Assignment 8

Design and Analysis of Algorithms

The[1] CLRS-textbook notation is used in the following problems. Read Chapters 16 and 17.

Problem 1: (10 points) This problem is on activity selection. We list the activities sorted in monotonically increasing order of finish times.

i	1	2	3	4	5	6	7	8	9
s_i	1	2	4	1	5	8	9	11	13
f_i	3	5	7	8	9	10	11	14	16

Determine a maximum-size mutually compatible set. Is it the only maximum-size mutually compatible set? If yes, then determine the second maximum-size mutually compatible set.

Problem 2: (10 points) This problem is on fractional knapsack. We have 6 items. The weight and benefit of each item is listed below.

i	1	2	3	4	5
weight (mgm)	5	10	8	6	2
value ($)	15	20	40	24	50

The knapsack can hold weight of at most 20 mgm. Select items with the maximum total benefit.

Problem 3: (20 points) The following problems are from *Introduction to Algorithms*, by CLRS. If the solution of a problem is posted publicly, then understand it and copy.

Points	Second Edition	Third Edition
10	Page 410: 17.1-3	Page 456: 17.1-3
10	Page 412: 17.2-2	Page 459: 17.2-2

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