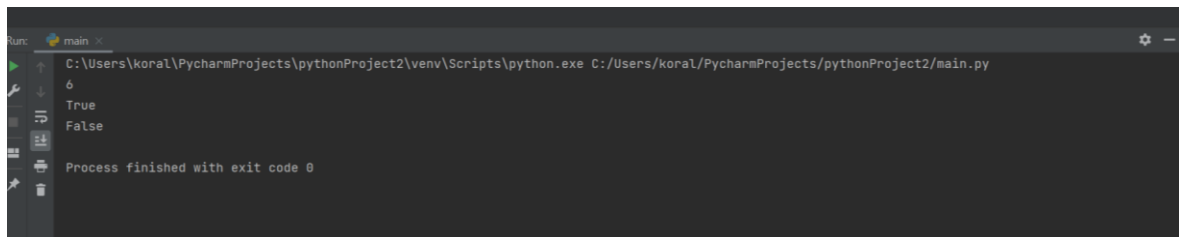


מגישות:

קורל סרב 207972282

לין טיבי 318232139

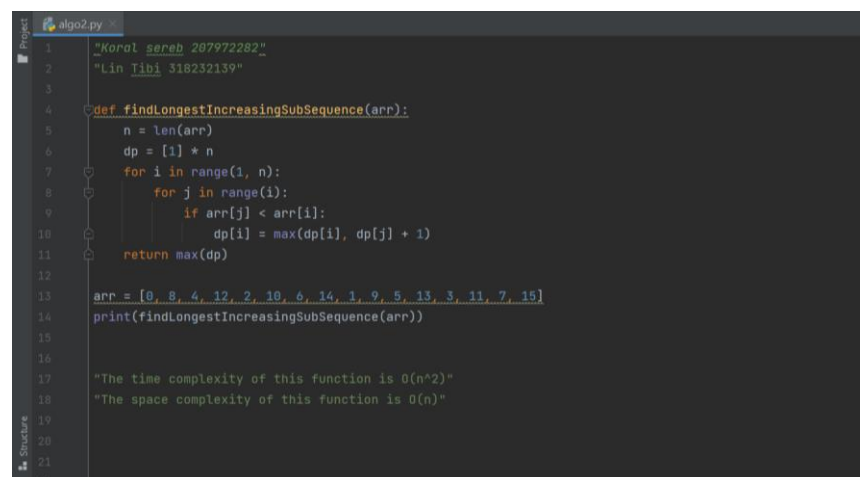
פלט:



```
Run: main x
C:\Users\koral\PycharmProjects\pythonProject2\venv\Scripts\python.exe C:/Users/koral/PycharmProjects/pythonProject2/main.py
6
True
False
Process finished with exit code 0
```

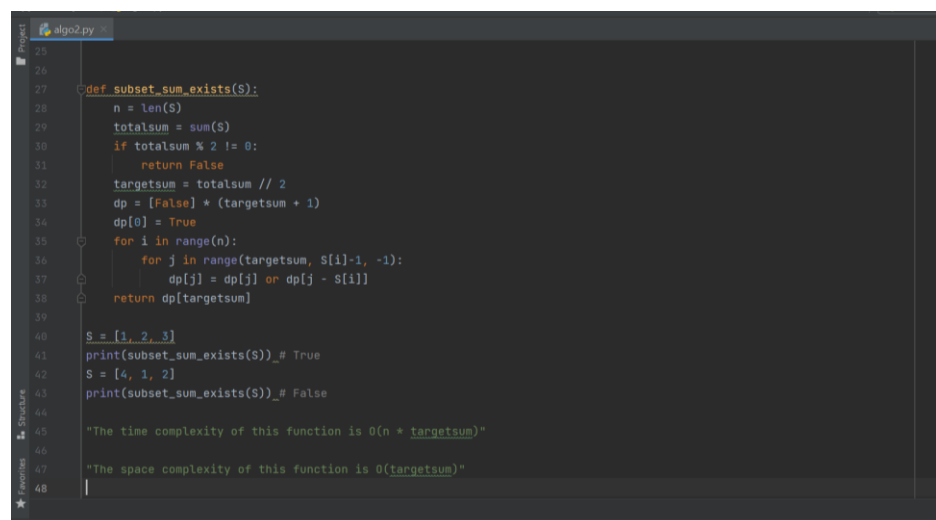
קלט:

שאלה 1:



```
algo2.py
1 "Koral sereb 207972282"
2 "Lin Tibi 318232139"
3
4 def findLongestIncreasingSubSequence(arr):
5     n = len(arr)
6     dp = [1] * n
7     for i in range(1, n):
8         for j in range(i):
9             if arr[j] < arr[i]:
10                 dp[i] = max(dp[i], dp[j] + 1)
11     return max(dp)
12
13 arr = [0, 8, 4, 12, 2, 10, 6, 14, 1, 9, 5, 13, 3, 11, 7, 15]
14 print(findLongestIncreasingSubSequence(arr))
15
16
17 "The time complexity of this function is O(n^2)"
18 "The space complexity of this function is O(n)"
19
20
21
22
```

שאלה 2:



```
algo2.py
25
26
27 def subset_sum_exists(S):
28     n = len(S)
29     totalsum = sum(S)
30     if totalsum % 2 != 0:
31         return False
32     targetsum = totalsum // 2
33     dp = [False] * (targetsum + 1)
34     dp[0] = True
35     for i in range(n):
36         for j in range(targetsum, S[i]-1, -1):
37             dp[j] = dp[j] or dp[j - S[i]]
38     return dp[targetsum]
39
40 S = [1, 2, 3]
41 print(subset_sum_exists(S))_# True
42 S = [4, 1, 2]
43 print(subset_sum_exists(S))_# False
44
45 "The time complexity of this function is O(n * targetsum)"
46
47 "The space complexity of this function is O(targetsum)"
48
```