Lab3 – Travel around the world
Deadline: 2023/01/05

Objective:
Understand how to solve the graph problem in efficient ways.

Question:
Timmy is a traveler, and he loves to discover the world with his eyes. He has a goal recently, which is he wants to have a train trip in Europe. He wants to visit the city in England and France, and each city goes there exactly once. **The trip must be ended at the starting place**. Now, give you a map of the route of train between each city and the time needs to spend between each city. Also, his friend, Ru, told him that he needs to schedule the trip carefully in order to spend less time. Could you help Timmy whether it is possible to make this trip successfully?

Input format:
For each case, the first line has 2 numbers n, m, which means that there are n cities and m railways connected between each other.
The next n lines mean each line contains 3 numbers a, b, c. It means that there is a bidirectional rail between a and b, and the cost is c.

Output format:
Return “Yes” or “No” if it is possible to do that.
In addition, you need to print out the path and the spending time if it is possible to finish the task. Your score will be evaluated by the correctness and the cost. The smaller cost means a better score.

Constraint:
$1 \leq \mathrm{n} \leq 500$
$1 \leq \mathrm{m} \leq 120000$

Sample input 1:

```
5 5
0 1 3
1 2 2
2 3 1
3 4 4
4 0 2
```

Sample output 1:

Yes
Path: 0 1 2 3 4 0
Cost: 12

Sample input 2:

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

Sample output 2:

No

Submission:

You need to upload your .zip file to New E3 before the deadline, the following is the submission rule:

1. Source code (.cpp), **just ONE source file!**
2. Simple report to briefly describe your way and time complexity analysis in your report.

3. The naming rule, all the files in the .zip file:
   <student_id>.zip
   - <student_id>.cpp
   - <student_id>.pdf

Notice:

1. You need to check that your code can be run on Linux environment (-10%, and explain how to run the program to TA).
2. Do not print anything on the terminal. (-5%)
3. You MUST write your own code!
4. 10% penalty for late submission for the first four days (including holidays), and it will not be accepted afterwards.
5. Time limitation is 60 seconds. It means that if you over 60 seconds, the case would be marked fail (get 0 point).

Evaluation:

1. Compile procedure: g++ -std=c++11 <student_ID>.cpp -o Lab3
2. Execution procedure: ./Lab3 [input] [output]
3. Naming mistake will be 5% deduction per file
4. Grading
   - Case (x8), 4 cases and 4 hidden cases. The grade will concern about your rank of cost, which means the smaller cost would get better score.
     Each case: 11%
   - Report: 12%, NO more than 2 pages. English or Chinese is accepted.