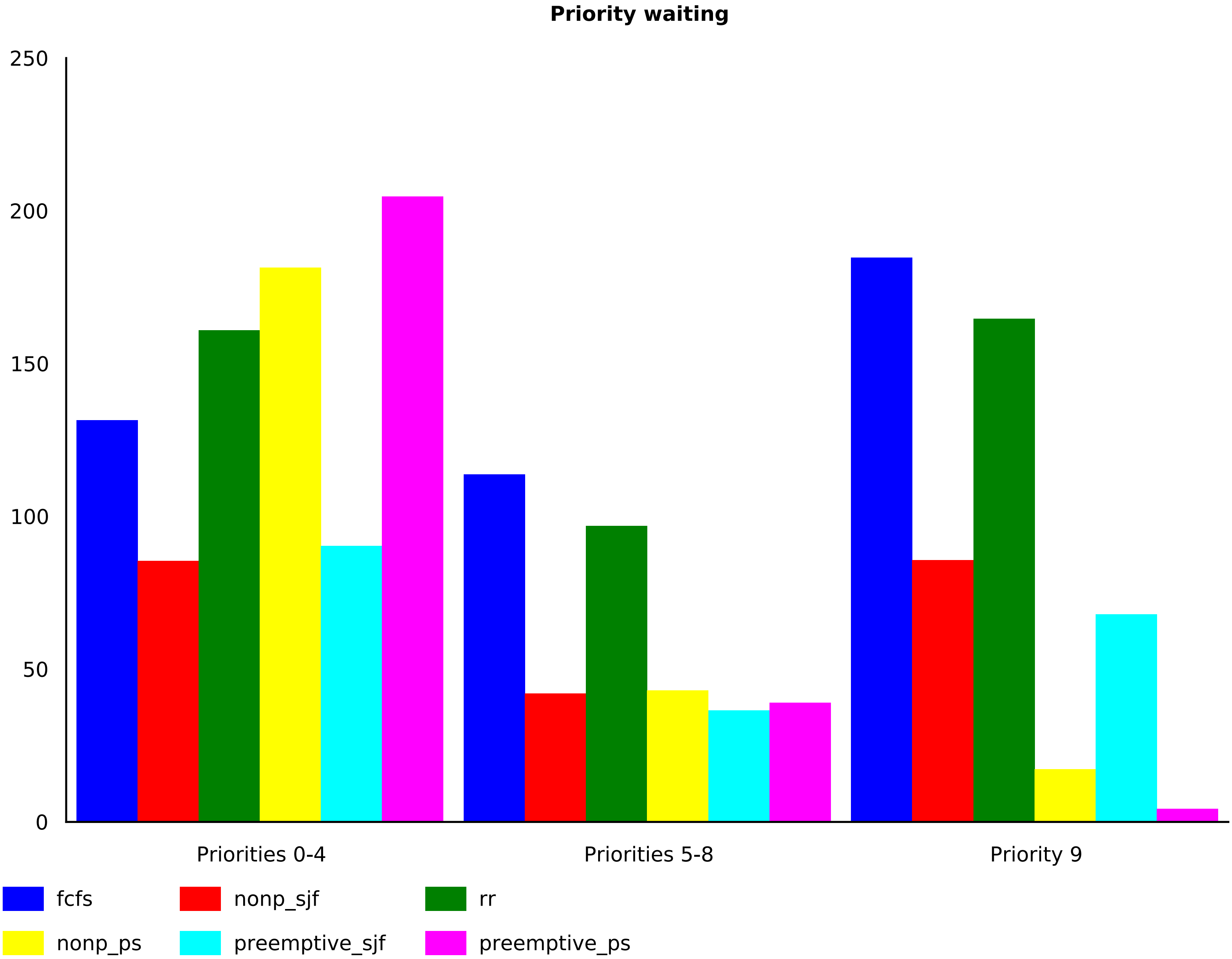

Figure 4: *Average waiting time*