

② Activity Selection Problem:-

In Given activities with Start and finish time select the max. no. of activities that can be performed by a single person assuming that a person ~~as~~ can only work on a single activity at a time.

Greed - Activity Selection(s, f) {

$N = \text{length}[s];$

$A = \{1\}$

$j = 1$

for $i = 2$ to n

Do if $s_i \geq f_j$

Then $A = A \cup \{i\}$

$j = i$

return A ;

}

Steps to solve the problem

- 1) Sort the activities as per finishing time in ascending order.
- 2) Select the first activity.
- 3) Selection of the new activity of its starting time is greater than or equal to the previously selected activity and finish time.

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Date: / /
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Activity :	a1	a2	a3	a4	a5	a6	a7	a8
start :	1	0	1	4	2	5	3	4
finish :	3	4	2	6	9	8	5	5

Step 1:

Activity :	a3	a1	a2	a7	a8	a4	a6	a7
start :	1	1	0	3	4	4	5	2
finish :	2	3	4	5	5	6	8	9

Step 2: prev = i, Next = j

Start time (j) \geq finish time (i)
if yes. select (j)

select activity : a3

$$1 > 2 \times$$

$$0 > 2 \times$$

$$3 > 2 \checkmark (a7)$$

selected activity : a3, a7

$$4 > 5 \times$$

$$4 > 5 \times$$

$$5 > 5 \checkmark (a6)$$

Selected activities are : a3, a7, a6

$$2 > 8 \times$$

Answer: a3 a7 a6

If given activity in sorted order of finish time

$$\Rightarrow T(n) = O(n)$$

if not then, $T(n) = O(n \log n)$.