Optimize Weekly Production Plan

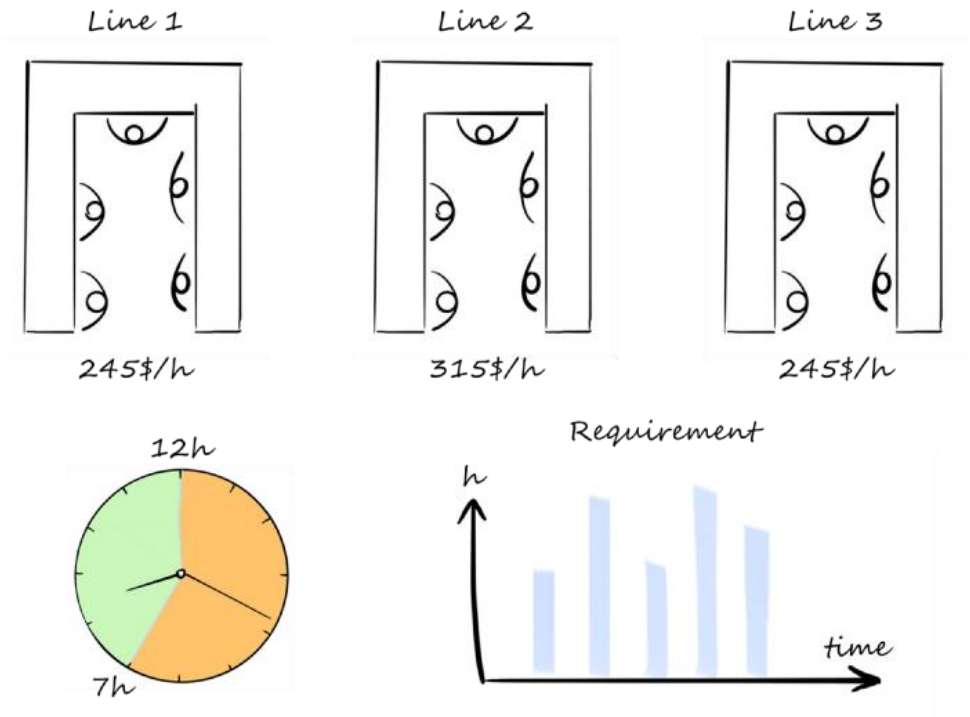
Problem Statement

Many manufacturing companies are still manually doing their production planning, leading to a needless increase in direct costs.
Let's consider an example:
Your factory possesses three production lines.
The hourly labor cost is 245$/h for lines 1 and 3 and 315$/h for line 2. Due to the current rules and regulations, you have some constraints on
the daily working hours: one line cannot run for less than 7 hours or more than 12 hours per day.
The requirement from your customer is the number of hours of production for each day of a week, and you want
to schedule these hours on the day it is required, meaning no early or late planning

Solution:
Optimization model for weekly production planning
Using this optimization model, we can:
Find the number of hours of production for each day of a week, and schedule these hours on the day it is required, meaning no early or late planning.

Targets:

- Optimize the working hours.
- Distribute the workload among the production lines



Inputs

The input for our function is

- the timeline on which we want to achieve our planning
- the list of available work centers
- the requirement for each day and the hourly cost of each work center.

Constraints:

- Constraints on the daily working hours:
  one line cannot run for less than 7 hours or more than 12 hours per day.

- Additional constraints can be added:
  Extra costs due to overtime or weekend work