VERTEX COVER PROBLEM

Choice the vertex to cover all the edge

Zhiyuan Wang
12032878

SUSTech Southern University of Science and Technology

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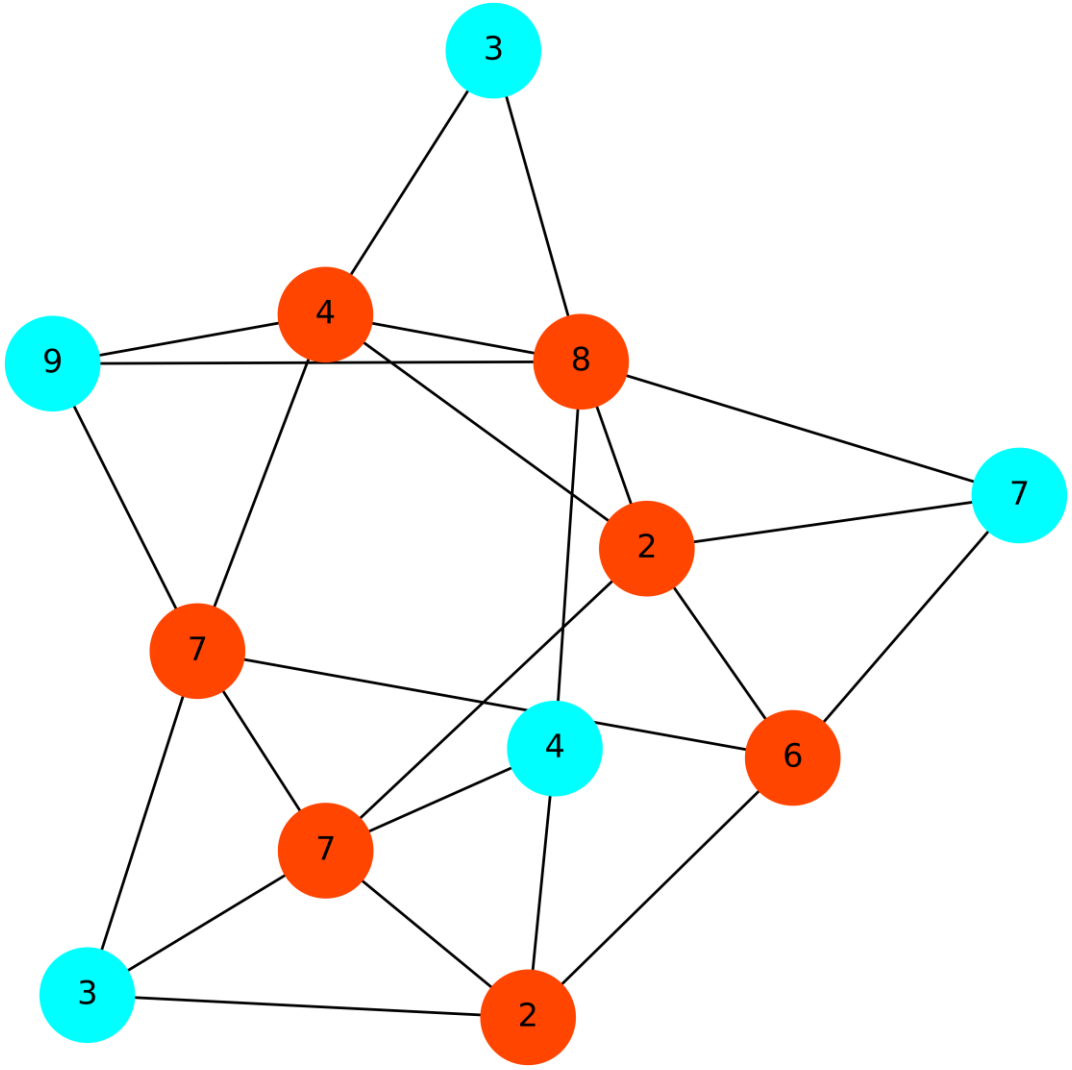
7. The example that the vertex cover problem where better results are always obtained by the pricing method than the greedy set cover algorithm

