

RailNL

0505 + Wouter

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Minor Programmeren

CASE

- Spoorwegennetwerk Nederland
- Doel: lijnvoering met hoge kwaliteit

$$K = p * 10.000 - (T * 100 + MIN)$$

- Restricties: 180 minuten, maximaal 20 treinen

$$\rightarrow 10.000 * 1 - (9 * 100 + 1551) = 7541$$



0505 + Wouter

$$1 + \sum_{i=1}^{20} i * 89 * 5^{28} * 9 = 6266310811042785644531252$$

$$6 * 10^{24}$$

Random

Minimum score: -414

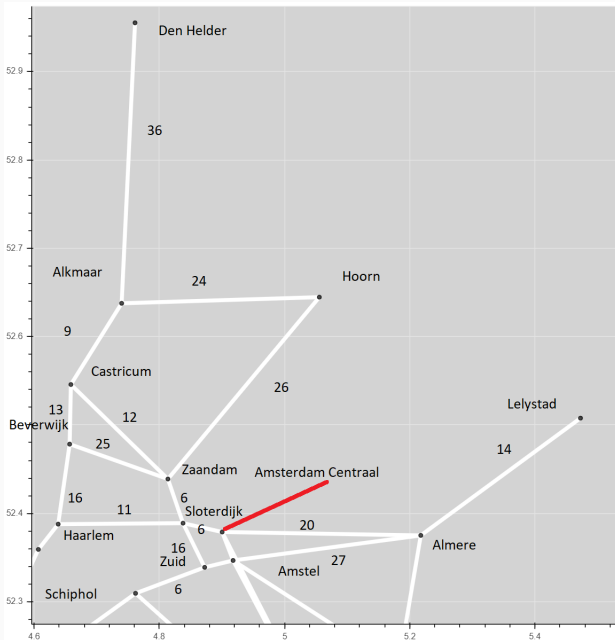
Maximum score: 3189

Gemiddelde score: 908

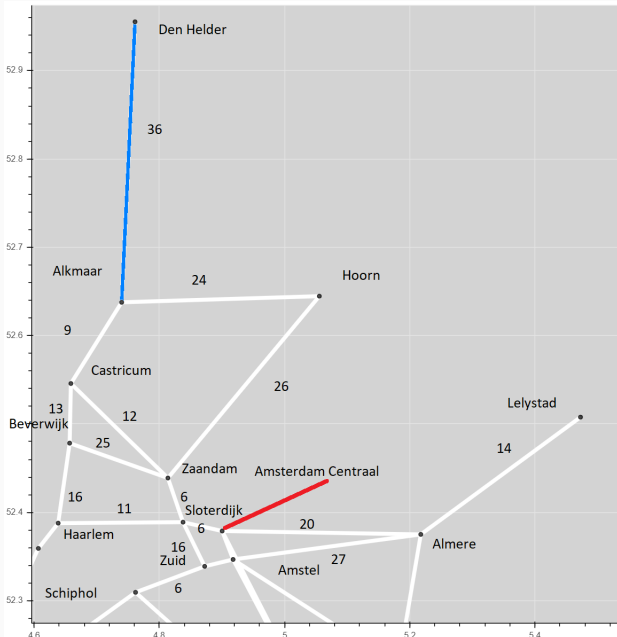
Greedy

Hoe werkt Greedy:

