

Problem 1

A common problem for compilers and text editors is determining whether the parentheses in an expression are balanced and properly nested. For example, the expression $A/[D * (B - F)] + S$ contains properly nested pairs, while $(G * [A - B])/C$ and $(d + e/A + t)[$ do not. Give a program that returns true if an expression contains properly nested and balanced parentheses, and false if otherwise. In addition, for the balanced case, find the positions for each pair of the open and closing parentheses. On the other hand, identify the position of the first offending parenthesis for the unbalanced case.