Data Structure Assignment 7

Programming Homework 1

Write a C/C++ program that allows the user to input a weighted undirected graph and then configure a *minimum cost spanning tree* on it using **Sollin's algorithm**. (You'll get no point if you don't implement the system with Sollin's algorithm)

Input

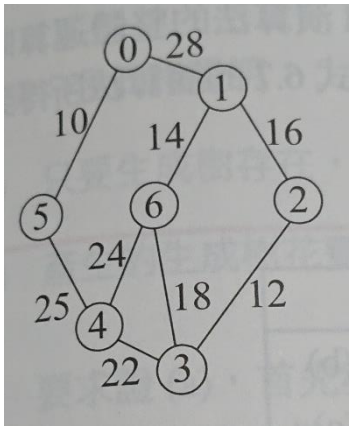
The input consists of several lines. The first line contains an integer number ***N*** (< 100) indicating the number of the edges of the graph. The following ***N*** lines indicate the edges. Each of these ***N*** lines consists of three integer numbers, representing with the two endpoints and the weight of the edge, respectively.

Output

Print out each of the edges of the minimum cost spanning tree configured on the input graph, representing with the two endpoints and the weight of the edge, respectively.

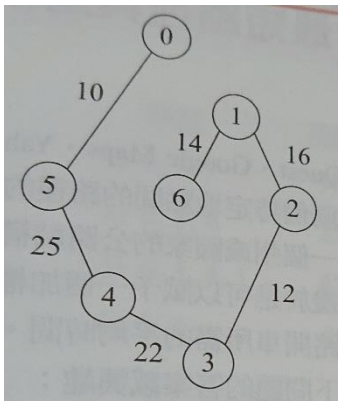
Sample Input

9
0 1 28
0 5 10
1 2 16
1 6 14
2 3 12
3 4 22
3 6 18
4 5 25
4 6 24



Sample Output

1 2 16
1 6 14
2 3 12
3 4 22
4 5 25
0 5 10



Programming Homework 2

Write a C/C++ program that allows the user to input an AOE network. The program should calculate and output the early(i) and late(i) times and the degree of criticality for each activity.

Input

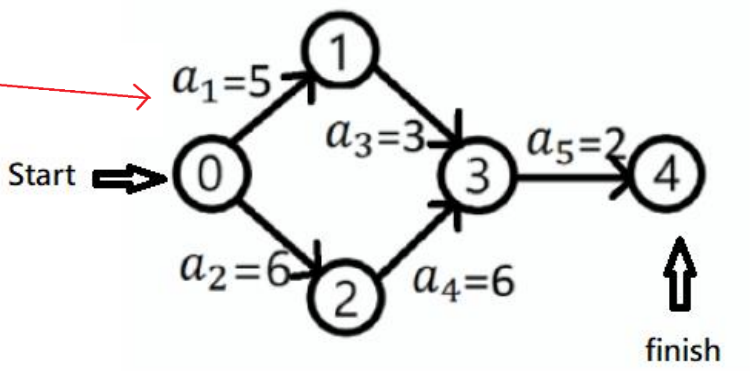
The input consists of several lines. The first line contains an integer number ***N*** (< 100) indicating the number of activities. The following ***N*** lines are the information of activities. Each of these ***N*** lines consists of four integer numbers, representing the activity No., the start vertex of activity, the end vertex of activity and the duration of activity.

Output

Print out each activity's ***act.***(activity No.), ***e***(early time), ***l***(late time), ***slack***(l - e), and ***critical***(l – e = 0 -> Yes, l – e != 0 -> No).

Sample Input

5
1 0 1 5
2 0 2 6
3 1 3 3
4 2 3 6
5 3 4 2

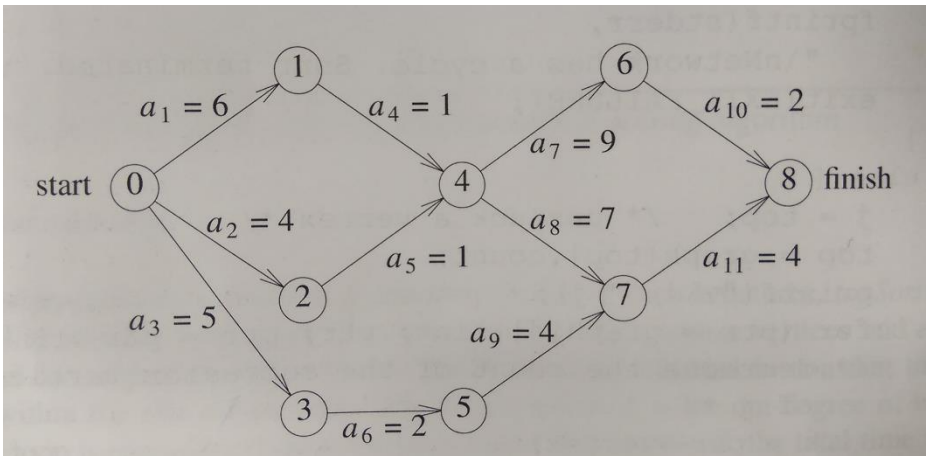


Sample Output

act.	e	l	slack	critical
1	0	4	4	No
2	0	0	0	Yes
3	5	9	4	No
4	6	6	0	Yes
5	12	12	0	Yes

Sample Input

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



Sample Output

act.	e	l	slack	critical
1	0	0	0	Yes
2	0	2	2	No
3	0	3	3	No
4	6	6	0	Yes
5	4	6	2	No
6	5	8	3	No
7	7	7	0	Yes
8	7	7	0	Yes
9	7	10	3	No
10	16	16	0	Yes
11	14	14	0	Yes

General Information:

- Deadline : 2019/1/9 23:55.
- Upload your assignment to Moodle system.
- Upload file format : “student-ID_Name.rar” or “student-ID_Name.zip, Ex. F12345678_王小明.rar
- Your file should consist of the following items : Source Code & Readme file(Program description)
- Late homework will not be accepted.
- Any copies will be scored as zero. Do not plagiarize.