**ACTIVITY SELECTION PROBLEM**

**IPS-6**

A activity selection problem is one in which there are several competing activities that require exclusive use of a common resource. Goal of the problem is to Select a maximum-size set of mutually compatible activities. Given a set S of ‘n’ proposed activities S = {a1, a2,...,an} and we wish to use a resource, such as a lecture hall, which can serve only one activity at a time, select a subset of S with maximum length and that can exclusively use the resource. Each activity ai has a start time s i and a finish time fi, where

0 ≤ si < fi < ∞. Each activity ai takes place during the

half-open time interval [si, fi). Activities ai and aj are compatible if the intervals [si, fi) and [sj , fj) do not overlap. That is, ai and aj are compatible if si ≥ fj or sj ≥ fi.

1. Given a set ‘S’ of ‘n’ activities, implement the recursive greedy algorithm to select a subset of activities from S by selecting the task that finishes first.
2. Given a set ‘S’ of ‘n’ activities, implement the iterative

greedy algorithm to select a subset of activities from S by selecting the task that finishes first.

1. Given a set ‘S’ of ‘n’ activities, implement the recursive greedy algorithm that uses a priority queue to select a subset of activities from S by selecting the task that finishes first.
2. Given a set ‘S’ of ‘n’ activities, implement the iterative greedy algorithm that uses a priority queue to select a subset of activities from S by selecting the task that finishes first.
3. Given a set ‘S’ of ‘n’ activities, implement the recursive greedy algorithm that uses a priority queue to select a subset of activities from S by selecting the task that starts last.
4. Given a set ‘S’ of ‘n’ activities, implement the iterative greedy algorithm that uses a priority queue to select a subset of activities from S by selecting the task that starts last.