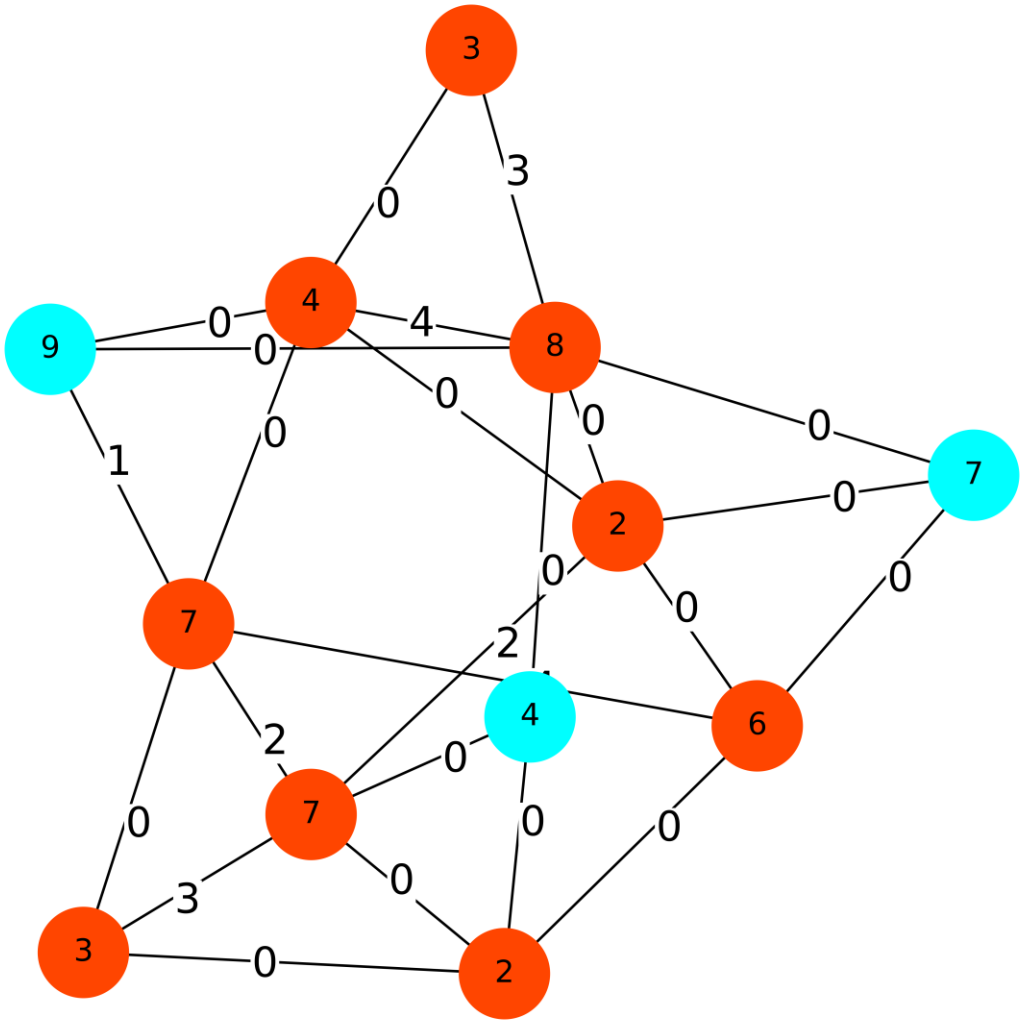
VERTEX COVER PROBLEM

This problem's target is choosing vertex to cover all of the edges and minimize the total cost.

