Given a string you need to find the longest palindromic subsequence in that string. For example if the string is “abcdab” the longest palindromic subsequence is “aba” (or “aca” or “ada” or “bcb” etc.)

**Input**

First line: The string S. Length of S will be positive and less than 1001. It will consist of only lowercase letters.

**Output**

Length of the longest palindromic subsequnce. See sample for clarification

|  |  |
| --- | --- |
| abcdab | 3 |
| madam | 5 |