

Service disciplines of queues

The different service disciplines

Now, we focus on the service disciplines of queues, we will give the most used service disciplines for queues.

The different service disciplines

- The service discipline refers to the way in which customers in the queue are **selected for service**.
- The service discipline affects **the behavior** of the queueing system

First, we define what is a service discipline in a queue.

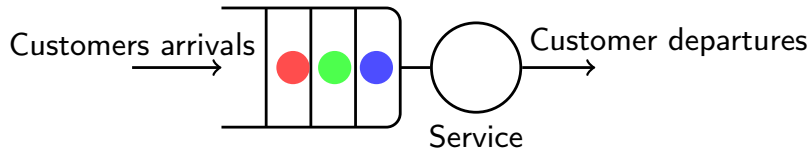
Remember how the queue is working: there are arrivals of customers, which wait in the queue for the service, and after that, they depart from the server.

The service discipline can be defined by the way in which customers in the waiting queue are selected for service. So the service discipline affects the behavior of the queueing system.

The different service disciplines

- Service disciplines **without** priorities:

- ▶ **FIFO**: First In First Out → who comes earlier leaves earlier. The most frequently encountered (example: supermarket).



- ▶ **LIFO**: Last In First Out → who comes later leaves earlier (example: lift, jobs in a stack) .
- ▶ **RS**: Random Service → the customer is selected randomly.
- Service discipline with **fairness** as **PS: Processor Sharing**: all the clients start service simultaneously, each receiving an equal fraction of the service capacity.
- Service discipline with **priority** as **Priority**: who has a higher priority is served before

We have service disciplines without priorities like FIFO (First In First Out: who comes earlier leaves earlier. It is the most frequently encountered, for example, would be the cash register in the supermarket.

Other service disciplines without priorities, we have LIFO: Last In First Out: who comes last leaves first as an example the lift, or jobs in a stack.

Another one is RS: Random Service: where the customer is selected randomly.

We have also service disciplines with fairness as PS: Processor Sharing: all the customers start the service simultaneously, each receiving an equal fraction of the service capacity.

Service discipline with priority as Priority: who ever has a higher priority is served first.