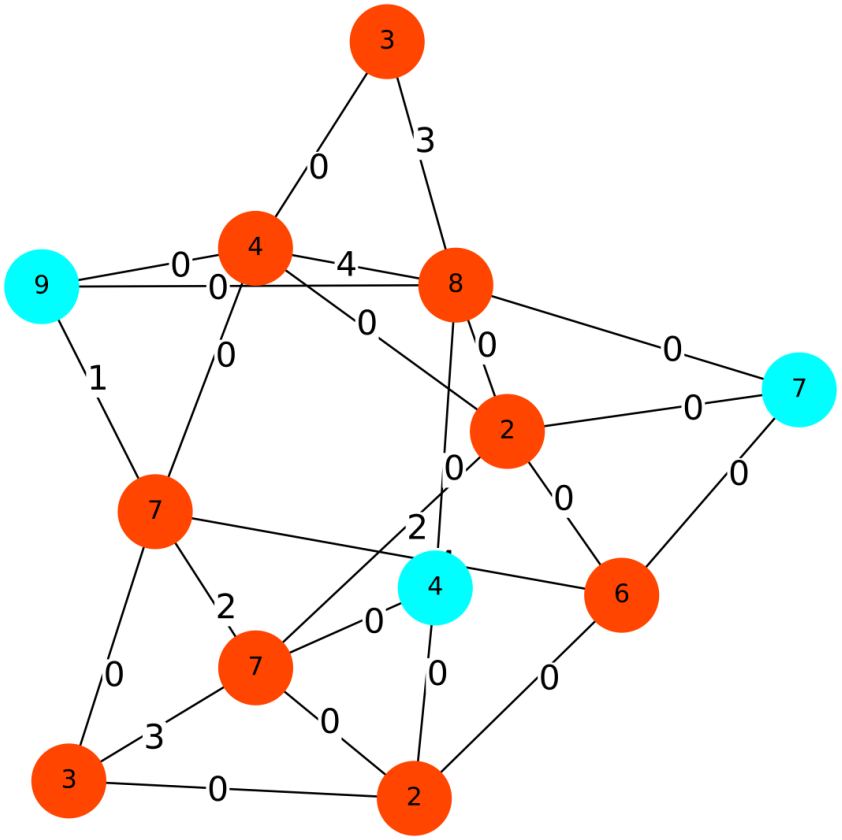


PRICE METHOD ALGORITHM

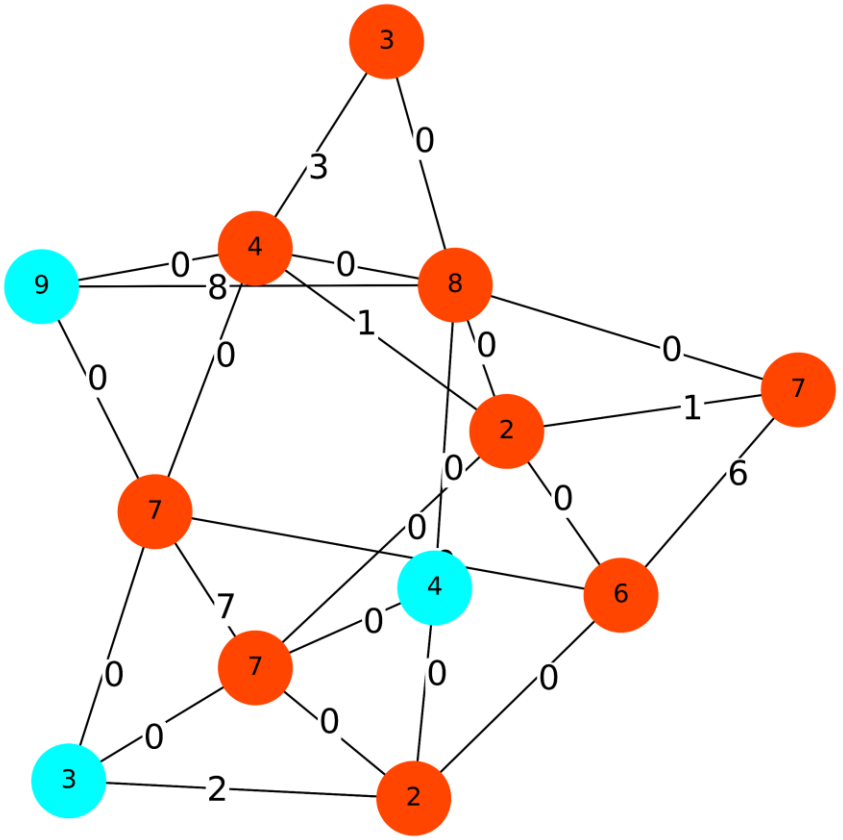
In this algorithm, all the edge will be initialization with value 0. In each iteration, we will increase one edge to let one of it's vertexes be tight without violating fairness.



