

Key

Tour: a trip that starts and ends at a designated site and visits each of the other sites once

Optimal: least total cost

Traveling Salesman Problem (TSP):

a problem involving a traveller, set of sites, cost b/w sites, need to tour all sites, and desire to minimize total cost

Model of a TSP:

Sites \rightarrow vertices of the graph

costs \rightarrow edges

tour \rightarrow Hamilton circuit

Optimal tour \rightarrow Hamilton circuit of least total weight

Exhaustive Search Strategy:

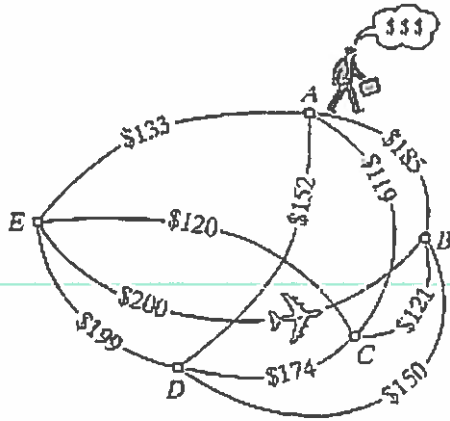
1. List all possible Hamilton circuits
2. calculate weight of each circuit
3. choose least

Go Cheap Strategy:

at each junction, choose cheapest route.

Use the Exhaustive Search strategy.

1.



$$A B C D E A = \$812$$

$$A B C E D A = \$777$$

$$A B D C E A = \$762$$

$$A B D E C A = \$773$$

$$A B E C D A = \$831$$

$$A B E D C A = \$877$$

$$A C B D E A = \$722$$

$$A C B E D A = \$791$$

$$A C D B E A = \$776$$

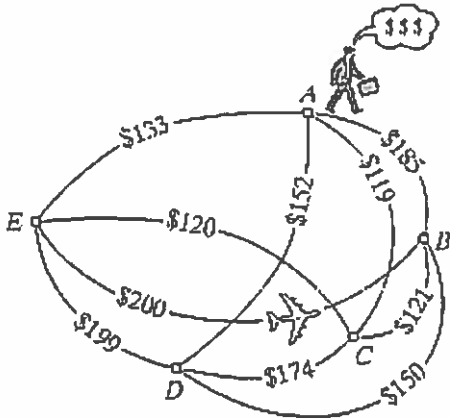
$$A C E B D A = \$741$$

$$A D B C E A = \$676 \text{ optimal}$$

$$A D C B E A = \$780$$

Use the Go Cheap strategy.

2.



$$A C E D B A$$

$$119 + 120 + 199 + 150 + 185$$

$$\$773$$