Data Structures and Algorithms

Graphs Case Study

Subject Code: 19ECSC201 **Semester:** III

Date: 05 Nov 2019 **Division:** C

Question: New Year Celebrations Invitation

Objective: Usage of appropriate data structures and algorithms in Designing a graph problem

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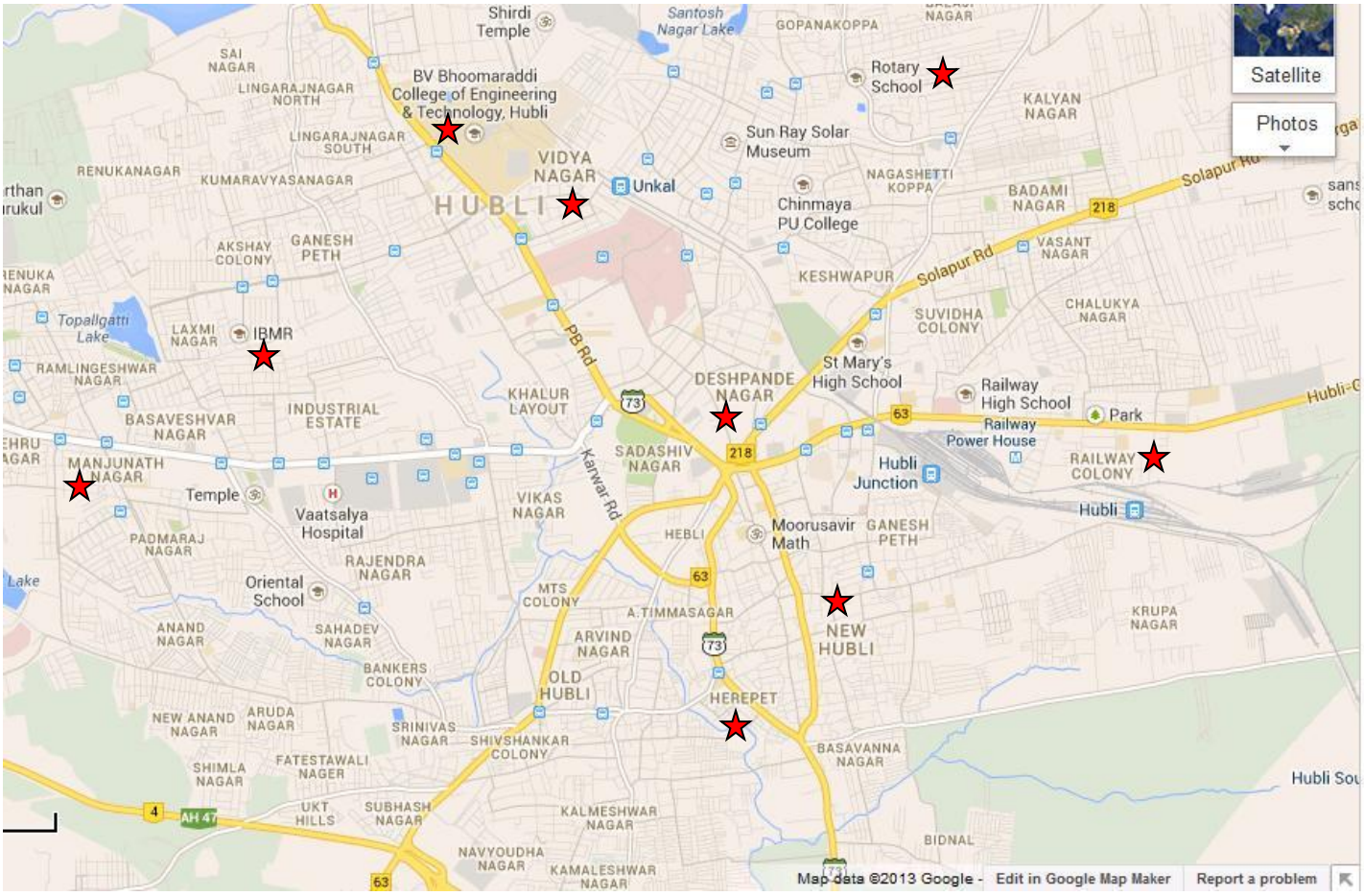
Ell is excited to call her friends for the New Year celebrations in her start-up which is also about to complete one year. There is still more than a month left, but definitely calls for a proper plan. Its anniversary plus a new-year celebration.

The first phase of the plan is to list out all her friends, make a travel plan to visit them for the invitation. No calls, no messages. Ell wants to keep it a personal invitation. She has noted down the places to visit and here they go as seen on google maps! (Marked in red star)



Well, that's too many places to visit. Her friend helped to approximate petrol charges that would incur to below mentioned sources and destination:

Source	Destination	Auto Cost
BVBCET	Rotary School	60
BVBCET	Vidyanagar	20
BVBCET	IBMR	100
Rotary School	Vidyanagar	40
Vidyanagar	IBMR	60
Vidyanagar	Deshpande Nagar	70
Rotary School	Deshpande Nagar	80
IBMR	Deshpande Nagar	80
IBMR	Manjunath Nagar	40
Manjunath Nagar	Herepeth	110
IBMR	Herepeth	130
Herepeth	New Hubli	40
Deshpande Nagar	New Hubli	90
Deshpande Nagar	Railway Colony	80
New Hubli	Railway Colony	130

The destinations are known and costs are available and the connection is bi-directional. Help Ell in deciding the proper order of visit. Ell wants to start the journey from BVBCET (Of-course, now known as KLE TECH).

Give Ell the proper order of visit along with the total cost that will be incurred. Your design objective has to be to minimize the cost to Ell. Note that Ell can always come back and restart the journey from any place, where coming back has the same cost as going.

P.S. Sometimes it's the simple problems that come with the most complex solution!

**** Happy Designing ****