Facultat de Matemàtiques i Estadística
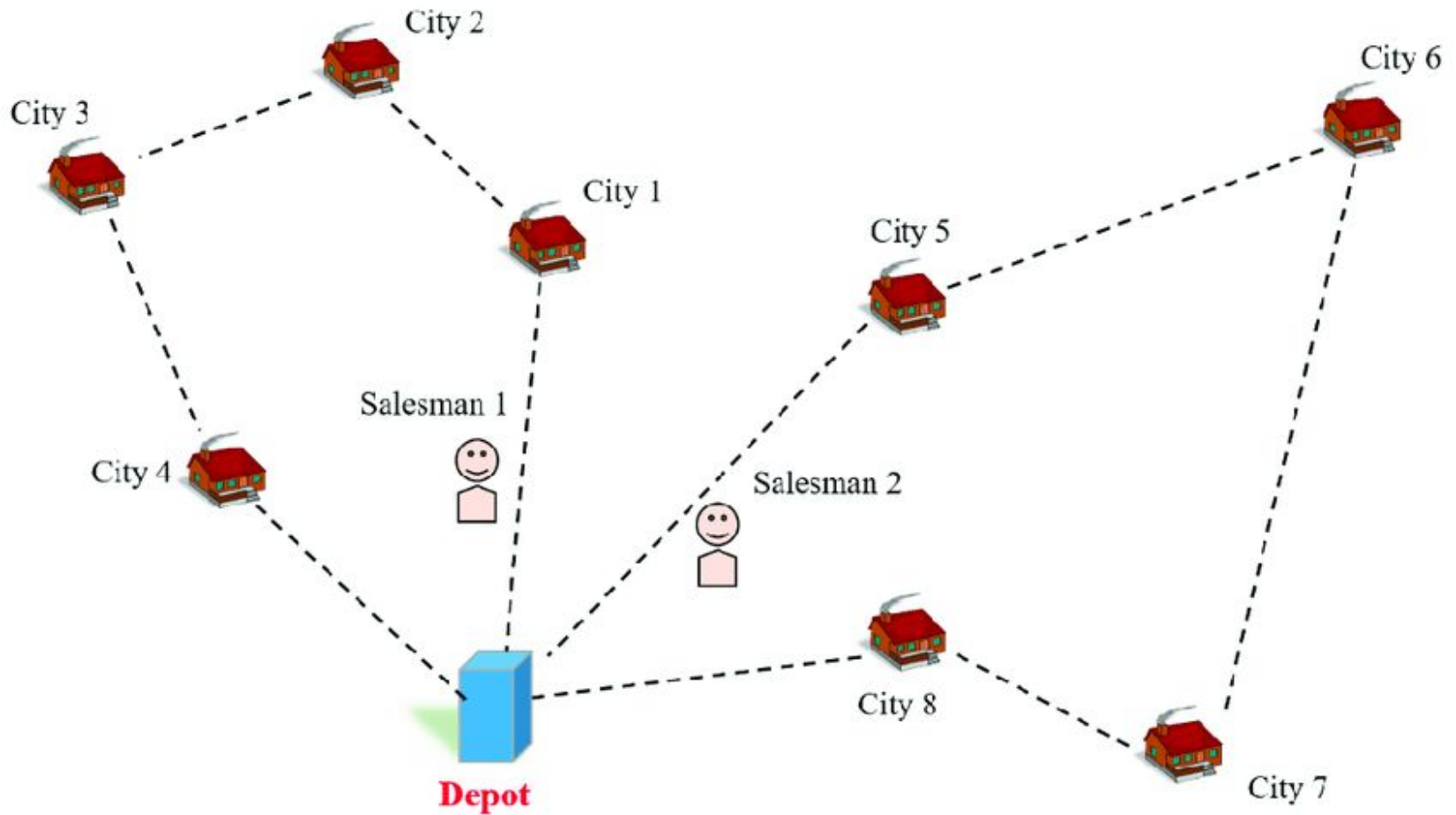
UPC

