

CS-205, Assignment –X

Assignment Date: 23/10/2017

Submission Deadline: 01/11/2017

- A. In an institute, students have accounts in a server for executing their programs. A student can allow other student to access his/her account on behalf of him/her. If a student say X allows student Y for access his account and Y allows Z to access his account then Z can access Y's account as well as X's account. X allows Y to access his/her account only if distance between Y and X is less than a predefined threshold distance say d (will be taken as user input) and $|Y| > |X|$ while $|X| = \sum \text{ascii}(x_i)$ (for example if $X = \text{"SOUMI"}$ $|X| = \text{ascii('S')} + \text{ascii('O')} + \text{ascii('U')} + \text{ascii('M')} + \text{ascii('I')}$). Distance of X and Y d_{xy} is the shortest path distance between node X and Y in the graph formed in following way. Every name is having exactly 5 characters and they represent a node in the graph. There will be an edge between two names (words) when 4 position matches out of 5. For example there will be an edge between following pair of words.

graph grape

grape grace

grace brace

brace brane

brane brand

Weight of an edge between two words (say $A = \{a_1, a_2, a_3, a_4, a_5\}$ and $B = \{b_1, b_2, b_3, b_4, b_5\}$) is defined as $d_{AB} = \sum |a_i - b_i|$ for $i = 1, 2, 3, 4, 5$. Cost between two words is defined as the cost of shortest path between two words. For a given set of names find out who would be able to access whose account. A sample input set is available [here](#).

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- B. Australia Cricket team is on a tour of India for 8 matches. Initially the matches were planned to be held at following cricket stadium in following order by BCCI. (First match at chennai, second match at kolkata and so on.)

Match	Stadium
1	MA Chidambaram Stadium, Chennai
2	Eden Gardens, Kolkata

3	Holkar Cricket Stadium, Indore
4	M.Chinnaswamy Stadium, Bengaluru
5	Vidarbha Cricket Association Ground, Nagpur
6	JSCA International Stadium Complex, Ranchi
7	Barsapara Cricket Stadium, Guwahati
8	Rajiv Gandhi International Stadium, Hyderabad

However, later they changed their plan to make the schedule in most economical way. A way will be called most economical if it requires least travel. Write an efficient C program to help BCCI to make the schedule for 8 matches. Take distance between any two cities from Google map (air distance round off by 100 km).

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