ECSE210L: Design and Analysis of Algorithms

Tutorial 7 (Week 7: February, 17 - 21, 2020)

Instructors: **Shakti Sharma and Raghunath Reddy M**

(**Q1**) In the following, we are given instances of weighted interval selection / activity schedule problem. Every interval/activity has starting and ending points (start time and end time) and further every interval/activity has a value associated with it. Find a set S of disjoint intervals/activities such that the total value of intervals/activities in S is maximum.

a)

Interval/activity	a	b	c	d	e	f
Start point	0	1	5	2	8	9
End point	4	6	7	10	11	12
Value	2	4	4	7	2	1

b)

Interval/activity	a	b	c	d	e	f	g	h
Start point	0	1	3	3	4	5	6	8
End point	6	4	5	8	7	9	10	11
Value	2	1	1	3	4	1	1	2

(**Q2**) Find an optimal solution for each of the following instances of the 0-1 Knapsack problem.

a) Take the size and profit as in the following table. Further, Knapsack size is 8.

Item	A	B	C	D	E	F
Profit	7	8	14	5	10	15
Size	2	1	5	2	4	3

b) Take the size and profit as in the following table. Further, Knapsack size is 12.

Item	A	B	C	D	E
Profit	24	13	23	15	16
Size	5	6	4	8	7