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#include <stdio.h>
#include <math.h>

int main(){
    long n, ans;
    int i;
    scanf("%ld", &n);

    // Total number of rice grains needed for 49 squares is
    //  $1 + 2 + 4 + \dots + 2^{48} = 2^{49} - 1$ 
    if(n < (long)pow(2, 49) - 1){
        printf("NO\n");
        ans = 0;
        // Start placing grains on the squares
        // Note that we are counting from 0 to 48 to make it convenient
        // since the number of grains required for 1st square is  $2^0$ 
        // Alternatively, we could have run the counter from  $i = 1$  to  $i = 49$ 
        // but then the number of grains required would be  $\text{pow}(2, i - 1)$ 
        for(i = 0; i < 49; i++){
            // Are there any more grains left?
            if(n > 0){
                n -= (long)pow(2, i); // Subtract the number of grains the current square
                demands
                this square
                square is i+1
                fill this square
                if(n == 0) // Grains exactly got finished filling up
                ans = i+1; // Remember, we are starting from  $i = 0$  so current
                if(n < 0) // The number of grains were not enough to
                ans = i;
            }
        }
        printf("%ld\n", ans);
    }else{
        printf("YES\n");
        ans = n - (long)(pow(2,49) - 1);
        printf("%ld", ans);
        return 0;
    }
    return 0;
}

```