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One driver to rule them all
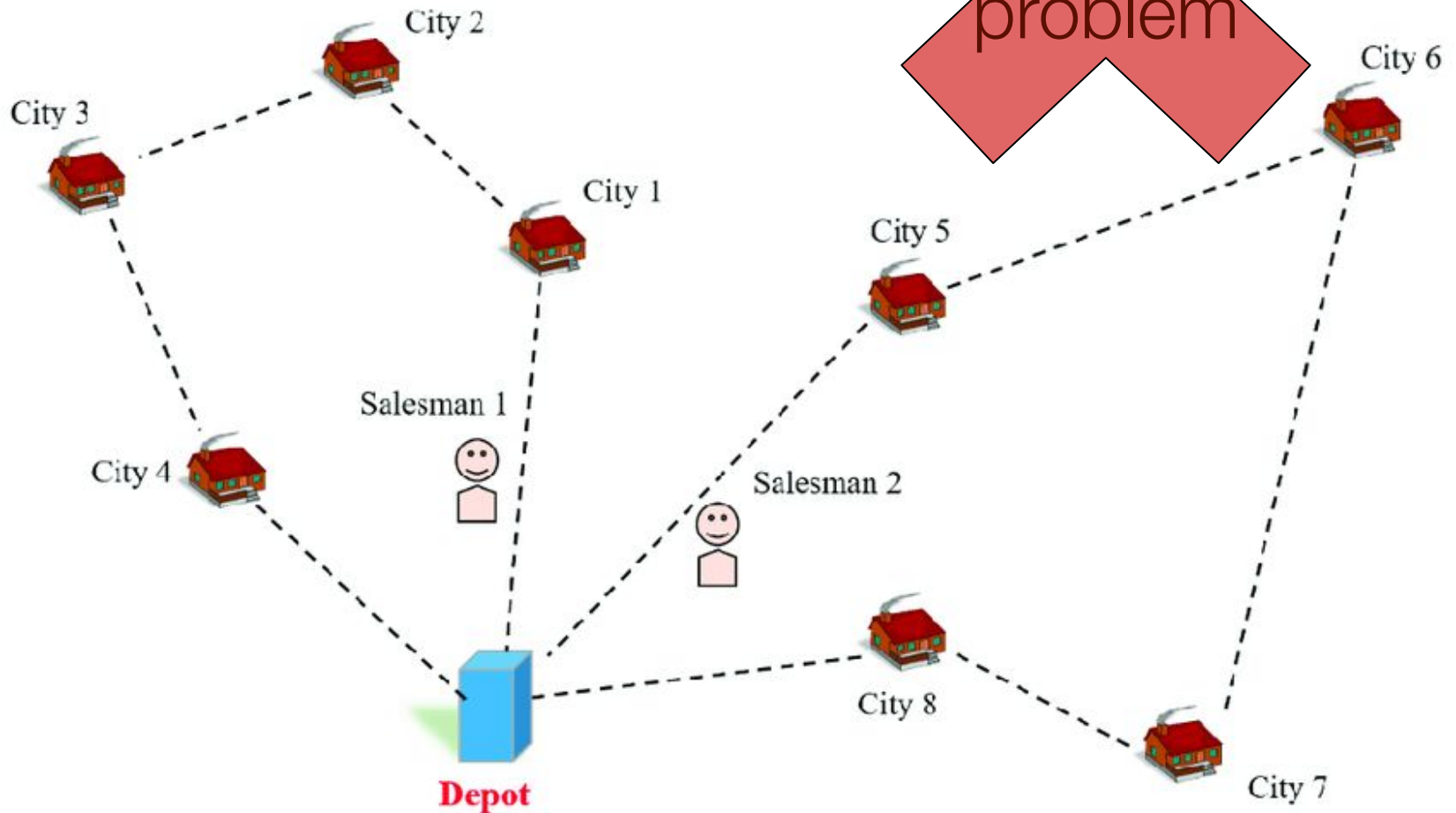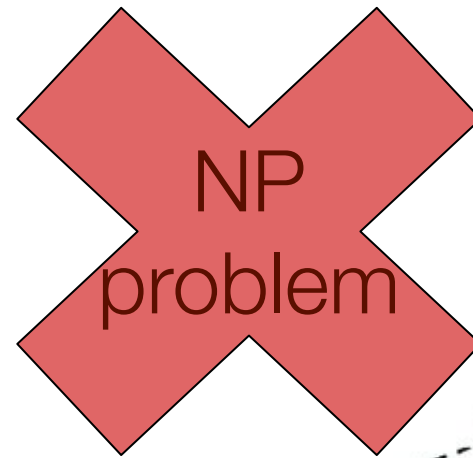
Dijkstraîdos

