

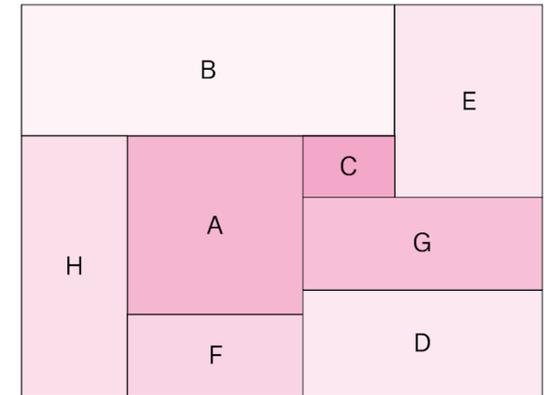
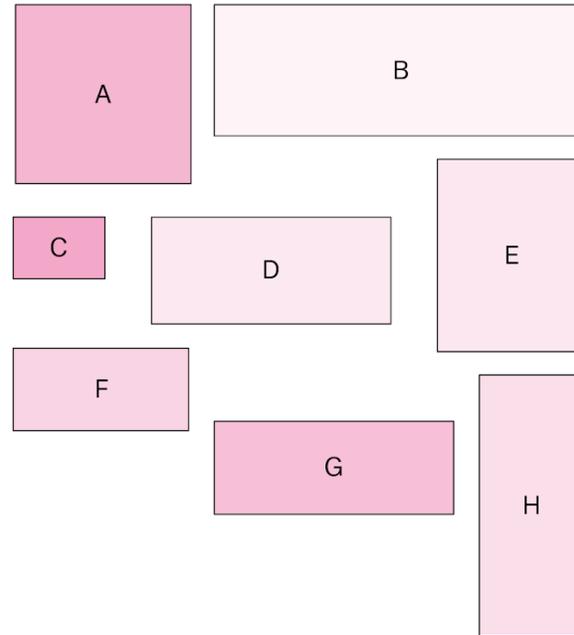
Tetris

Industry solution for optimal placement of parts

Team members: Marco Panfilo, Thomas Borsani, Olga Kozhevnikova

Problem

Minimizing the number of beds used to move the set of elements. Space on one bed is often wasted and therefore money and time are wasted as well.

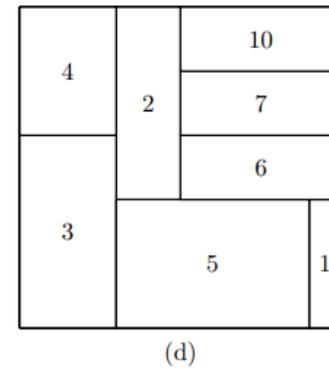
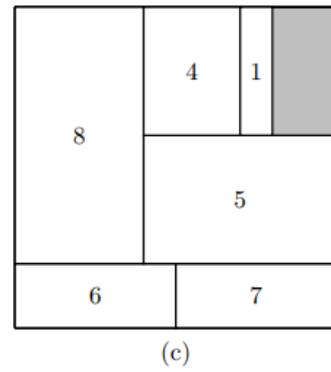
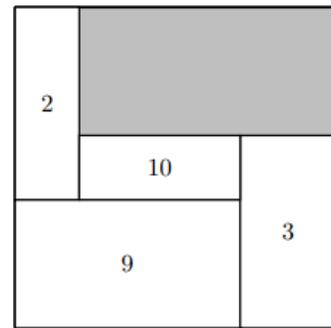
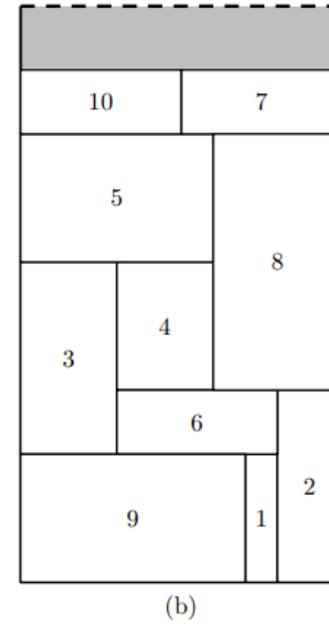
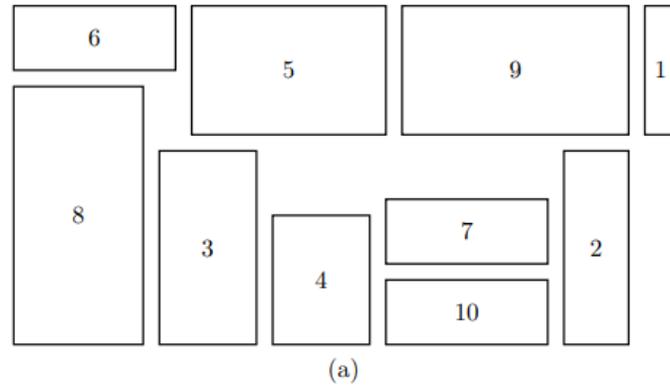


