Heuristics - Assignment 2

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October 15, 2024

FEUP

Neighborhood

- Generate N1 from initial solution s
- **Move:** swap
- **Strategy**
  1. **Sort:** decreasing number of attributes uncovered by removing the subset
  2. **Remove** a subset
  3. **Insert** the subset with most covers + largest Δc
  4. Exhaust insert options (skip $\Delta c > 0$), and move on to next removal candidate

Idea
Prioritize regions of neighborhood more likely to be feasible + reduce total cost

Redundancy Elimination

Choose candidates for elimination

- **Skip** critical members
- **Sort** by number of overlapping attributes $\times$ cost
- Pick the **top-***K* ($K = 5$)

For each candidate, greedily search for other removals

- **Find** another redundant set with the **highest** cost
- **Remove** it and repeat until no more redundant sets

Pick the best removal sequence out of the *K* options

Results

Poor results!

- Around 7 mins per algorithm (for all instances)
- Didn't improve solution beyond redundancy elim.

	H1		H2		H3		H1 + RE	
	First	Best	First	Best	First	Best	First	Best
Time (s)	423	422	426	427	432	433	388	391
Error (%)	5.5	5.5	5.8	6.0	6.3	6.3	5.5	5.5
Impr. (%)	100	100	100	100	100	100	14.3	14.3