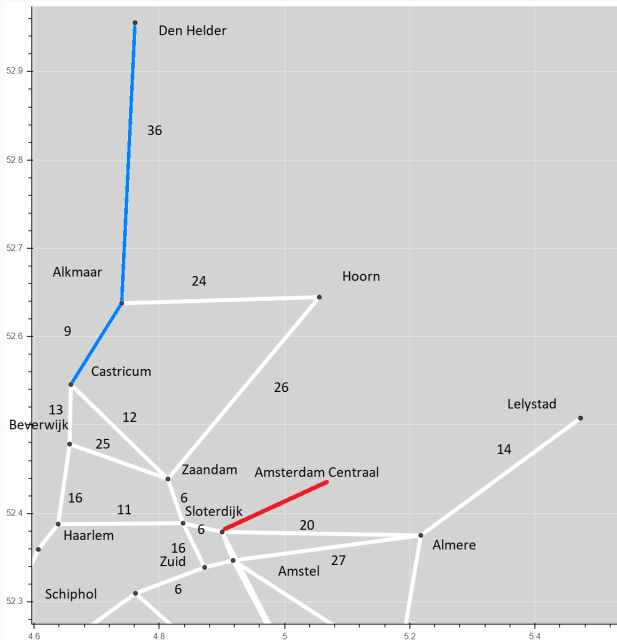
METHODES: ALGORITME GREEDY



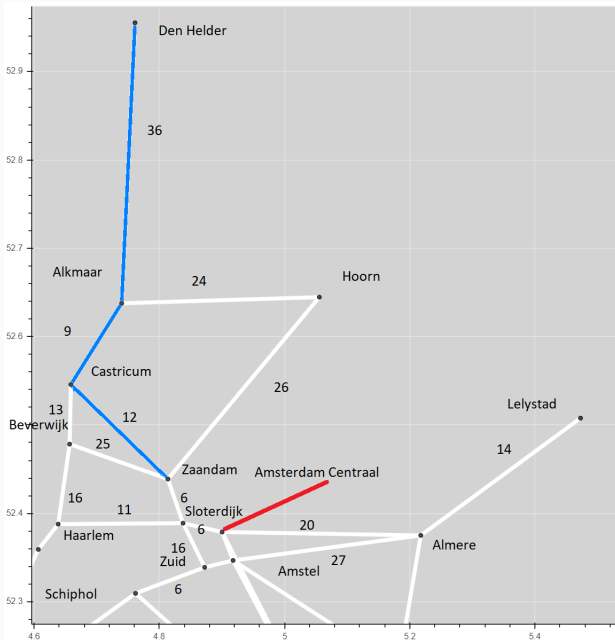
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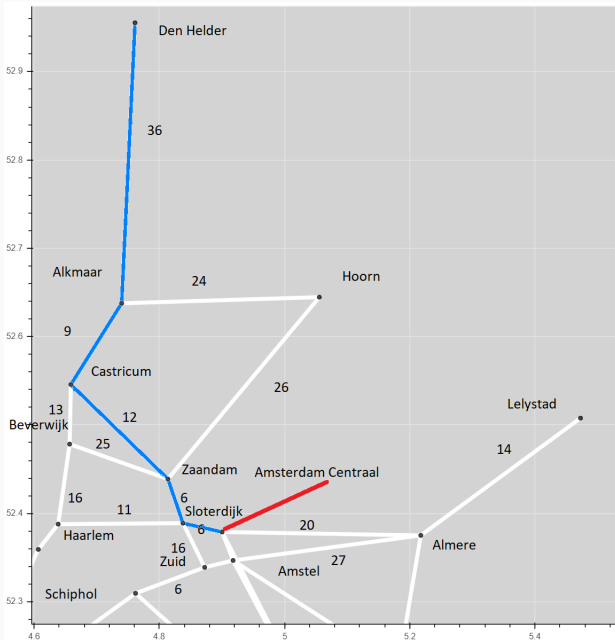
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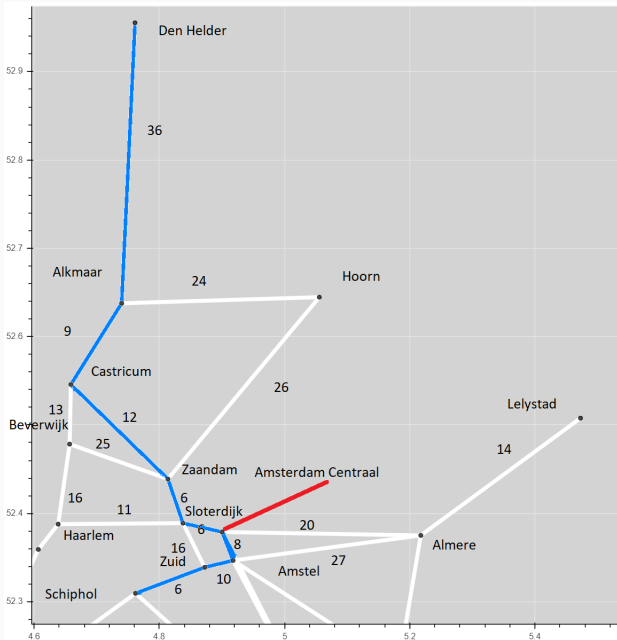
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Greedy

- Minimum score: -1113
Maximum score: 3463
Gemiddelde score: 1674
v.s. Random: (Gemiddeld:) +84.36%, (Maximum:) +8.59%

Kruskal

- Beginpunt: connectie met minste gewicht
→ gewicht v.s. proportie

Click!

