Greedy Algorithm

Activity Selection Problem

There are n different activity given with their start time and end time.

Select maximum number of activities that can be solved by a single person.

(1) Sort the activity with their ending time.

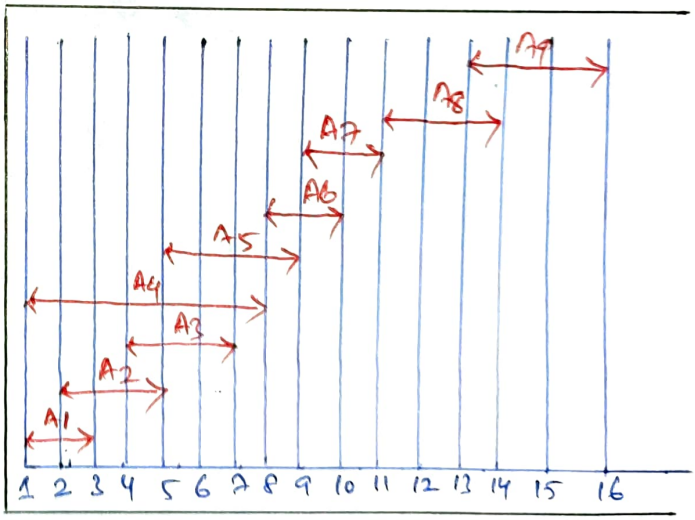
(2) Find compatible activity and add to list.

Ex

	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9
S_i	1	2	4	1	5	8	9	11	13
F_i	3	5	7	8	9	10	11	14	16

Soln Sort the activity with their end time.

$A = \{A_1, A_3, A_6, A_8\}$ ← optimal solution.

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Greedy-Activity(S, F)
1. n ← length(S)
2. A ← {1}
3. j ← 1
4. for i ← 2 to n
5.     do if Si ≥ Sj
6.         then A ← A ∪ {i}
7.              j ← i
8. return A.
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Que $S = \{A_1, A_2, A_3, A_4, A_5, A_6, A_7, A_8, A_9, A_{10}\}$ (AKTU 2020-21)

$Si = \{1, 2, 3, 4, 7, 8, 9, 9, 11, 12\}$

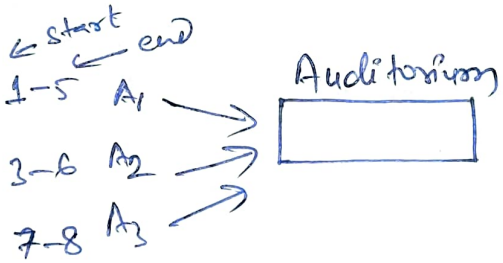
$Fi = \{3, 5, 4, 7, 10, 9, 11, 13, 12, 14\}$

Soln: Sort the activity with their ending time.

	A_1	A_3	A_2	A_4	A_6	A_5	A_7	A_9	A_8	A_{10}
Si	1	3	2	4	8	7	9	11	9	12
Fi	3	4	5	7	9	10	11	12	13	14

$A = \{A_1, A_3, A_4, A_6, A_7, A_9, A_{10}\}$

Note: It is the problem of scheduling several activities that require exclusive use of a common resource, with a goal of selecting a maximum size set of mutually compatible activities.



only two activities (A_1 and A_3) can be performed.