

Z5188675 Zijian Yue

Q5.

1. Store t_i, g_i, l of all the jobs in the form of (t_i, g_i, i) into an array of A of size n.
2. Sort array A into increasing order of g_i (profit) using $n \log(n)$ sorting method.
3. Allocate an array output of size $\{\max t_i \text{ from A}\}$, and init all the elements from output array to be -1.
4. Having n iterations where n is the total number of jobs (counter will be used to indicate current number of iteration).
 - 4.1 For job A[counter], try to find an empty time slot from A[counter]. t_i (index) {deadline} to 0 (index) {starting time} in array output, if there is an empty slot then assign the l of the job to the empty slot (the empty slot are slots with value -1 in the output array)
5. return array of output.

Time complexity: $n \log(n)$ {sort the array} + $2 * n$ {allocate the output array} + n^2 {main algo}

-----> $O(n^2)$ overall.