Score: 1561

v.s. Random: (Maximum:) -51.05%

v.s. Greedy: (Maximum:) -54.92%

Least Connections

- Beginpunt wordt gekozen op basis van aantal connecties vanaf een station

Score: 4105

v.s. Random: (Maximum:) +28.72%

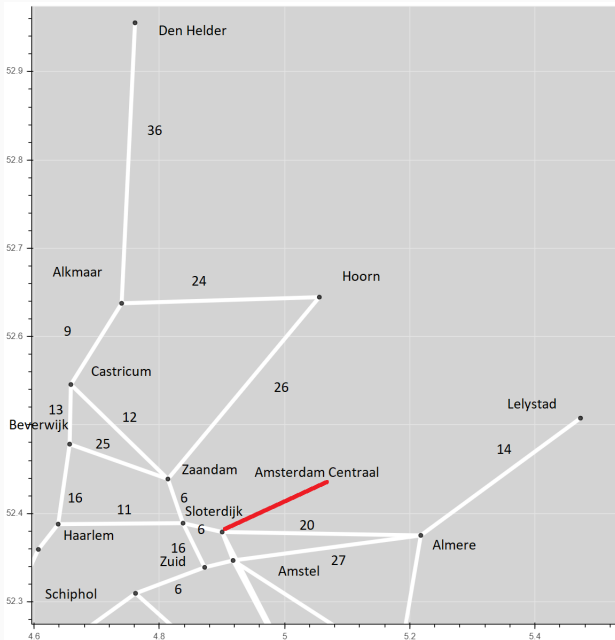
v.s. Greedy: (Maximum:) +18.54%

v.s. Kruskal: +162.97 %

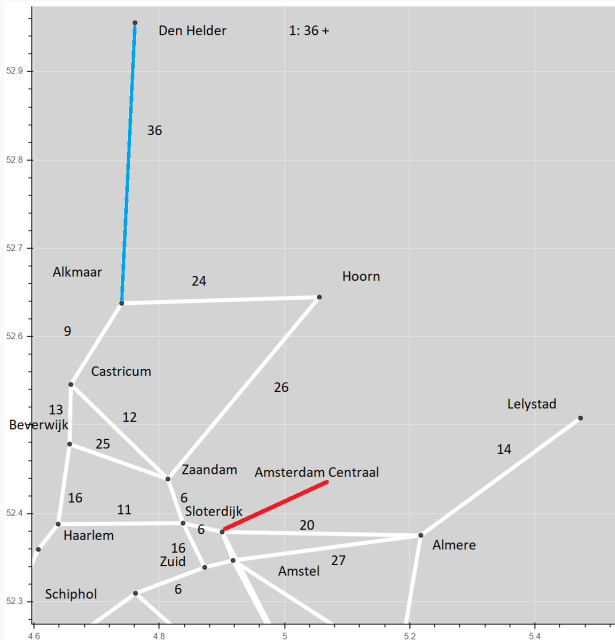
Iterative Deepening

Hoe werkt Iterative Deepening?