Qualcomm

Multi-Travelling Salesman

Multi-Travelling Salesman
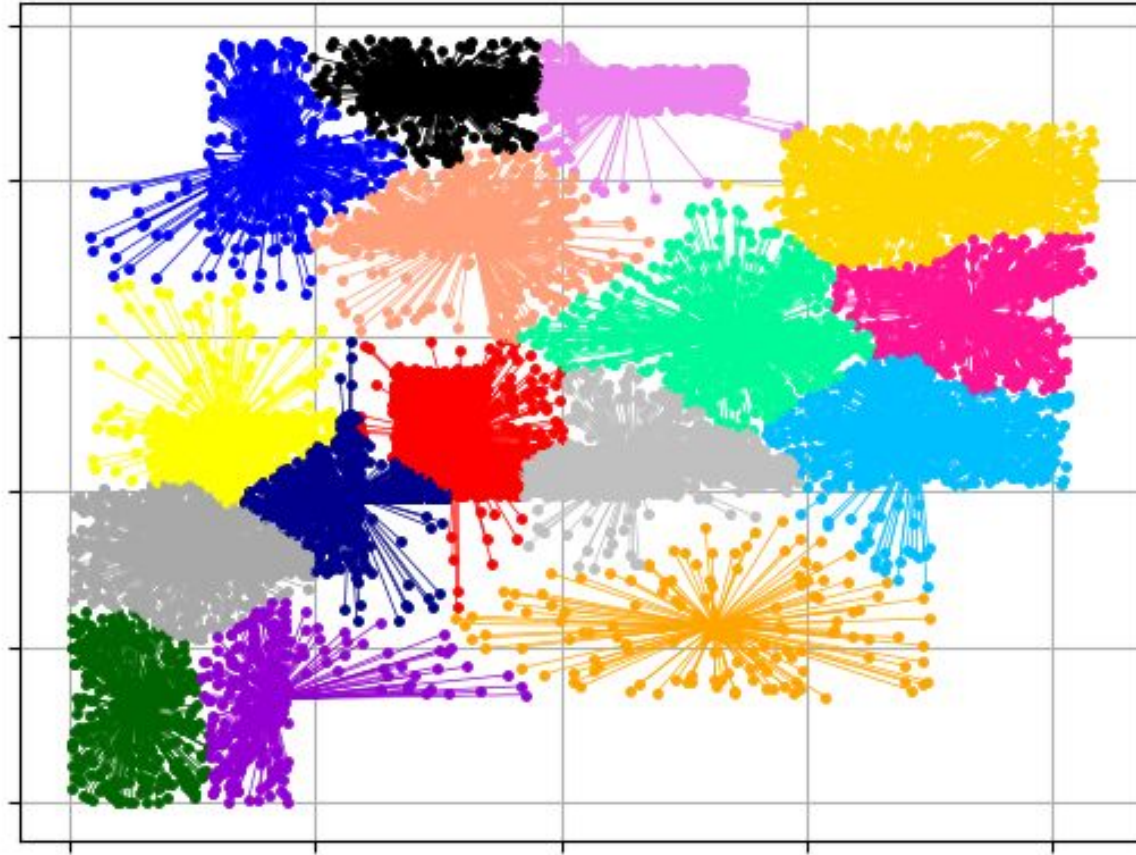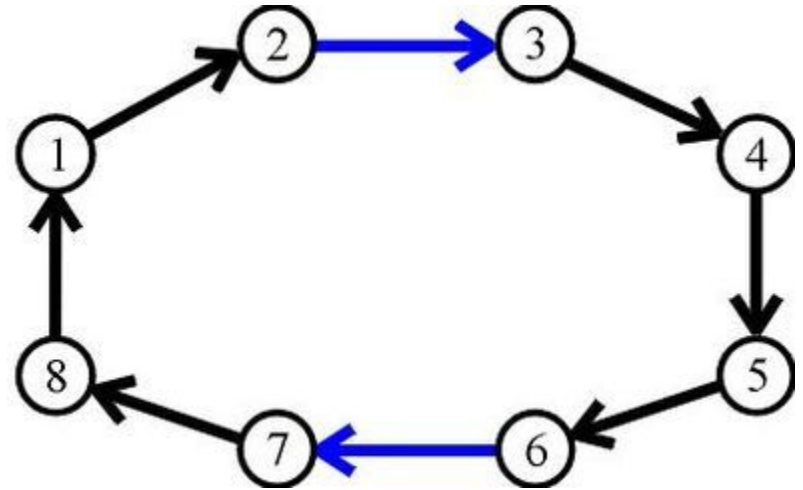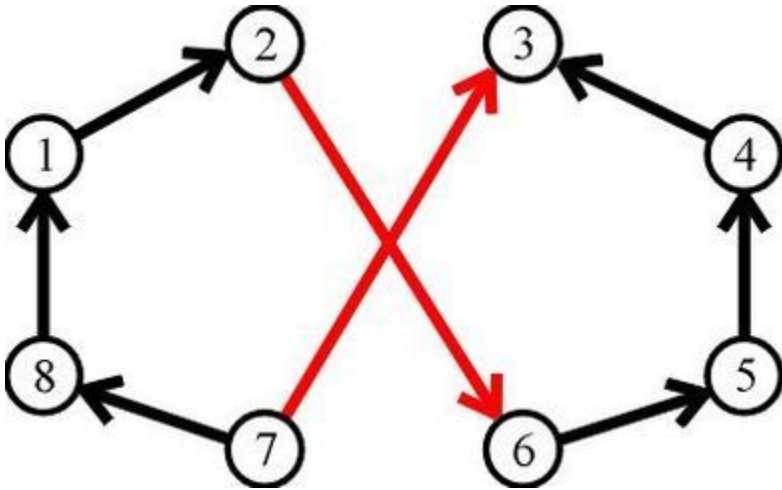
NP problem

