Quiz - Backtracking and Greedy Algorithms

Due Apr 30 at 11:59pm **Points** 10 **Questions** 6
Available until Apr 30 at 11:59pm **Time Limit** None **Allowed Attempts** 2

Instructions

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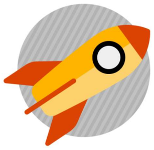

This quiz will test your understanding of the material covered so far this week (**MLOs**).

This is an online quiz. There will be no time limit to the quiz. You can attempt the quiz twice and the best of the scores will be retained. This is open notes and open internet quiz but refrain from discussing with anybody during the exam.

Note that this test cannot be taken past the due date for any credit.

This quiz is worth 10 points.
Due Friday at Midnight (PST).

You can view the correct answers here post due date.

Take the Quiz Again

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	8 minutes	7 out of 10

▶

ⓘ Correct answers will be available on May 1 at 12am.

Score for this attempt: **7** out of 10
Submitted Apr 30 at 2:37pm
This attempt took 8 minutes.

Question 1

1 / 1 pts

What makes the solution for the ‘Activity Selection Problem’ that we implemented in the exploration, a greedy approach?

○ It has optimal substructure

● We make a best available choice in each iteration and we never look back

○ It is similar to Dynamic Programming algorithm

○ It satisfies greedy property

Question 2

3 / 3 pts

Pick the statements which are True.

☑ Greedy algorithms are efficient compared to dynamic programming algorithms

□ Greedy algorithms would always return an optimal solution

☑ Dynamic programming technique would always return an optimal solution

☑ A greedy algorithm is hard to design sometimes as it is difficult to find the best greedy approach

Incorrect

Question 3

0 / 1 pts

All possible greedy algorithms, at each step, choose what they know is going to lead to an optimal solution for the general problem.

○ True

● False

Question 4

1 / 1 pts

Can 0/1 knapsack problem be solved using the Greedy algorithm technique to obtain an optimum solution to fill the knapsack?

0/1 knapsack problem (This is the problem that we saw in the previous modules) When have n items and their values given. We are provided with a knapsack of capacity X. We have only one copy of each item. We need to maximize the value of our knapsack with items that we pick.

○ True

● False

Greedy solution might not give us an optimal solution.

Partial

Question 5

1 / 3 pts

Fill in the below pseudocode for activity selection problem using the greedy approach. The function returns the count of the maximum number of activities that can be selected.

```
activitySelection(activities):
    sortBasedonEndTime(activities) # uses quick sort to sort the activities
    for activity in activities:
        if currendEndTime <= activity.startTime:
            result = result + 1 ⌄
            currentEndTime = activity.endTime
    return result
```

Time complexity for the pseudocode will be

O(n^2) ⌄

Answer 1:

result.append(activity)

Answer 2:

currentEndTime = activity.endTime

Answer 3:

O(n)

Quick sort has worst case of O(n^2) time complexity

Question 6

1 / 1 pts

The asymptotic runtime of the solution for the combination sum problem that was discussed in the exploration is ____________.

○ Logarithmic

● Exponential

○ Linear

○ N Factorial

Quiz Score: **7** out of 10