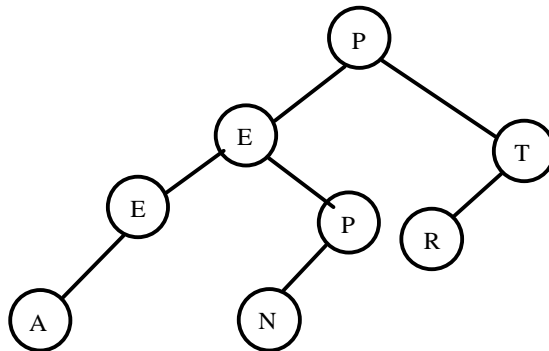**ACSL TREES**

PROBLEM: Given a list of letters, construct a binary search tree. Once the tree is constructed find its depth. The depth of the tree is defined as the number of node levels below the root node.

As an example, given the letters PETERPAN, the above binary search tree would be constructed. The depth of the tree is 3. P is the root node. It has a depth of 0. The E and T have a depth of 1. E, P and R have a depth of 2. A and N have a depth of 3.

INPUT: There will be 5 lines of input. Each line will consist of a string containing upper case letters.

OUTPUT: For each input line, print the depth of the binary search tree formed.

SAMPLE INPUT   SAMPLE OUTPUT

1. PETERPAN   1. 3
2. EMMAUS   2. 3
3. ACSL   3. 3