Problem $P_2||C_{max}$

- $P_2||C_{max}$ problem is an example of optimal job scheduling problem.
- The inputs to such problems are a lists of jobs and a list of machines. The output is a schedule — an assignment of jobs to machines. The schedule should optimize a certain objective function.
- In this particular instance of the job scheduling problem we have two identical parallel machines and we are trying to minimize the maximum total processing time over the machines (the time it takes for all machines to complete).
- This problem is NP-hard, we can reduce the set partition problem to it.
- There are a few approximation algorithms, one of them is Longest-processing-time-first (LPT):
  1. Order the jobs by their processing time in decreasing order
  2. Schedule each job into a machine which has the current smallest load (total processing time of scheduled jobs).