EXAMPLE 1

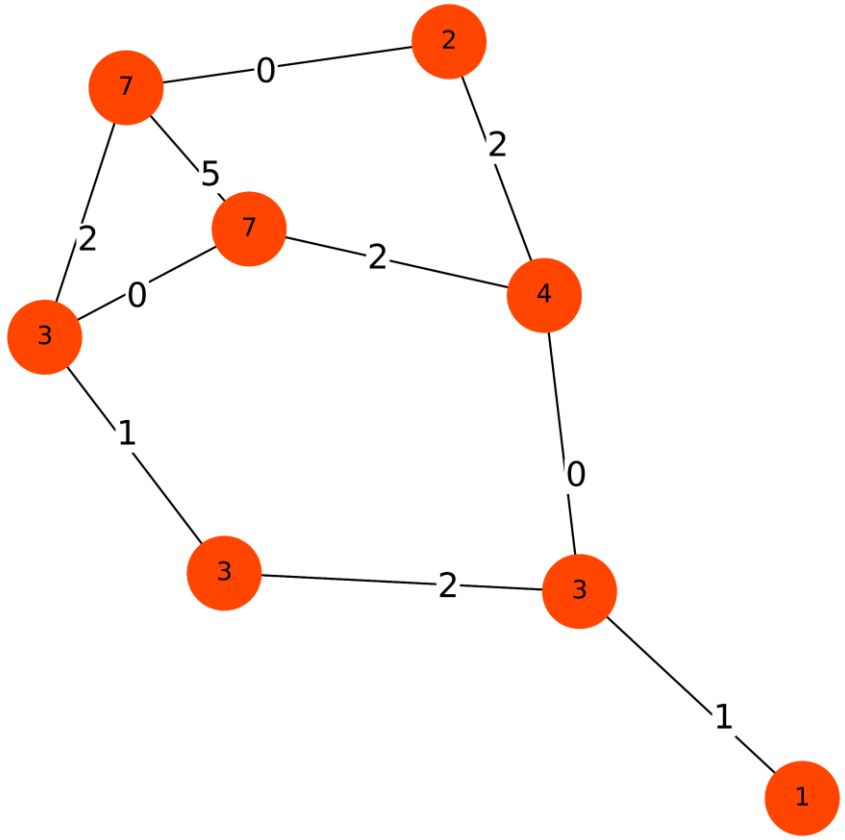


Choice the min edge firstly

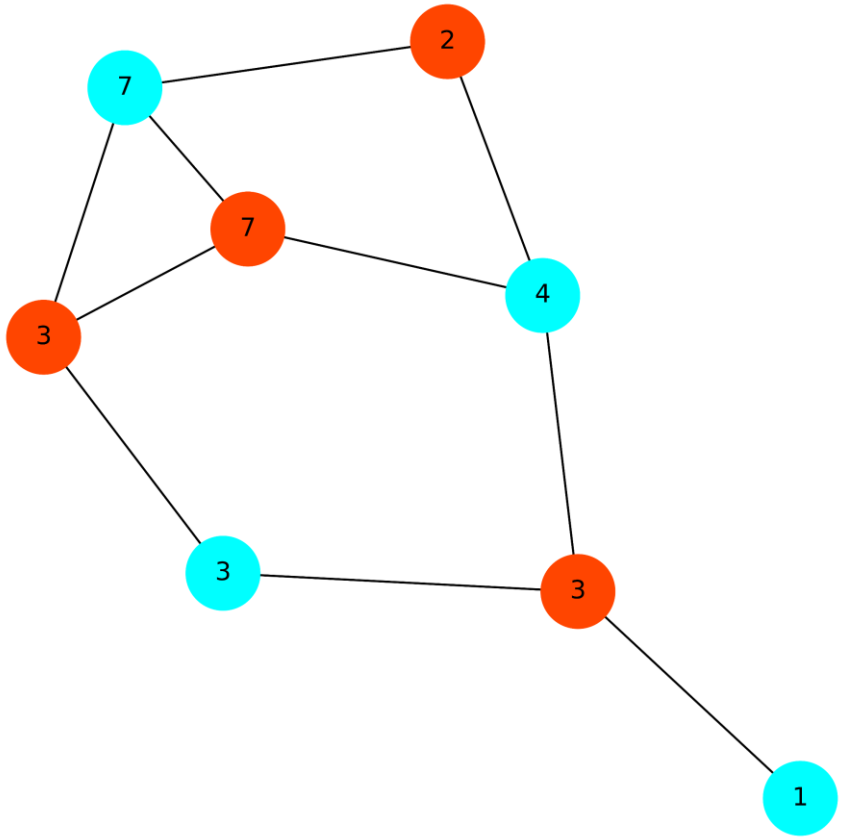


Choice the max edge firstly

EXAMPLE 2

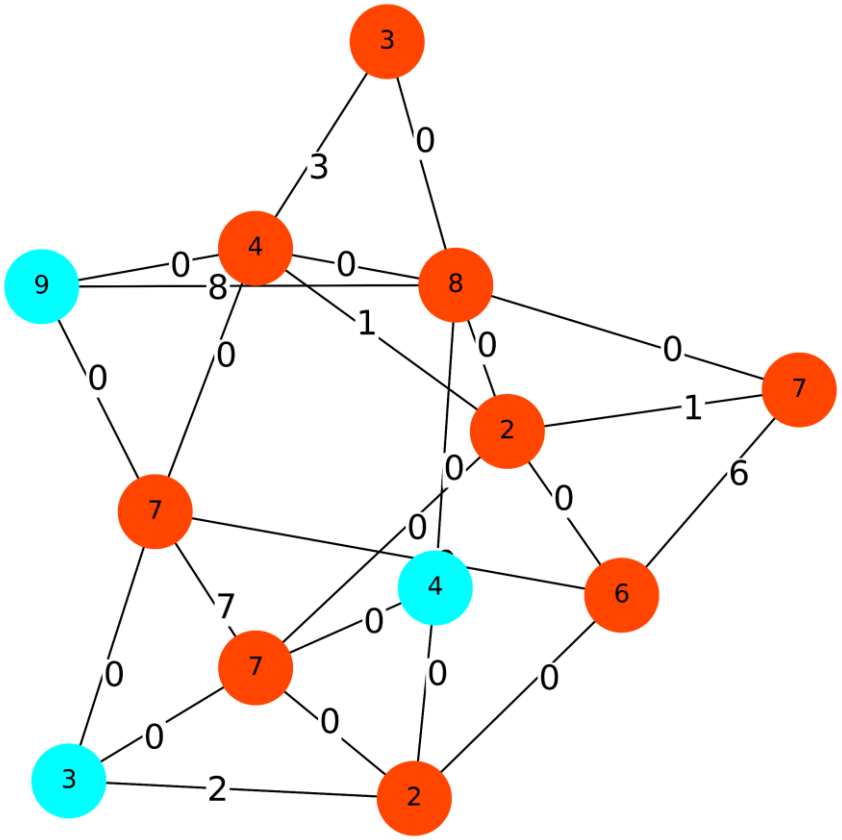


