Hello everyone, I’m Liu Yuxi, come from the department of future network. My undergraduate school is Hebei university of technology. My super advisor is Wang Yi.

In the first exercise, we are asked to give an example to show the dependency of the result S on the order of edges with using pricing method. Here we give an triangle graph. The weight of nodes are 3 4 5. If we choose the order as 1、3、2 we got the total weight as 7, and if we choose the order as 3、2、1. We get the total weight as 9. We can see, we can get the different result with deifferent order of edges.

In the second exercise, we are asked to give an example where a good solution is not obtained by the pricing method. Here is the graph. There are eight node is the marginal with each weight is 1 and the center node’s weight is 8. Using the pricing method. Each edge is 1, so all the vertex is tight. So the total weight is 7 while in the optimal condition, we only need to choose the center node to cover all edges with the total weight is eight which is smaller than the pricing method.

In the third exercise, we need to find an example where the result of greedy method is always better than pricing method. we only change the weight of the center node from 8 to 7. In the pricing method, only one node in the marginal is not tight, so the total weight is 14, and int the greedy method, we only need to choose the center node which lead to the total weight to 7. In this case the weight of greedy method is always less than pricing method.

In the exercise four, we need to need to find an example where the result of pricing method is always better than greedy method. In our example, there are two center vertexes and each vertex connect to 13 marginal vertexes which weight from 1/14 to 1/2. (one-fourteen to one half). In the greedy method, we first need to select one-fourteen vertexes then one-thirteen until to one-half. We get the S(G) is 4.36, G denotes greedy method. And we get easily find the optimal solution by selecting the center vertexes. And we get the w(S\*) is 2.02. Here is a general case of this example using pricing method. First we calculate the pe between this and this vertex and then calculate this and this and so on. Finally we get the total weight is 3.69. Although this case is not the worst case, we can calculate this and this edge to get worse weight in the step five and six. As we all know, the total weight of pricing method is always smaller than double .w(S\*). And in the last page, we calculate the w(S\*) is 2.02. All in all, the weight of pricing method is less than 4.04, and always smaller than w( which is 4.36.

That’s all, any question?