Date : 22th - 09 - 2020
Morning Session : 9am – 11.00 PM
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Topics: RECURSION Problems & BACKTRACKING

Recursion Problems Explanation please go through Record Lecture

Lecture Link

Backtracking: Backtracking is a form or recursion.The usual scenario is that you are faced with a number or options, and you must choose one or these. After you make your choice you will get a new set of options; just what set of options you get depends on what choice you made. This procedure is repeated over and over until you reach a final state. If you made a good sequence of choices, your final state is a goal state; if you didn't, it isn't. **Backtracking** is a method of exhaustive search using divide and conquer.

Sometimes the best algorithm for a problem is to try all possibilities.

• This is always slow, but there are standard tools that can be used to help.

• Tools: algorithms for generating basic objects, such as binary strings, permutations combinations, general strings,etc..

• Backtracking speeds the exhaustive search by pruning.

Example Algorithms of Backtracking

• Binary Strings: generating all binary strings

• Generating k -ary Strings

• The Knapsack Problem

• Generalized Strings

• Graph Coloring Problem

Kindly go through Recorded Lecture for Backtracking Problem Explanation

Lecture Link

MCQ 1:

Recursion and iteration are the same programming approach. True or False?	
a.	True
b.	False
c.	May be
d.	Can't

Answer: B, False

MCQ 2:

What happens if the base condition isn't defined in recursive programs?	
a.	Program gets into an infinite loop
b.	Program runs once
c.	Program runs n number of times where n is the argument given to the function
d.	An exception is thrown

Answer: A, Program gets Into an Infinite loop.

MCQ 3:

Choose the correct answer.

a) Recursion is always better than iteration.

b) Recursion uses more memory compared to iteration.

c) Recursion uses less memory compared to iteration.

d) Iterative function is always better and simpler to write than recursion.

Answer: B, Recursion is always better than iteration.

MCQ 4:

To reverse a string, which option will be true.

a. Return reverse(s[1:]) + s[0]
b. Return s[0] + reverse(s[1:])

Answer: A , Return Reverse(s[1:]) + s[0]