

Experiment No. 8

Aim - Implementation of sum of subjects.

Theory -

A190 -

- 50 if we take example as int []A = £3,2,7,13,5=6

- If we consider another int array with the same size as A

- If we include the element in subset we will put I in that particular index else put 0.

- So we need to make every possible subsets & check if ony

of the subsets makes sum s.

Example -

Input - set[] = {3,34,4,12,5,23, sum = 9

Output - True

There is a subset (4,5) with sum q.

Time complexity -

The above soin may try as subsets of given set in was case. Therefore, time completity of the above soin is exponential.

Conclusion -

We have successfully implemented the algo & analyse the complexity.

```
o (base) computer@computer:-/Desktop/aoa pra$
                       Found a subset with given sum
                                       (base) computer@computer:-/Desktop/aoa pra$ /usr/bin/python3.9 "/home/computer/Desktop/aoa pra/pra8.py"
                                                                                                                             PROBLEMS
                                                              /usr/bin/python3.9 "/home/computer/Desktop/aoa pra/pra8.py"
                                                                                                                                                                                                       29
                                                                                                                                                                                                                                18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          def isSubsetSum(set, n, sum) :
                                                                                                                                                                                                                                                                                                     n = len(set)
                                                                                                                                                                                                                                                                                                                                                set = [3, 34, 4, 12, 5, 2]
                                                                                                                                                                                                                                                                  if (isSubsetSum(set, n, sum) == True) :
                                                                                                                                                                                                                                                                                                                                    sum = 9
                                                                                                                           OUTPUT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11 (5um == 0) :
                                                                                                                                                                                                                                        print("Found a subset with given sum")
                                                                                                                                                                                                                                                                                                                                                                                       return isSubsetSum(set, n-1, sum) or isSubsetSum(set, n-1, sum-set[n-1])
                                                                                                                                                                                          print("No subset with given sum")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (n == 0 and sum != 0) :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (set[n - 1] > sum) :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return True
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return False
                                                                                                                                                                                                                                                                                                                                                                                                                                            return isSubsetSum(set, n - 1, sum);
                                                                                                                     DEBUG CONSOLE
                                                                                                                     TERMINAL
                                                                                                           3 Python + ~
```

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Tue 1:45 PM

pra8.py - aoa pra - Visual Studio Code

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VI

pratt by > 12 is subset Sum

Visual Studio Code +



Experiment No. 9 Graph Colouring

Aim - To implement graph colouring.

Theory-

Algo -

1) (olour 1st vertex with first color.

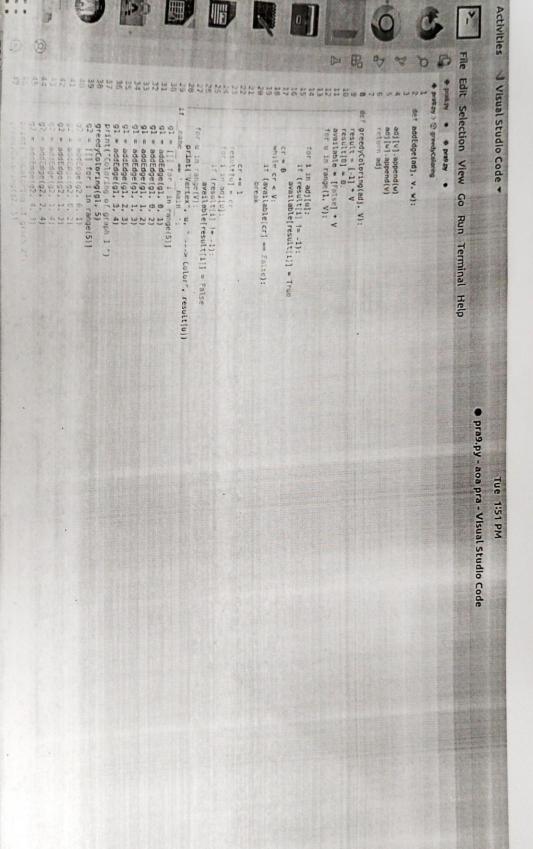
2) Do following for remaining v-vertices.

a) Consider the following picked vertex & color it with the lowest numbered color that has not been used on any previously colored vertices adjacent to it. If all previously used colors appear on vertices objecent to V. assign a new color to it.

Time complexity -O(v12 + E) is the time complexity in wrost case.

Condusion -

We have successfully implemented the algo & analy zed the complexity.



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D - 0



Experiment No. 10 Rabin - Karp Algo

Aim - To implement Robin - Karp Algo

Theory-

Algo-

Rabin - Korp Matcher (T, P,d,q)

- n < length [T]
- m < length [P]
- n < dmf mod [9]
- P < 0
- 40 € 0 5.
- forit 1 to m
- to < (dpo + P[i] moda
- to < (dto + T[i]] mod q 8-
- for s < o to n-m 9.
- 10.
- Then if P [[st1 S+m] 11.
- then "Pattern occurs with shift " s 12.
- 0 13. If 5< n-m
 - then ts+1 (d(ts-T[s+1]h]+T[s+m+1]) mod q. 14.

