Travelling salesman

The Travelling Salesman is generally stated as an optimization problem:

- Input: Complete graph $G = (V, E)$ with positive weights on the edges
- Output: Hamilton circuit in G (circuit that visits every vertex exactly once) and has total minimum weight

However we can formulate this as a decision problem, as follows:

- Input: Graph $G = (V, E)$ with positive weights on the edges, and bound B
- Output: Does there exist a circuit in G that visits every vertex at least once, and has total weight at most B?

And of course we could make it into a construction problem.

Note: The decision problem for Travelling Salesman is NP-complete.