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CS590 Homework Assignment 10: Dynamic Programming Application Exercises

Due Date: April 3, 2022

Problem 12.8.29:

The most efficient way of breaking the input into a sequence of English words would be using Dynamic programming. The method is described below:

- We maintain a dp array dp[i].
- At the beginning, initialize dp[0]=true.
- Let dp[i] = true when there is a j, such that j < i, dp[j] = true and valid(string S[j : i])==true.
- Break the input at all indices *i* where dp[i] = true.

There would be two loops involved, one of *i* and an inner loop of *j*. The total running time would be O(n^2) because we use O(1) about n^2 times to check if dp[i] is true.