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main.py Save Run Output Clear

```
1 def removeElement(nums, val):
2     nums[:] = [x for x in nums if x != val]
3     return len(nums)
4 nums = [3, 2, 2, 3]
5 val = 3
6 print(removeElement(nums, val))
```

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```
1 def solveSudoku(board):
2     def isValid(x, y, c):
3         return all(c != board[i][y] for i in range(9)) and \
4             all(c != board[x][j] for j in range(9)) and \
5             all(c != board[x // 3 * 3 + i][y // 3 * 3 + j] for i in range(3)
6                 for j in range(3))
7
8     def solve():
9         for i in range(9):
10            for j in range(9):
11                if board[i][j] == '.':
12                    for c in '123456789':
13                        if isValid(i, j, c):
14                            board[i][j] = c
15                            if solve():
16                                return True
17                            board[i][j] = '.'
18            return False
19
20    solve()
21    board = [
22        ["5", "3", ".", ".", "7", ".", ".", ".", "."],
23        ["6", ".", ".", "1", "9", "5", ".", ".", "."],
24        [".", "9", "8", ".", ".", ".", "6", ".", "."],
25        ["8", ".", ".", "6", ".", ".", ".", "3", "1"]]
```

['5', '3', '4', '6', '7', '8', '9', '1', '2']
['6', '7', '2', '1', '9', '5', '3', '4', '8']
['1', '9', '8', '3', '4', '2', '5', '6', '7']
['8', '5', '9', '7', '6', '1', '4', '2', '3']
['4', '2', '6', '8', '5', '3', '7', '9', '1']
['7', '1', '3', '9', '2', '4', '8', '5', '6']
['9', '6', '1', '5', '3', '7', '2', '8', '4']
['2', '8', '7', '4', '1', '9', '6', '3', '5']
['3', '4', '5', '2', '8', '6', '1', '7', '9']

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```
1 def is_valid(board, row, col, num):
2     # Check if the number is already in the row
3     for x in range(9):
4         if board[row][x] == str(num):
5             return False
6
7     # Check if the number is already in the column
8     for x in range(9):
9         if board[x][col] == str(num):
10            return False
11
12    # Check if the number is already in the 3x3 box
13    start_row, start_col = 3 * (row // 3), 3 * (col // 3)
14    for i in range(3):
15        for j in range(3):
16            if board[start_row + i][start_col + j] == str(num):
17                return False
18
19    return True
20
21 def solve_sudoku(board):
22     for i in range(9):
23         for j in range(9):
24             if board[i][j] == '.':
25                 for num in range(1, 10):
26                     if is_valid(board, i, j, num):
```

Sudoku Solved:

```
5 3 4 6 7 8 9 1 2
6 7 2 1 9 5 3 4 8
1 9 8 3 4 2 5 6 7
8 5 9 7 6 1 4 2 3
4 2 6 8 5 3 7 9 1
7 1 3 9 2 4 8 5 6
9 6 1 5 3 7 2 8 4
2 8 7 4 1 9 6 3 5
3 4 5 2 8 6 1 7 9
```

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```
1 def countAndSay(n):
2     if n == 1:
3         return "1"
4     prev = countAndSay(n - 1)
5     result = ""
6     count = 1
7     for i in range(1, len(prev)):
8         if prev[i] == prev[i - 1]:
9             count += 1
10        else:
11            result += str(count) + prev[i - 1]
12            count = 1
13    result += str(count) + prev[-1]
14    return result
15
16 print(countAndSay(1))
```

1

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main.py Save Run Output Clear

```
1 def combinationSum(candidates, target):
2     res = []
3
4     def backtrack(start, path, target):
5         if target == 0:
6             res.append(path)
7             return
8         if target < 0:
9             return
10        for i in range(start, len(candidates)):
11            backtrack(i, path + [candidates[i]], target - candidates[i])
12
13    candidates.sort()
14    backtrack(0, [], target)
15    return res
16 candidates = [2, 3, 6, 7]
17 target = 7
18 print(combinationSum(candidates, target))
```

[[2, 2, 3], [7]]

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```
1 def combinationSum2(candidates, target):
2     res = []
3
4     def backtrack(start, path, target):
5         if target == 0:
6             res.append(path)
7             return
8         if target < 0:
9             return
10        for i in range(start, len(candidates)):
11            if i > start and candidates[i] == candidates[i - 1]:
12                continue
13            backtrack(i + 1, path + [candidates[i]], target - candidates[i])
14
15    candidates.sort()
16    backtrack(0, [], target)
17    return res
18 candidates = [10, 1, 2, 7, 6, 1, 5]
19 target = 8
20 print(combinationSum2(candidates, target))
```

[[1, 1, 6], [1, 2, 5], [1, 7], [2, 6]]

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main.py Save Run Output Clear

```
1 def permuteUnique(nums):
2     res = []
3     def backtrack(nums, path):
4         if not nums:
5             res.append(path)
6             return
7         for i in range(len(nums)):
8             if i > 0 and nums[i] == nums[i - 1]:
9                 continue
10            backtrack(nums[:i] + nums[i + 1:], path + [nums[i]])
11
12    nums.sort()
13    backtrack(nums, [])
14    return res
15    nums = [1, 1, 2]
16    print(permuteUnique(nums))
```

[[1, 1, 2], [1, 2, 1], [2, 1, 1]]

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main.py Save Run Output Clear

```
1 def maxSubArray(nums):
2     max_sum = current_sum = nums[0]
3     for num in nums[1:]:
4         current_sum = max(num, current_sum + num)
5         max_sum = max(max_sum, current_sum)
6     return max_sum
7
8 nums = [-2, 1, -3, 4, -1, 2, 1, -5, 4]
9 print(maxSubArray(nums)) # Output: 6
```

6

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