Exact solutions to two-dimensional bin packing problems

Author: Iori, Manuel and Loti de Lima, Vinicius and Martello, Silvano and Miyazawa, Flavio and Monaci, Michele

2020, European Journal of Operational Research

Doi: [10.1016/j.ejor.2020.06.050](https://doi.org/10.1016/j.ejor.2020.06.050)



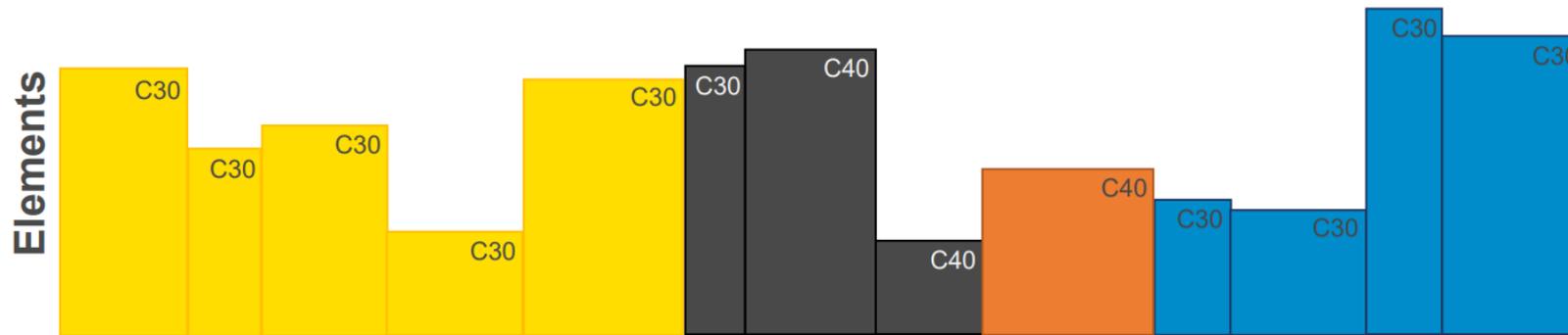
How to use this in the challenge

Burte force

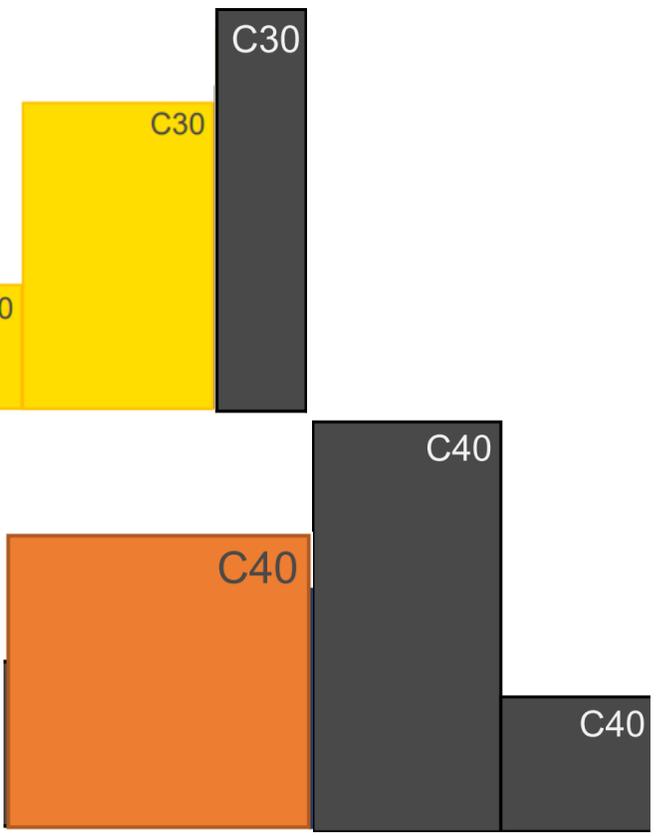
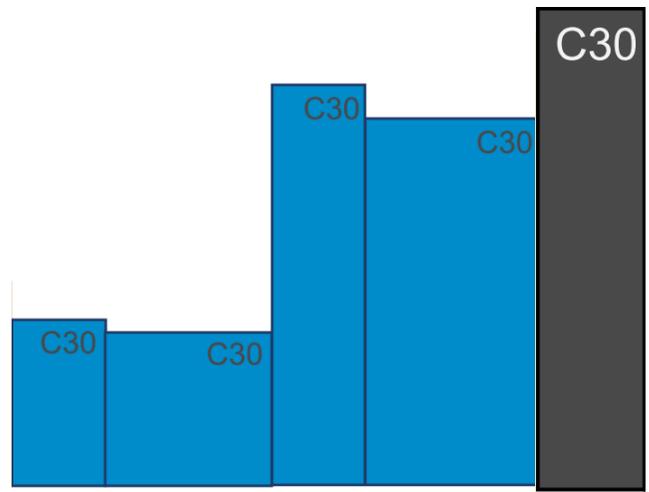
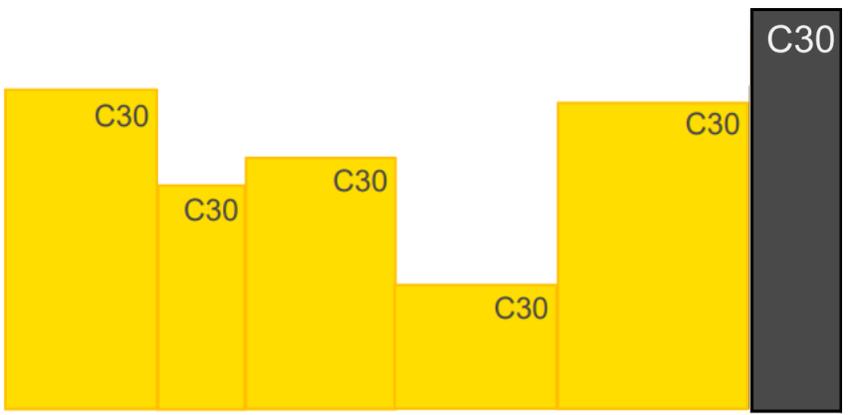
