

This program displays a diamond pattern. Both the height and the width of the diamond pattern are  $(2n + 1)$  where  $n$  is an input from the keyboard. Lines of the diamond pattern is numbered from 0 to  $2n$ .

The line numbered  $i$  has  $n - i$  blanks followed by  $2i + 1$  asterisks for  $0 \leq i \leq n$ .

The line numbered  $i$  has  $i - n$  blanks followed by  $4n - 2i + 1$  asterisks for  $n < i \leq 2n$ .

The outer loop iterates through lines of the diamond pattern. Each line is displayed by two inner loops - the first one outputs the required number of blanks and the second one outputs the required number of asterisks.

The user is prompted to provide a value for  $n$  that is a positive integer, the program verifies the validity of the value, and repeats this step until a valid value for  $n$  is obtained.