**4.8 WORD BREAK PROBLEM USING DYNAMIC PROGRAMMING**

**Question:**

Given a string s and a dictionary of strings wordDict, return true if s can be segmented into a space-separated sequence of one or more dictionary words.

**AIM**

To implement a Python program that determines whether a string can be segmented into valid dictionary words using dynamic programming.

**ALGORITHM**

1. Convert wordDict into a set for faster lookup.
2. Initialize a boolean array dp of size len(s)+1, where dp[i] is True if the substring s[0:i] can be segmented.
3. Set dp[0] = True (empty string is segmentable).
4. For each index i from 1 to len(s), check all j < i such that:
   * dp[j] == True and
   * s[j:i] is in the dictionary
   * If both conditions are met, set dp[i] = True
5. Return dp[len(s)] as the result.

**PROGRAM**

A computer screen shot of a computer code

AI-generated content may be incorrect.

Input:

Enter the string: leetcode

Enter dictionary words separated by space: leet code

Output:

A close-up of a white sign

AI-generated content may be incorrect.

**RESULT:**

Thus the program is successfully executed and the output is verified.

**PERFORMANCE ANALYSIS:**

· **Time Complexity:** O(n²)

· **Space Complexity:** O(n)