

### Performance indices of an M/M/1 queue

Consider a server that executes jobs arriving according to a Poisson process of rate  $\lambda = 10 \text{ job/s}$ , and serves them with an average service time  $D = 85 \text{ ms}$ .

Determine:

- The utilization of the system
- The probability of having exactly one job in the system
- The probability of having more than 5 jobs in the system
- The average queue length (job not in service)
- The average response time
- The probability that the response time is greater than 0.5 s.
- The 90 percentile of the response time distribution