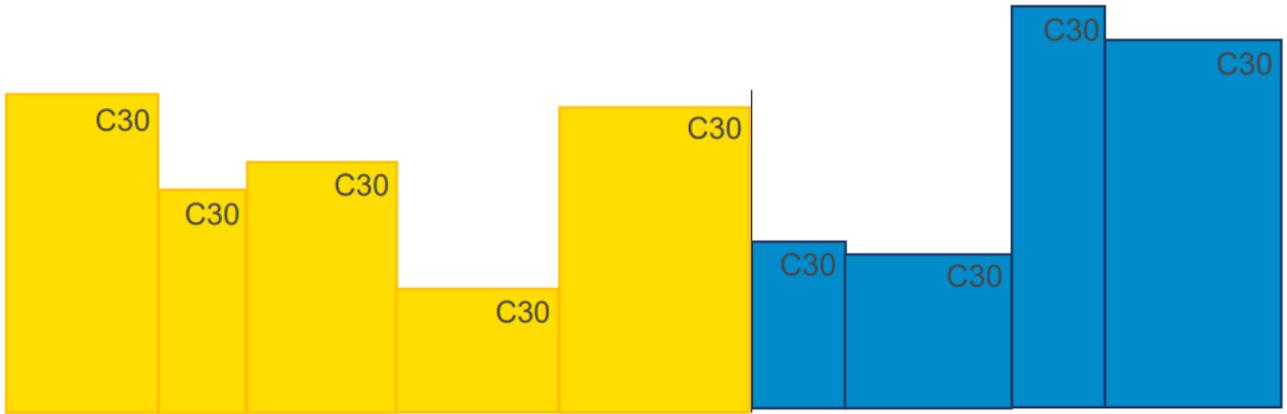
- 1) Compute all the possible combinato

EXAMPLE – t_0

PROGRESS **GROUP**



Legend:
Cxx → Concrete quality
Color → Stacks



- 2) Run the an optimal 2D-KP solution
- 3) Identify the best combination set
- 4) Extract the solution already computed

So, running the algorithm on the sample set 2

- 99 elements of 5 concrete types
- 5 max stack

- 36 beds required

Improvements

- Ortogonal variant
- When the stack is almost finished start to bring another elements
- Heuristic

Thank you