

COMP3121 21T2 Assignment 2 Q5

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In order to maximise the total profit, n jobs need to be sorted into array A based on its profit in descending order by using merge sort with time complexity of $O(n \log n)$. Examine the job within the array A one by one from the job which can provides most profit to least profit. Schedule the current job into the time slot, which is the latest time slot before due time. If this time slot has been occupied, then schedule the job into one slot before the most optimal time slot, repeat the process until there is an available time slot, move to next job if there is no any available time slot. In the worst case scenario, examine the availability of time slots within a for loop will cost $O(n^2)$.

Overall this algorithm can find a schedule with maximised profit with time complexity of $O(n^2)$.