Shortcut: Heuristics
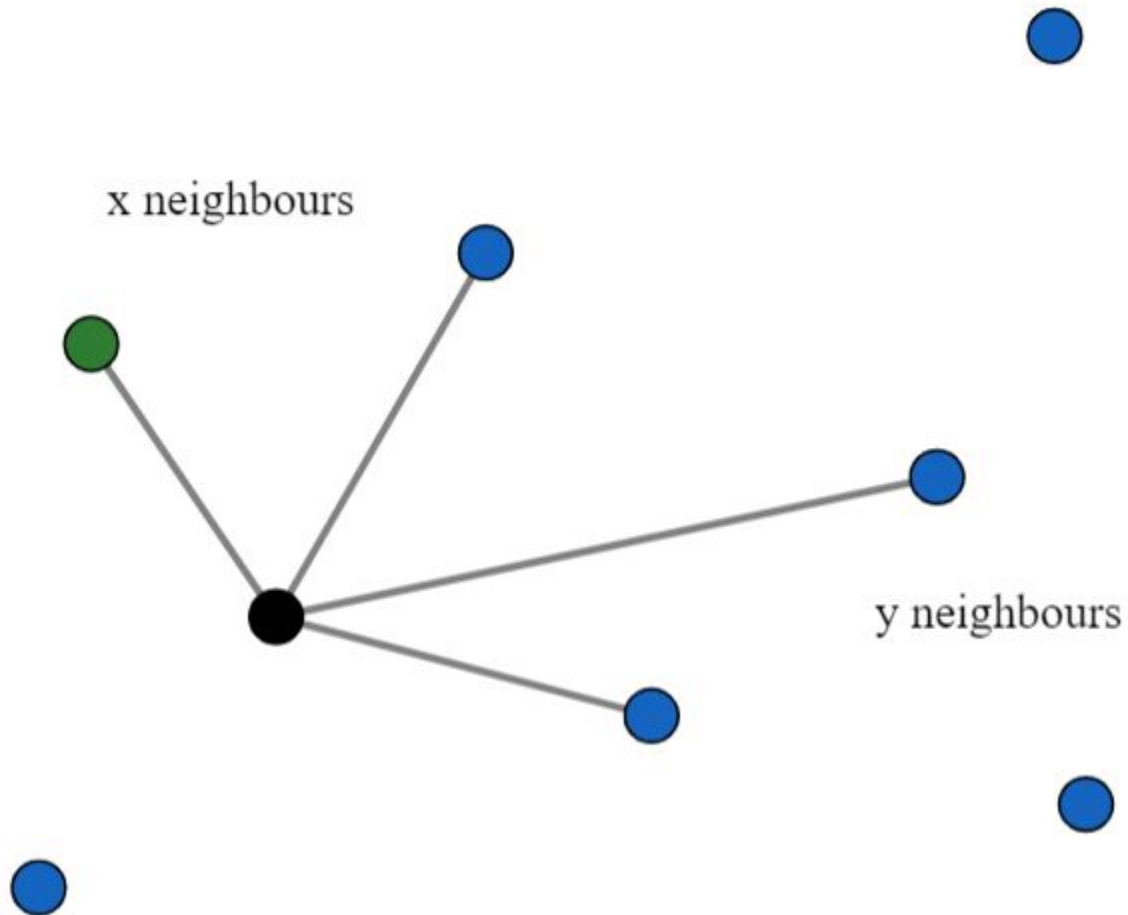
Dividing into clusters
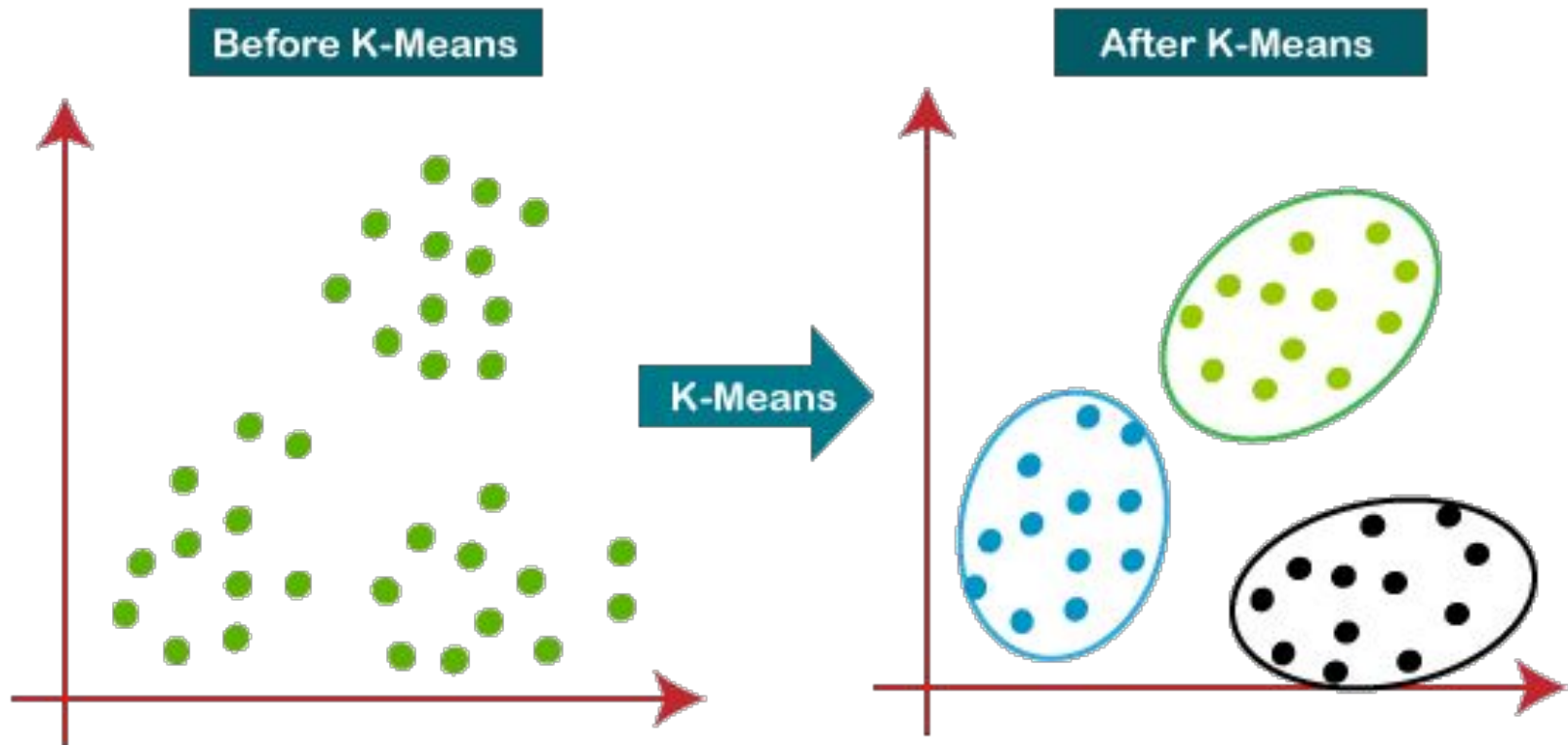
Dividing into clusters
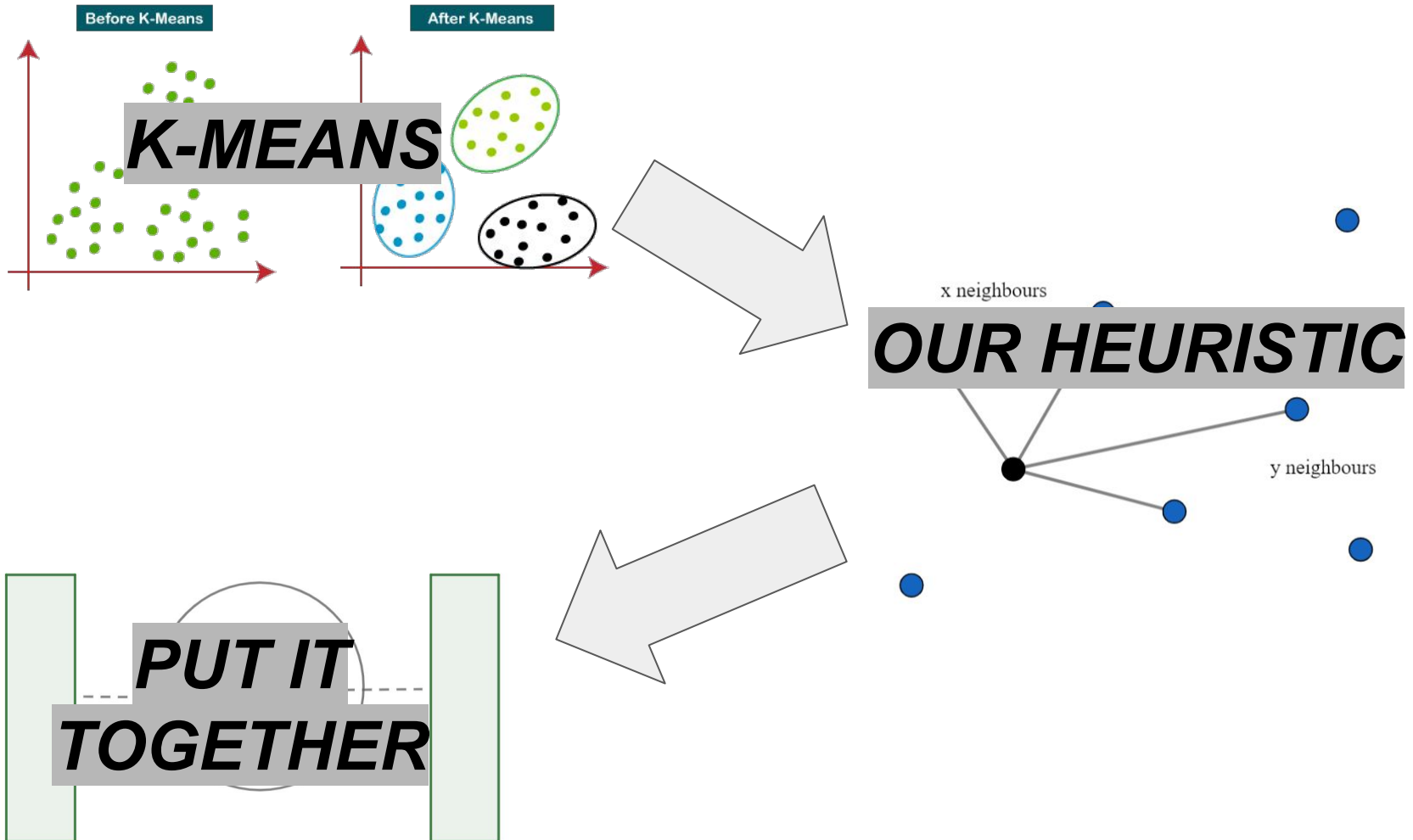