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

int main(){
    int n, isPrime;
    scanf("%d", &n);
    double root;
    root = sqrt((double)n);
    long i, j, p, temp, sum = 0;

    if(root > 3.0){ // We will print at least two primes
        printf("2"); // 2 is surely a prime less than root
        sum = 0;
        sum = sum + ((long)n*(n-1))/(long)2;
        for(i = 3; ; i++){
            if(i >= root)
                break; // Only need primes strictly less than root
            isPrime = 1;
            for(j = 2; j < i; j++){
                if(i % j == 0)
                    isPrime = 0;
            }
            if(isPrime){
                printf(" %ld", i);
                temp = 1;
                for(p = n; p >= n-i+1; p--)
                    temp = temp*p;
                for(p = 1; p <= i; p++)
                    temp = temp/p;
                sum = sum + temp;
            }
        }
        printf("\n%ld",sum);
    }else{ // The only possible prime to print is 2
        if(root > 2.0){
            printf("2\n%ld",((long)n*(n-1))/(long)2);
        }
        else{
            printf("NO PRIMES\n0");
        }
    }

    return 0;
}
```