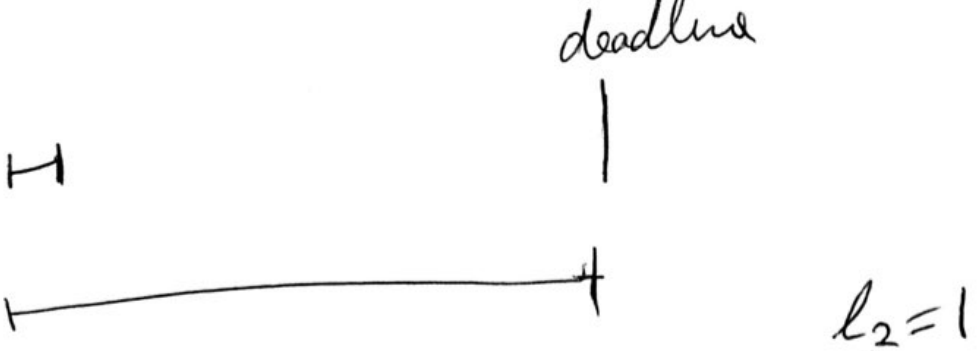
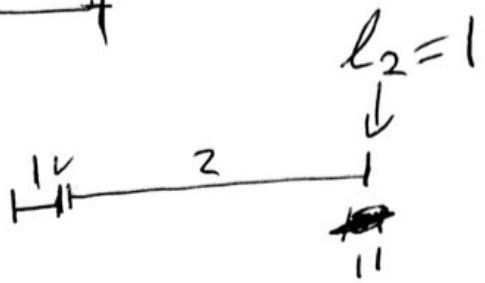
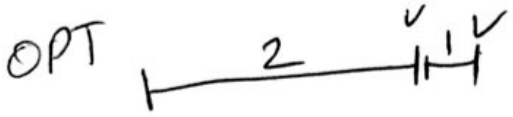
Homework Due Friday before class
4:40

Lecture on Friday cancelled.




| | 1 | 2 |
|---|---|---|
| $t_i$ | 1 | 10 |
| $d_i$ | 100 | 10 |

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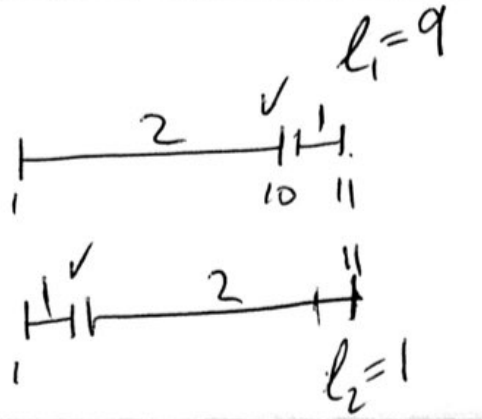
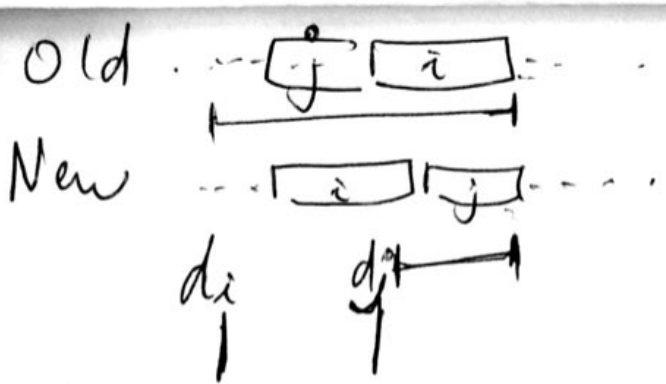
| | 1 | 2 |
|---|---|---|
| $t_i$ | 1 | 10 |
| $d_i$ | 2 | 10 |



Theorem: Greedy is optimal.

- Let $S^*$ be an optimal solution that has the fewest number of inversions
- Let $S$ be the greedy solution
- If $S^*$ has $0$ inversions, then $S = S^*$ and therefore Greedy is optimal.
- Otherwise.
  - Let $i$ and $j$ be an adjacent/consecutive inversion
  - Swapping $i$ and $j$ does not increase the max lateness but decreases the number of inversions

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- This "swapped" schedule is also opt but has less inversions than $S^*$.
- Contradicts the fact that $S^*$ was the optimal solution w/ the fewest inversions