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Report: Greedy Approach Assignment Date:20.05.2023
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1. Introduction: This report is prepared to explain Greedy Approach assignment of Algorithm Analysis lecture (CME2204) in Dokuz Eylül University to lecturers. Homework mainly aims optimal solution (Dynamic programming) for given problem.

2. Project Description: Promoting specific number of players in demanded years to have approximately minimum total plan cost.

3.Completed Parts: I have used n+1 sized array (where n is year) to hold plan. And one integer variable to hold total cost according to the plan. My algorithm is based on checking the current year only and not excess the demanded number of player. By doing that program sums cumulative cost for each year.

4. Uncompleted Parts: All the objectives are succesfully completed. There is nothing uncompleted.

5.Runtime Complexity: T(n) = n-1 = O(n)
where n is the year.

6.Space Complexity: Space complexity of Greedy calculation is O(1).

7.**Comparison with Dynamic Programming Approach**:

Runtime:
Greedy : O(n)
DP: O(n*j^2)
J is the maximum excess number of players from the demand of a year (We can find this number by checking the given player.salary.txt length).

Space Complexity:
Greedy: O(1)
DP: O(n*j)
where n is the year we planning, and J is the maximum excess number of players from the demand of a year (We can find this number by checking the given player.salary.txt length).

Accuracy in estimating:
While the Greedy approach is not calculating over-train cases, DP does. Hence, greedy is not accurate in estimating the total minimum cost compared to DP.

Which one is best in our case:
Answer: We have to avoid a Greedy Approach in this problem. While dynamic programming calculates every possibility in an excess number of cumulative minimum cost calculations Greedy approach's aim is to end each year with minimum cost. We have to avoid a Greedy approach to this problem. Because we need total minimum cost. To find total minimum at the end of the planned year, sometimes we need to exceed the number of demands.

8. **References**:

Rsch.Asst. Ali Cüvitoğlu
https://debis.deu.edu.tr/akademiktr/index.php?cat=3&akod=20160304