AA_LAB_11_Assignment

CE_054

Aim :- Greedy approach of set cover algorithm.

1. Greedy Set Cover Algorithm in python.

Code :-

```
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def set_cover(lst, edge):

    U = lst.copy()
    all = []
    while len(U) != 0:
        s = findIntersaction(edge, U)
        edge.remove(s)
        U = [x for x in U if x not in s]
        all.append(s)
    return all

def findIntersaction(edge, u):

    index, max = 0, 0
    for i in range(len(edge)):
        temp = set(edge[i]).intersection(set(u))
        if len(temp) > max:
            max = len(temp)
            index = i
    return edge[index]

if __name__ == "__main__":

    lst = list(map(int, input().split()))
    subsets = int(input("Enter number of subsets\n"))
    edge = []
    for _ in range(subsets):
        temp = list(map(int, input().split()))
        edge.append(temp)
        result = set_cover(lst, edge)
    print(result)
```
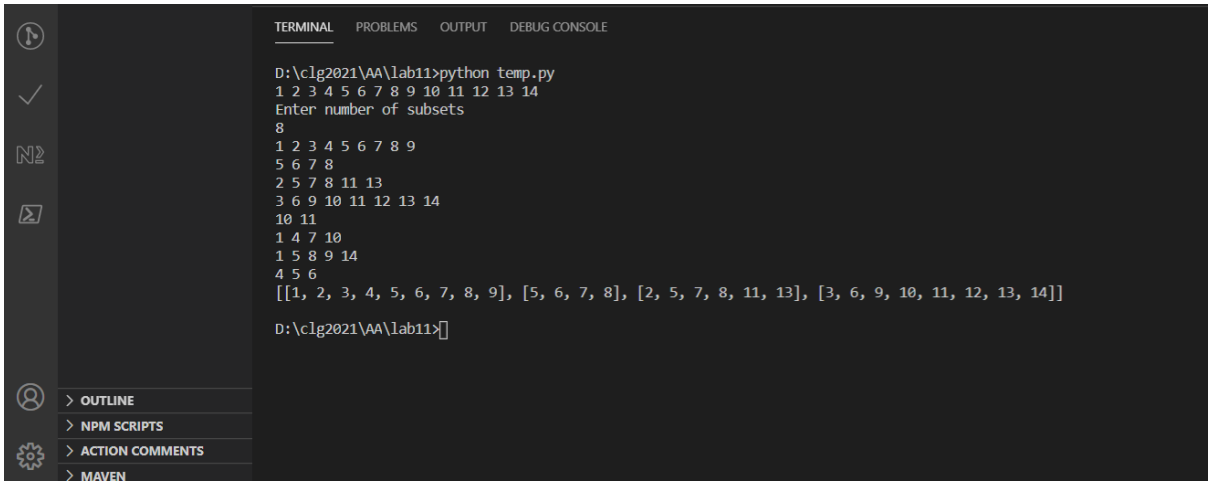
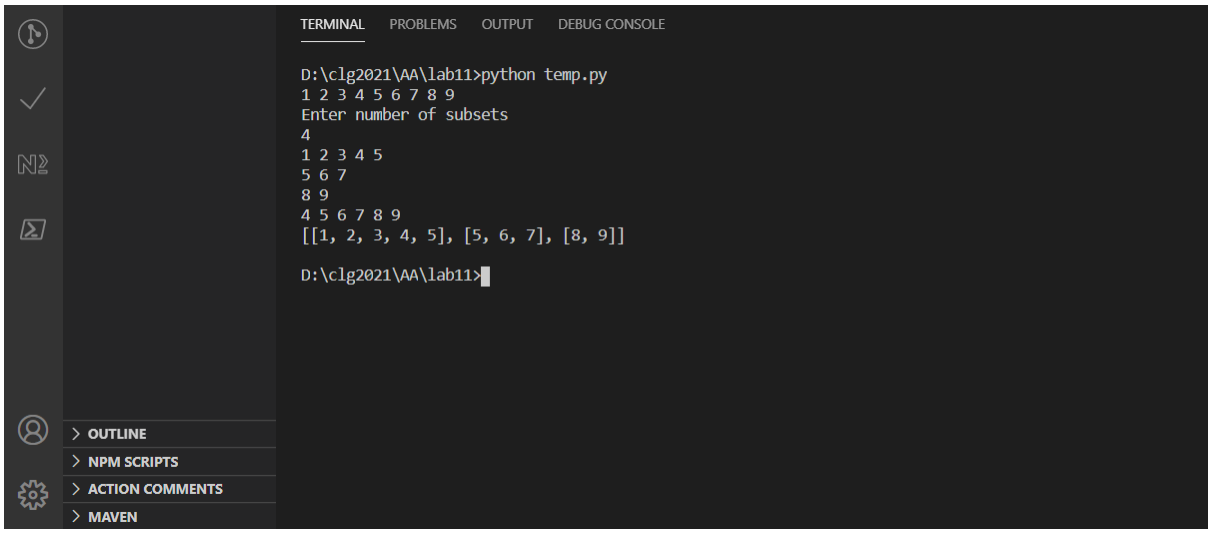

Output :-


TERMINAL
PROBLEMS
OUTPUT
DEBUG CONSOLE
D:\clg2021\AA\lab11>python temp.py
1 2 3 4 5 6 7 8 9 10 11 12 13 14
Enter number of subsets
8
1 2 3 4 5 6 7 8 9
5 6 7 8
2 5 7 8 11 13
3 6 9 10 11 12 13 14
10 11
1 4 7 10
1 5 8 9 14
4 5 6
[[1, 2, 3, 4, 5, 6, 7, 8, 9], [5, 6, 7, 8], [2, 5, 7, 8, 11, 13], [3, 6, 9, 10, 11, 12, 13, 14]]
D:\clg2021\AA\lab11>
OUTLINE
NPM SCRIPTS
ACTION COMMENTS
MAVEN


TERMINAL
PROBLEMS
OUTPUT
DEBUG CONSOLE
D:\clg2021\AA\lab11>python temp.py
1 2 3 4 5 6 7 8 9
Enter number of subsets
4
1 2 3 4 5
5 6 7
8 9
4 5 6 7 8 9
[[1, 2, 3, 4, 5], [5, 6, 7], [8, 9]]
D:\clg2021\AA\lab11>
OUTLINE
NPM SCRIPTS
ACTION COMMENTS
MAVEN