Use the Price Method Algorithm
Cost is 48

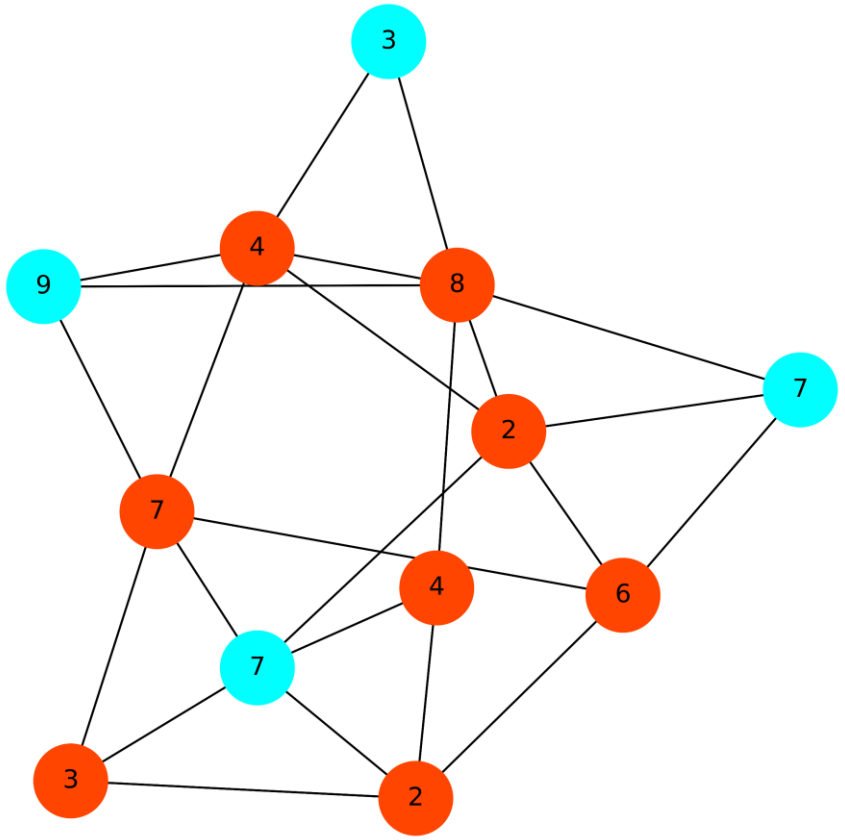


Use the Brute Algorithm
Cost is 24

EXAMPLE 3

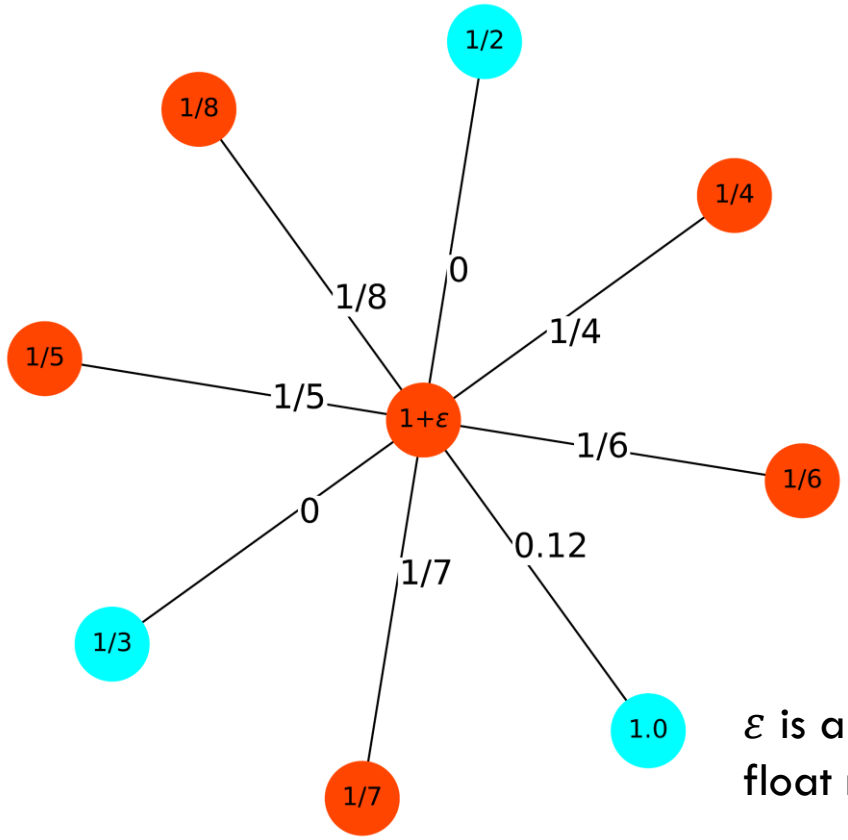