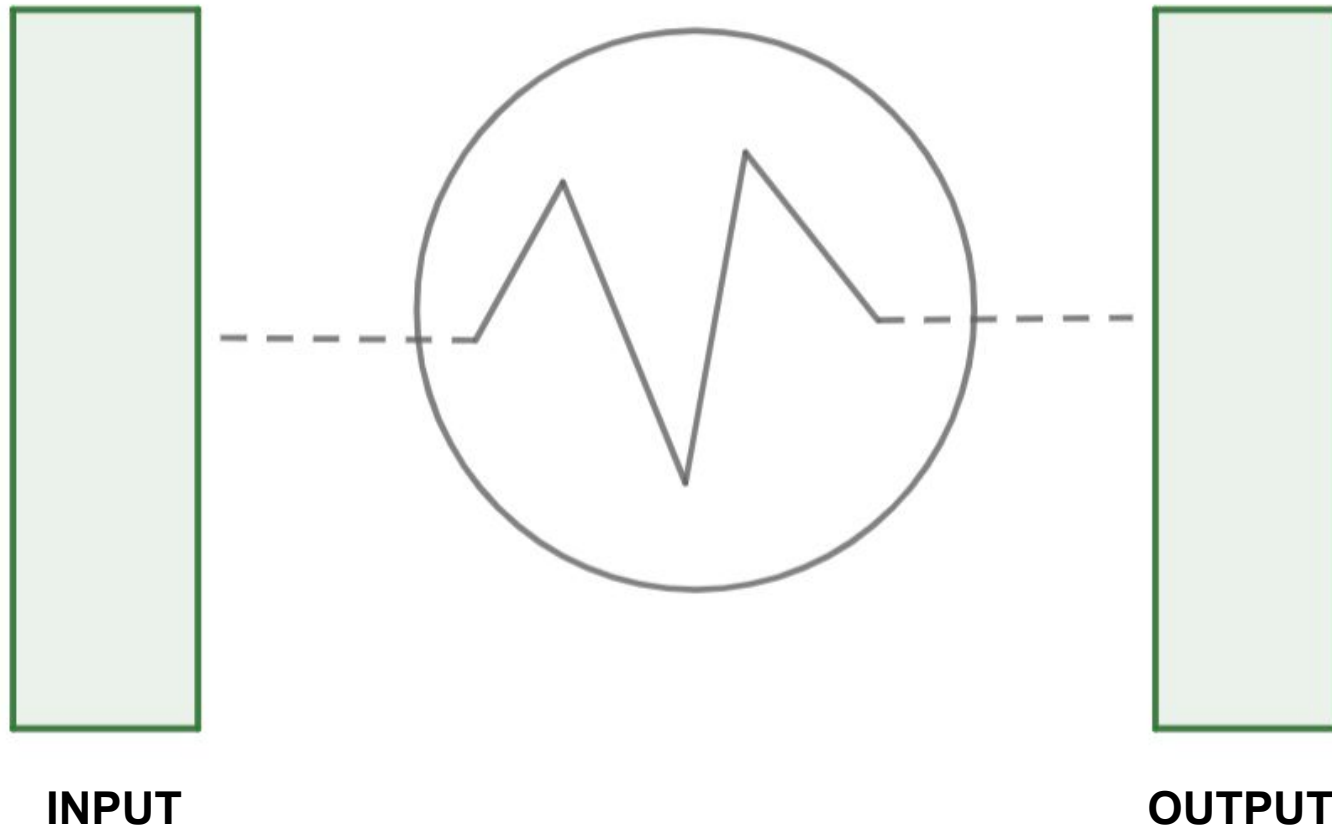
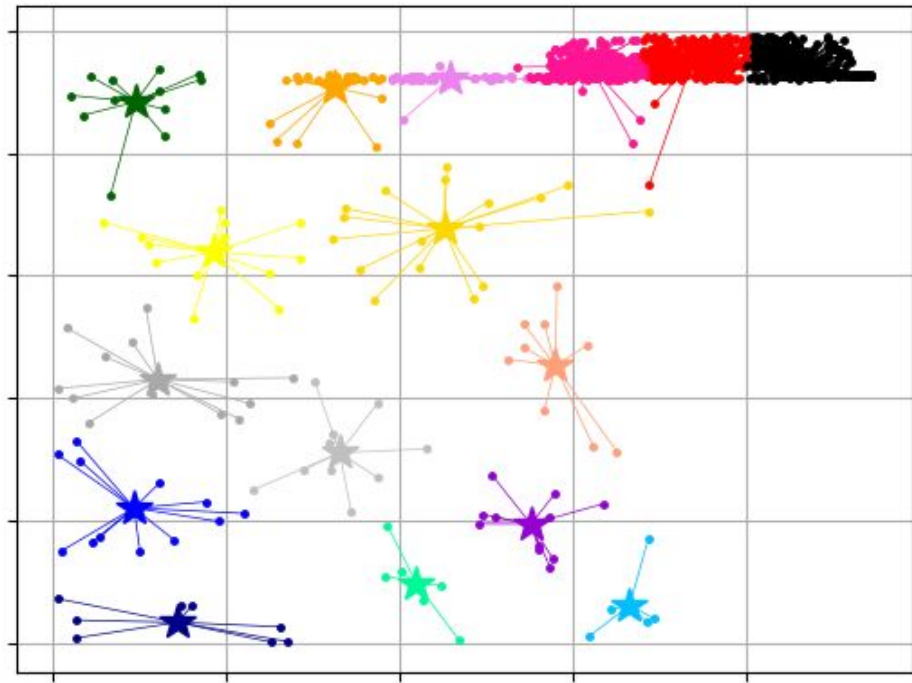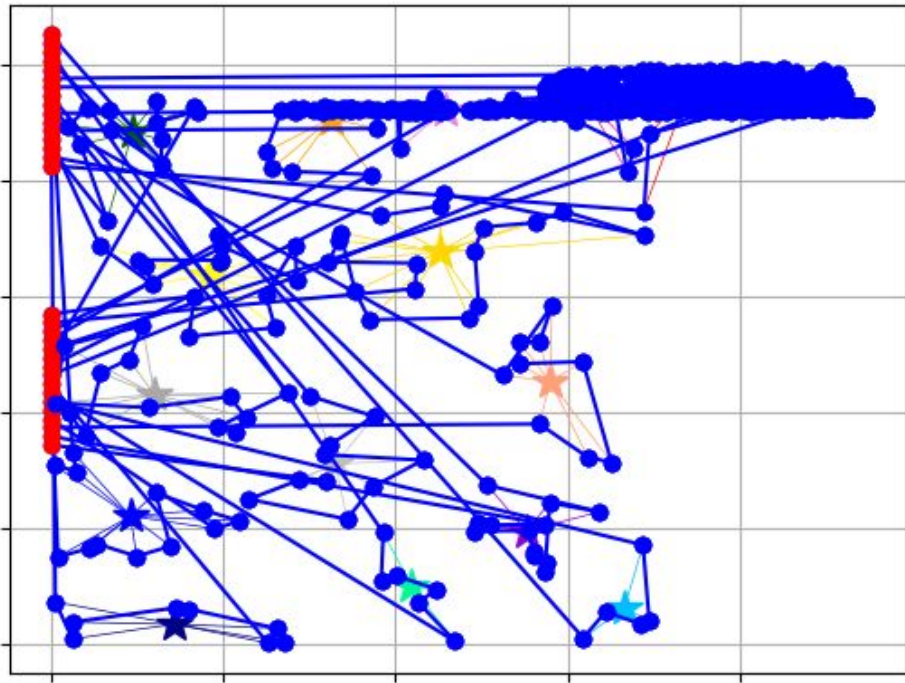# 2-OPT: a metaheuristics

A different metaheuristics

x neighbours

y neighbours

The algorithm

Before K-Means

After K-Means

K-MEANS

OUR HEURISTIC

x neighbours

y neighbours

PUT IT TOGETHER

Connect clusters to drivers

INPUT

OUTPUT

An example of a result

Results

File	Time (ms)	Average distance (ns)	Standard deviation
example_input	21	$5.2 \cdot 10^6$	$2.5 \cdot 10^6$
testcase0	38	$8.8 \cdot 10^6$	$2.97 \cdot 10^6$
testcase1	276	$55.8 \cdot 10^6$	$15 \cdot 10^6$
testcase2	7553	$1035 \cdot 10^6$	$442 \cdot 10^6$
testcase3	18659	$2606 \cdot 10^6$	$1102 \cdot 10^6$
testcase4	41492	$3879 \cdot 10^6$	$1978 \cdot 10^6$

Possible improvements of the algorithm

1.

2.