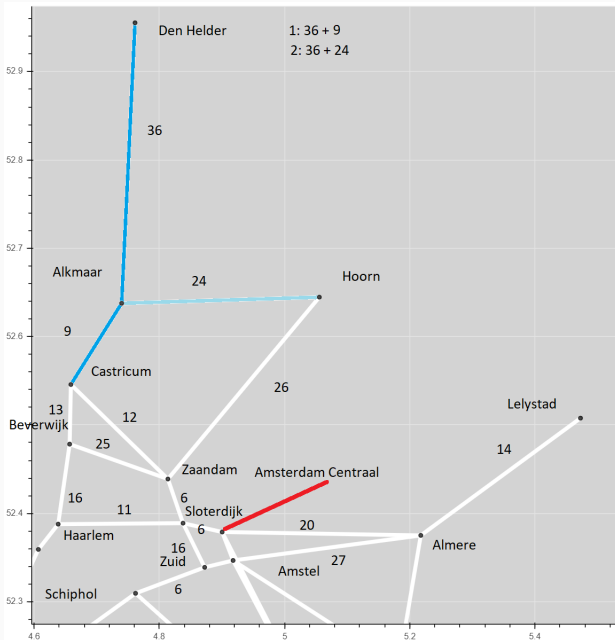
METHODES: ALGORITME ITERATIVE DEEPENING



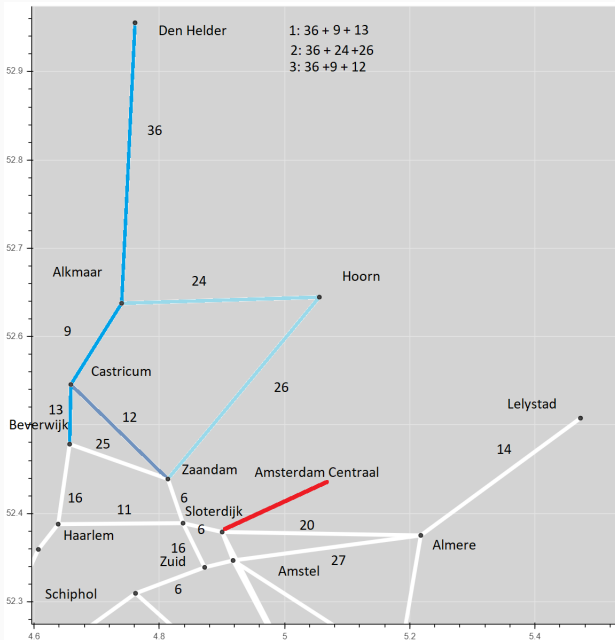
METHODES: ALGORITME ITERATIVE DEEPENING



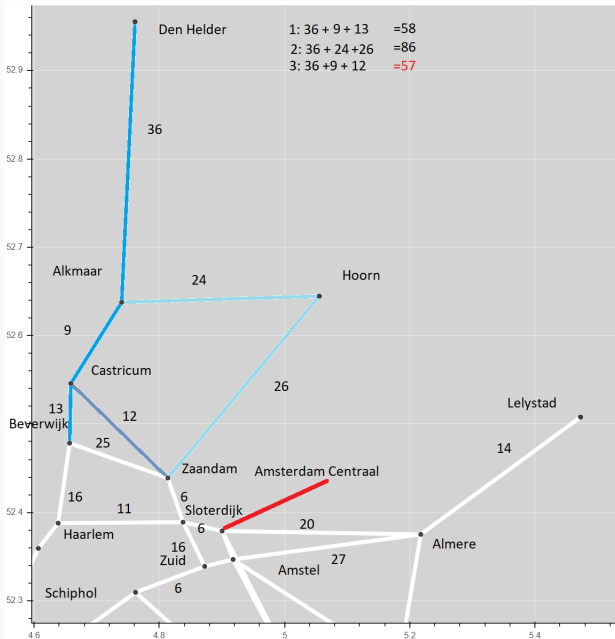
METHODES: ALGORITME ITERATIVE DEEPENING



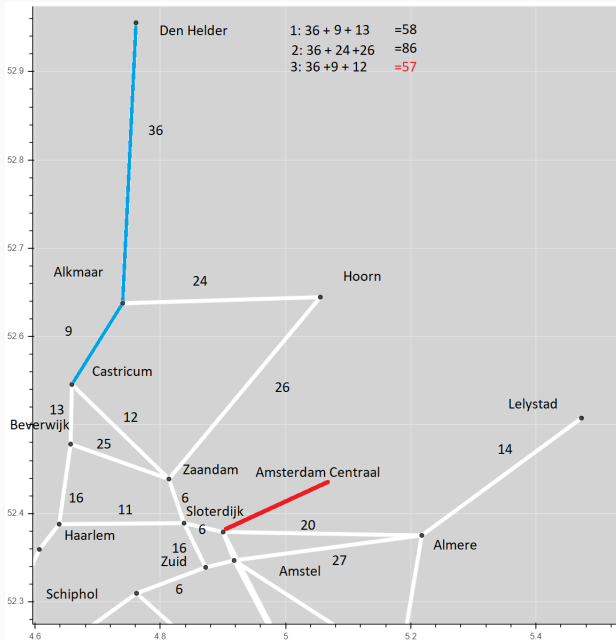
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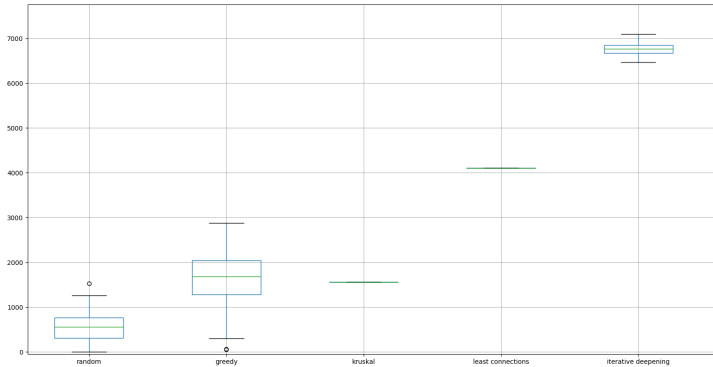
METHODES: ALGORITME ITERATIVE DEEPENING



Iterative Deepening

- Minimum score: 6329
Maximum score: 7315
Gemiddelde score: 6787
v.s. Random: (Gemiddeld:) +597.03%, (Maximum:) +129.38%
v.s. Greedy: (Gemiddeld:) +278.08%, (Maximum:) +111.23%
v.s. Kruskal: +368.61%
v.s. Least Con: +78.20%

Boxplot



Algoritme	Gemiddeld	Minimum	Maximum	% verbetering t.o.v. max
Random	908	-414	3189	-
Greedy	1674	-1113	3463	9%
Kruskal	1561	1561	1561	-55%
Least Connections	4105	4105	4105	163%
Iterative Deepening	6786	6329	7315	65%

Conclusie:

- Focus op p
- Mogelijke vervolg stappen

HIGH SCORE: 7315

