2.

Keep the B as busy as possible since the time to finish A is fixed

We want to do the task in decreasing order of the time needed for computer finish the second part

Let Tbi denote the time needed for computer B to finish the bi

First we define an inversion that task with a lower Tbi is done before the task with higher Tbi

Then we need to proof that the optimal solution has no inversion

Since B could do any amount of tasks at same time, for task with higher Tbi means that the finish time of it will be earlier than before. Moving the task with lower Tbi means the starting of bi being processed will be delayed

Describe the algorithm

Generalize the proof:

Define inversion

Remove inversion without increasing the completion time

Proof1

Proof2

Question 5 Heap:

Total of m students and n colleges

Set pointers into all n arrays to the second element of the array CP(j) = 2 for j = 1 to n

S = Extract\_min(H) 取出n个college里在heap里的最小数

CombinedSort (i) = S.GPA 按顺序存入

j = S. college\_ID 被取出的那个学校的序列为j

Insert element at CP(j) from college j into the heap 把j学校的学生放入heap

Increment CP(j) j学校的指针往右加1