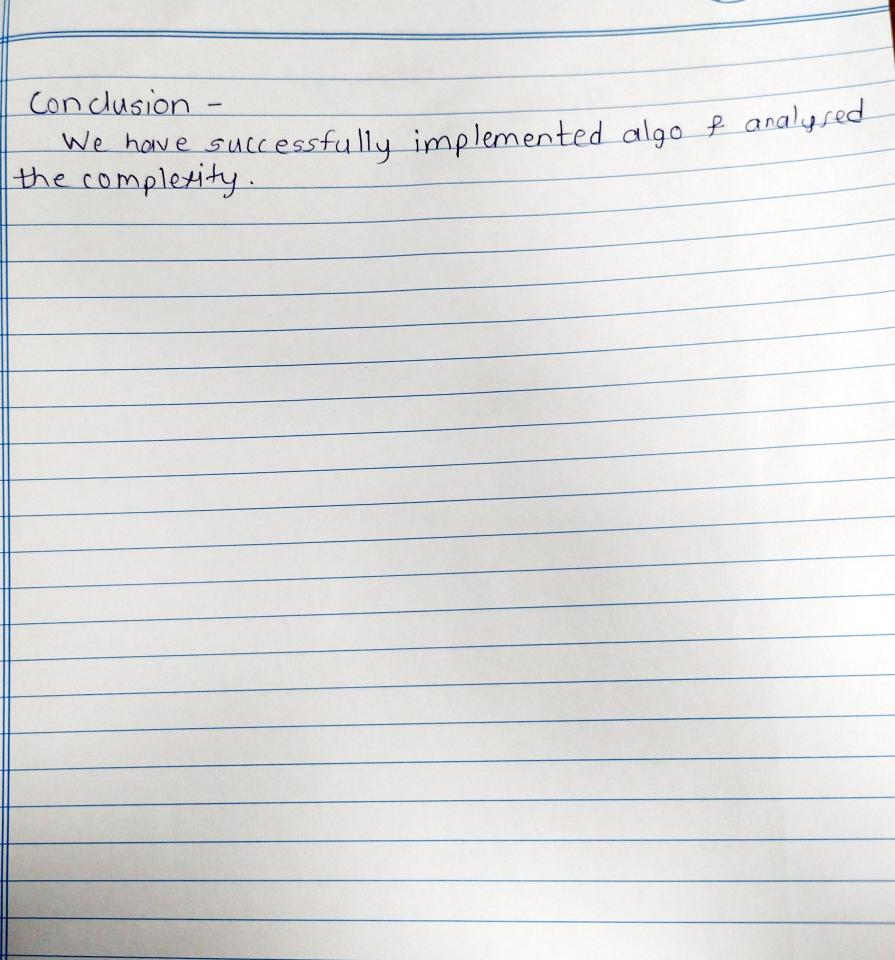
Example -

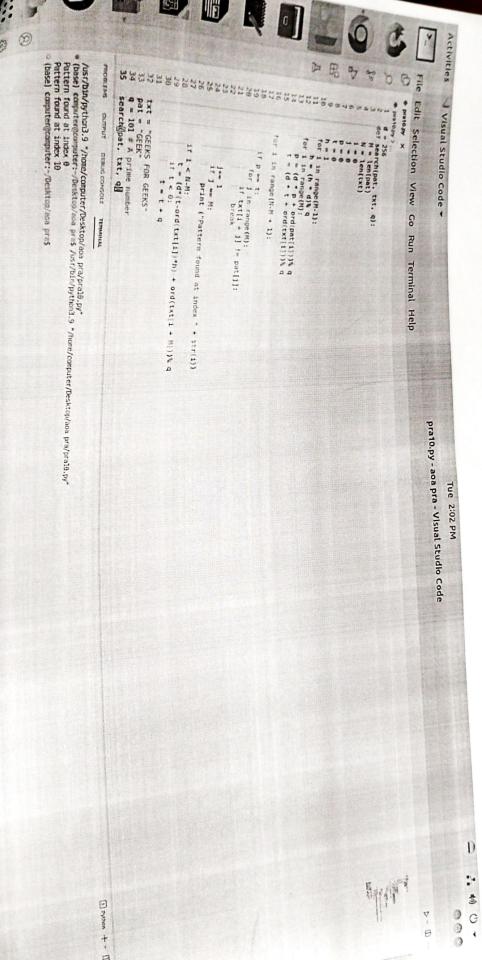
Input - txt[] = "THIS IS A TEST [FXT " POTTI = "TEST 11

Output - Pattern found at index 10.

Time complexity -

The average & best - case Yunning time of the algo is O(n+m), but in wrost case is O(nm).





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