1. Consider the following program segment
   ```c
   counter = 0;
   small = 0;
   for (j = 1; j < n; j++)
           small = j;
           counter++;
       }
   ```
   Counting one time unit for each assignment and one unit each time the condition in the ‘for loop’ and the ‘if statement’ is tested, compute the worst case running time of the program.

2. What are the minimal values of the witnesses n and c required to prove that
   \[ T(n) = 2 \] is \( O(2^n) \).
   
   Hint: Witnesses are minimal in the sense that \( n - 1 \) and \( c \) are not witnesses, and if \( d < c \), then \( n \) and \( d \) are not witnesses.