Exercise #4: Italian Shipbuilding

Yacht Marine, heir to the great tradition of Italian shipbuilding and one of the largest shipbuilding groups in the world, operates in the construction of complex ships with high technological content such as merchant and naval vessels, offshore and mega yachts.

The Aim

Analyze the production plan of Yacht Marine, considering three different boats sequences for the production, and analyze for every scenario the following KPI:

- The total number of built boats at the end of simulation;

Fundamental information

Yacht Marine works six days a week and eight hours a day.

Yacht Marine builds a series of ships, each of which belongs to a particular model.

In the total, there are 11 models and 194 ships to be produced accordingly to the commercial plan.

The yacht building process is split into different phases.

The lines B,C,D,E contain a maximum of 5 boats, consequently in these lines the production cycle is divided into 5 stages; while in the lines F,G,H the maximum number of boats is 4.

Line B is out of order and cannot produce any boat right now.

The boats are advancing on the production line according to defined sequences, a boat can move forward in the next phase only if the slowest boat in the line is ready to move forward as well.

Input Data

In the Excel File, you can discover the following data:

- Association between Boats and Models;
- The boats in WIP in each phases, in time step 0;
- Frequency Days: the time that each boat takes to finish the production in each stage; [day]
- Lines Details:
    - Maximum number of boats admissible on the line
    - Initial Frequency Days, time already spent from every boat in WIP. [day]
- Three different SCENARIOS to be evaluated, with three hypothesis of sequences of boats, waiting to enter the production cycle.

The End of Analysis

The simulation ends after 150 days.