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Project

Algorithm Design

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Capacitated Facility Location Problem

- Suppose there are n facilities and m customers. We wish to choose:
- (1) which of the n facilities to open
- (2) the assignment of customers to facilities
- The objective is to minimize the sum of the opening cost and the assignment cost.
- The total demand assigned to a facility must not exceed its capacity.

Problem Instance

<i>n: No. Facility</i>	10	50											<i>m: No. Customer</i>	
	258	366												
	128	314												
	296	504												
	225	504												
	310	580												
<i>Capacity</i>	373	415											<i>Opening cost</i>	
	329	456												
	179	549												
	114	310												
	321	316												
			49.	29.	23.	40.	18.	17.	48.	13.	15.	31.	<i>demand of customer i</i>	
			16.	31.	14.	44.	23.	39.	33.	45.	40.	43.		
			38.	26.	47.	34.	24.	32.	28.	26.	20.	13.		
			27.	22.	14.	42.	31.	37.	45.	20.	38.	21.		
			25.	13.	19.	42.	10.	21.	37.	27.	17.	49.		
			260.	239.	418.	557.	346.	161.	288.	568.	379.	392.	<i>Assignment cost</i>	

Submission

- Complete at least two algorithms to solve the problem.
- Obtain the results for 71 benchmark instances.
- Update your blog with the following:
 - A report of your solution framework
 - Your program with comments
 - Result table

	Result	Time(s)
p1		
p2		
...		
p71		

- Detailed solution for each instance in 3 lines

1234	←	Result
0 1 0 1 0 0 1 1 0 1	←	Status of facilities. 1: open, 0: closed
1 3 6 7 9 ...	←	The assignment of customers to facilities

Deadline

- Dec. 23

Thank you!

