CS2002301 & EC2002302 Data Structures

Homework #4

Due Date: 2021/1/11 10:20

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Announcements

1. This assignment is weighed 10 points.

2. Submit your code to the OJ system (http://nlp.csie.ntust.edu.tw:2020/).

3. Also, submit a report in **PDF** format to the Moodle system

   (please attach your source code in the report)

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1. (5pt) Shortest Path

   Given **m** cities and **n** one-way directed paths with cost, please perform the following operations:

   (1) find the shortest path from cities **A** to **B** (among m cities) .

   (2) print the total cost.

   For example, if we want to find the shortest path from city "1" to city "2".
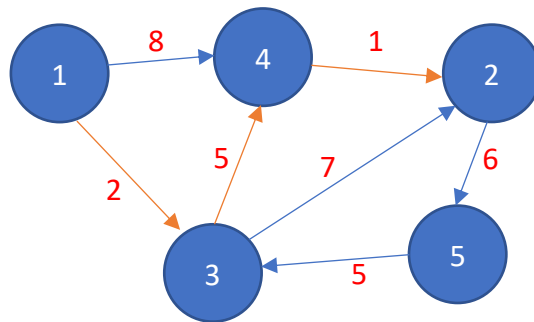
   shortest path: 1 -> 3 -> 4 -> 2

   total cost: 8

   * Sample I/O and input constraints are showed on OJ system.
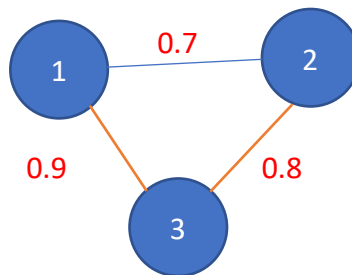
   * In this problem, there are no hidden cases.

2. **(5pt) Path with maximum Probability**
   Given **n** paths with probability, please perform the following operations:
   (1) implement **Kruskal's Algorithm** to find the MST with maximum probability to go from node A to node B, and print the probability.
   (2) if there is an available path but the total probability is below 0.05, print 0.

   For example:

   the probability of the path: 0.9*0.8=0.72

   * Sample I/O and input constraints are showed on OJ system.
   * In this problem, there are no hidden cases.