Assignment9 : Vertex Cover Problem

- Zitong Huang, 12432670, Computer Science and Engineering

- Scene Reconstruction

- Prof. Feng Zheng

Task 9-1

Seen as right.

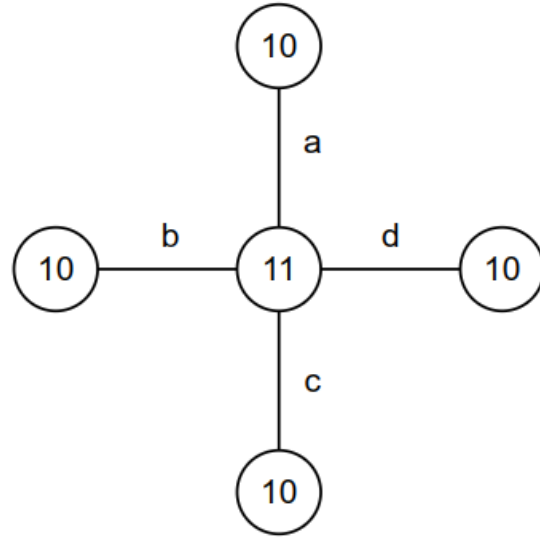What ever each edge is chosen, nodes with weight 10 will first be chosen by algorithm.

The final result will be

$$w(S) = 10 + 11$$

And the optimized solution will be

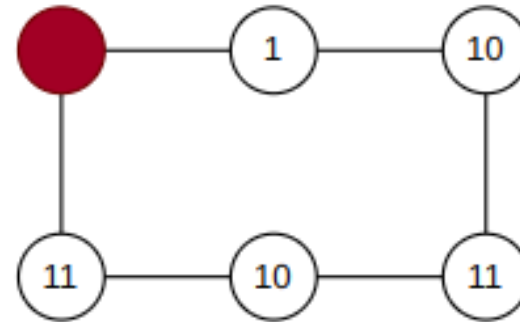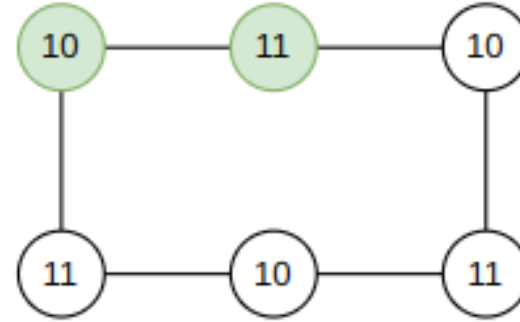$$w(S*) = 11$$

where $\frac{w(S)}{w(S*)} \rightarrow 2$

Task 9-2

As shown right.

After price algorithm choose a node with weight 10, neighors' price will be cut to 1.

Thus, price algorithm will choose a node with origin weight 11.

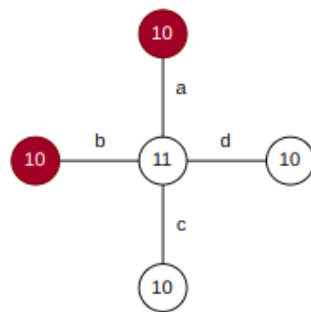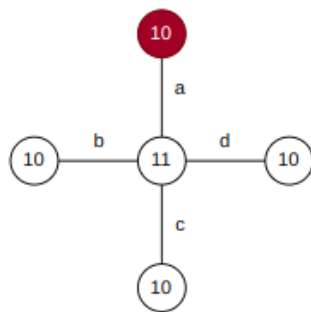Greedy Algorithm can process this situation better, since it always choose the node with minimum weight.
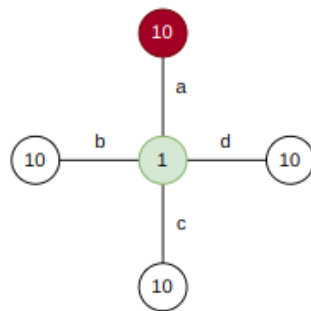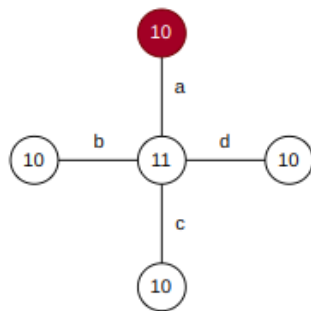
Task 9-3

As shown right.

Greedy algorithm will choose all node, since every node has a smaller weight than the center.

Price algorithm will choose the center node after choose a 10-weight node, since after price once center-node can only undertake 1.

Greedy

Price