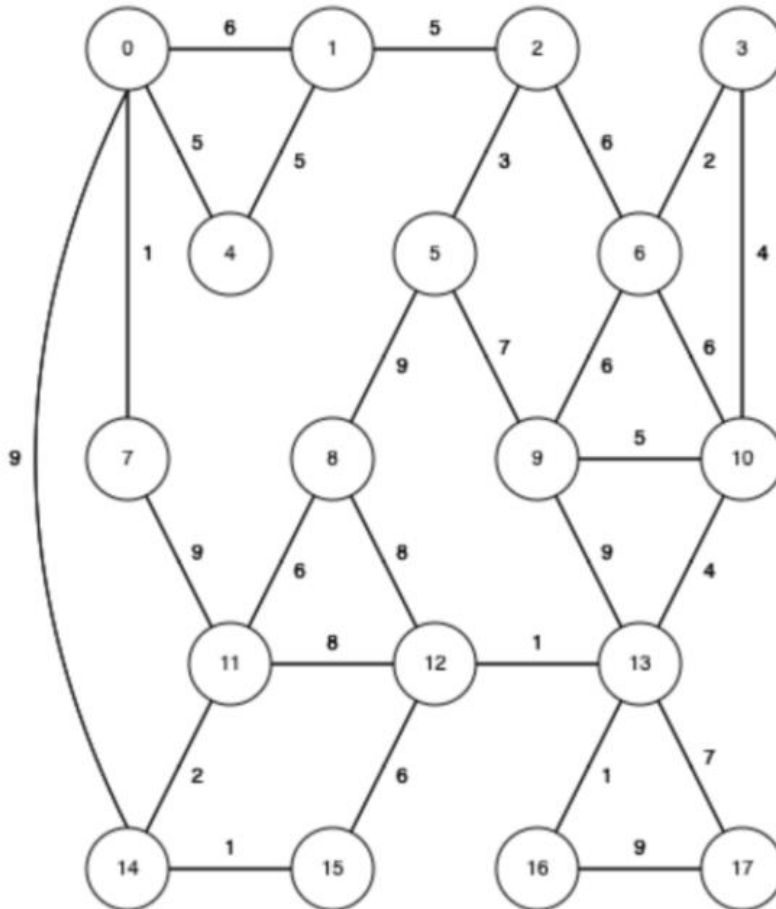# 20125038 -Lê Nguyễn Quang Minh

3.2. Assignment 2 – Paper Assignment – MST

1. Find the minimum spanning tree using Prim's algorithm. Write down total weight, list of edges and draw the tree.

-{0}, take edge 0-7 with weight 1
- {0, 7}, take edge 0-4 with weight 5
- {0, 4, 7}, take edge 4-1 with weight 5
- {0, 1, 4, 7}, take edge 1-2 with weight 5
- {0, 1, 2, 4, 7}, take edge 2-5 with eight 3
- {0, 1, 2, 4, 5, 7}, take edge 2-6 with weight 6
- {0, 1, 2, 4, 5, 6, 7}, take edge 6-3 with weight 2
- {0, 1, 2, 3, 4, 5, 6, 7}, take edge 3-10 with weight 4
- {0, 1, 2, 3, 4, 5, 6, 7, 10}, take edge 10-9 with weight 5

- {0, 1, 2, 3, 4, 5, 6, 7, 9, 10}, take edge 10-13 with weight 4
- {0, 1, 2, 3, 4, 5, 6, 7, 9, 10, 13}, take edge 13-12 with weight 1
- {0, 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13}, take edge 13-16 with weight 1
- {0, 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 16}, take edge 12-15 with weight 6
- {0, 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 15, 16}, take edge 15-14 with weight 1
- {0, 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 14, 15, 16}, take edge 14-11 with weight 2
- {0, 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16}, take edge 11-8 with weight 6
- {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16}, take edge 13-17 with weight 7
- {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17}, the tree has been built\

Total weight is 64

2. Find the minimum spanning tree using Kruskal's algorithm. Write down total weight, list of edges and draw the tree

-Take edge {0, 7} with weight 1
- Take edge {12, 13} with weight 1
- Take edge {13, 16} with weight 1
- Take edge {14, 15} with weight 1
- Take edge {3, 6} with weight 2
- Take edge {11, 14} with weight 2
- Take edge {2, 5} with weight 3
- Take edge {3, 10} with weight 4
- Take edge {10, 13} with weight 4
- Take edge {0, 4} with weight 5
- Take edge {1, 4} with weight 5
- Take edge {1, 2} with weight 5
- Take edge {9, 10} with weight 5
- Take edge {2, 6} with weight 6
- Take edge {8, 11} with weight 6
- Take edge {12, 15} with weight 6
- Take edge {13, 17} with weight 7

Total weight is 64