Use the Price Method Algorithm
Cost is 46

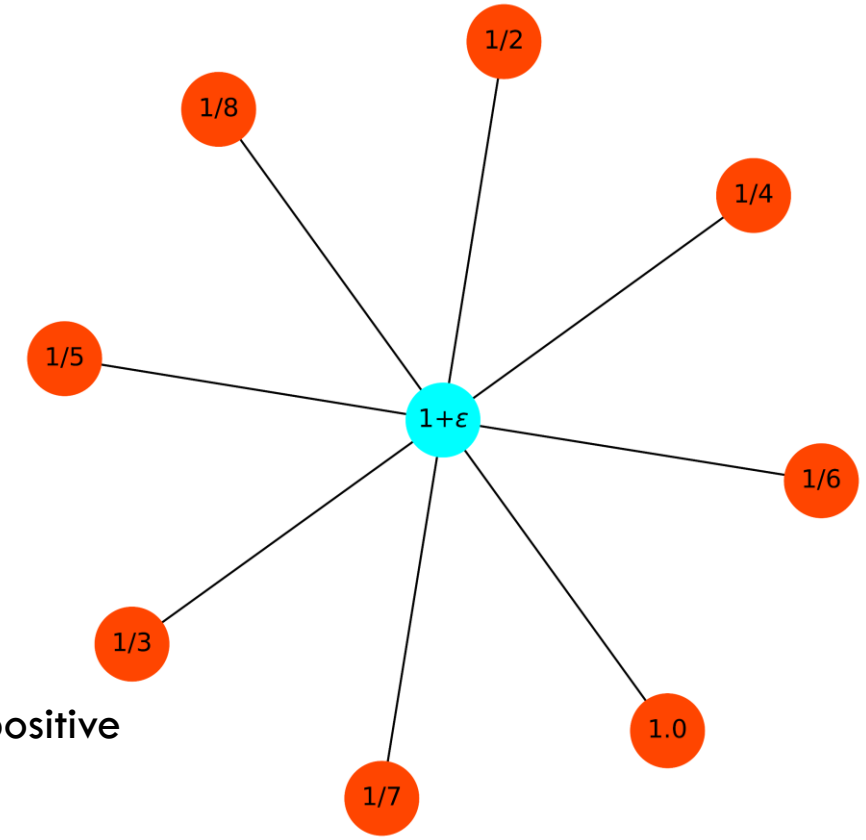


Use the Greedy Set Cover Algorithm
Cost is 36

EXAMPLE 4

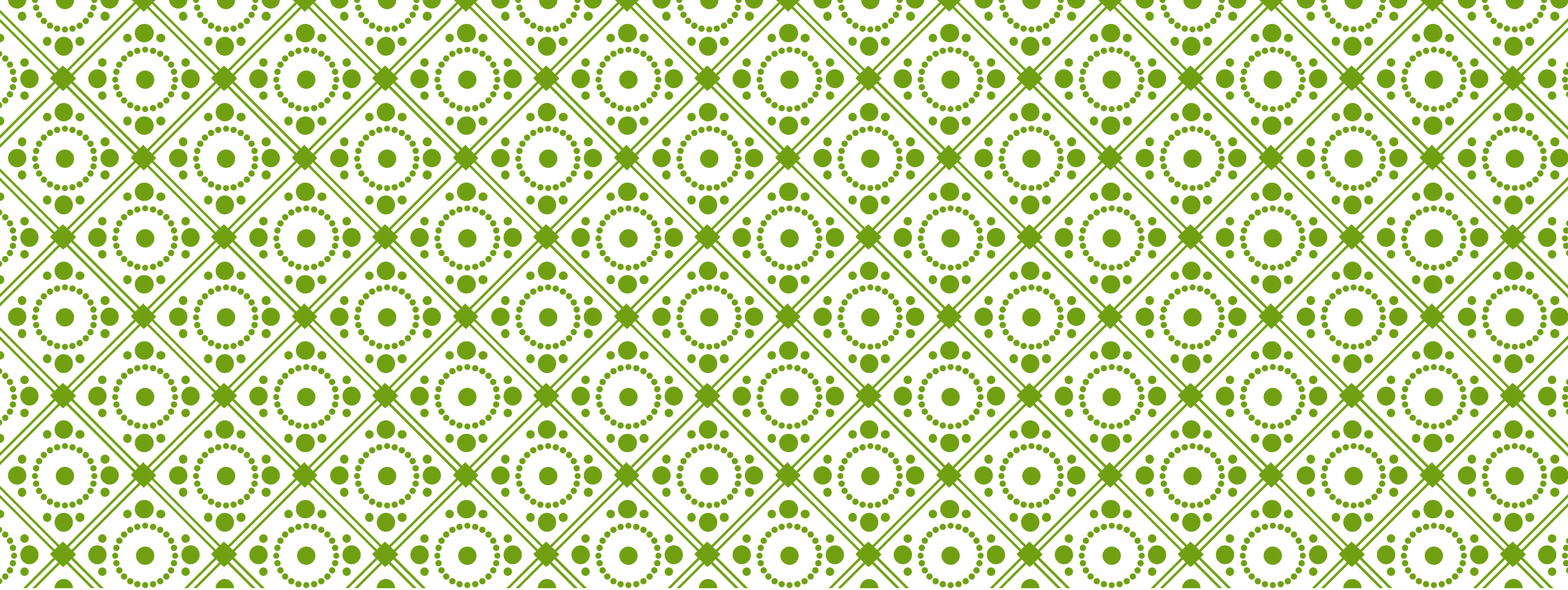


ε is a very small positive float number



Use the Price Method Algorithm
Cost is 1.8845238

Use the Greedy Set Cover Algorithm
Cost is 2.7178571



THANK YOU !

Q&A

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