Practice Lessons

Dec. 11 2025

1). Compute the articulation points in a graph

- **Input:** vertex pairs: each line contains two integers specifying two adjacent vertices (undirected graph)
- **Output:** the articulation points in the input graph (separated by space).

Sample Input & Output

- Sample input:

```
0 1
1 2
1 3
2 4
3 5
5 6
5 7
6 7
7 8
7 9
```

- Sample output:

```
1 3 5 7
```

2). Implement the Prim's algorithm

- **Input:**
  - First line: the starting vertex;
  - Second to the last line: vertex pairs: each line contains three integers specifying two adjacent vertices and their edge weight (undirected graph).
- **Output:**
  - the edges in the minimum spanning tree of the input graph (1st line).
  - the cost of minimum spanning tree (2nd line).

Sample Input & Output

- Sample input:

```
0
0 1 4
0 7 8
1 7 11
1 2 8
2 3 7
2 5 4
2 8 2
6 7 1
6 8 6
7 8 7
3 5 14
3 4 9
4 5 10
5 6 2
```

- Sample output:

```
(0 1) (1 2) (2 3) (2 5) (2 8) (3 4) (5 6) (6 7)
37
```