```
406410114   UVA10922 2 the 9s


// pos num  ,zero is end , 1000 digits
// is 9 mul and is can be recursive degree
// add all digit can div 9
// 9 81 162 729 6561 59049 531441
// x / 9 = x /10-1
// question des
#include <bits/stdc++.h>
using namespace std;

struct NUM{
        string value;
        int nine_degree;
};

int main(){

        int i,j,k;
        NUM num;
        while ( getline( cin,num.value ) ){
                int digit_sum = 0;
                num.nine_degree = 0;

                if ( num.value.length() == 1 && num.value[0] == '0' )
                        break;

                for ( i = 0 ; i <num.value.length();i++ ){
                        digit_sum+=(num.value[i] - '0');
                }//for

                while ( digit_sum%9 == 0 ){
                        if ( digit_sum == 9 ){
                                num.nine_degree++;
                                break;
                        }//if

                        num.nine_degree++;
                        int digit_sum_temp = digit_sum;
                        digit_sum = 0;
                        while ( digit_sum_temp != 0 ){
                                digit_sum += (digit_sum_temp %10);

                                //cout <<  "digit_sum_temp:" << digit_sum_temp<<endl;
                                //cout <<  "digit_sum:" << digit_sum<<endl;
                                digit_sum_temp /=10;
                        }//while

                }//while

                if ( num.nine_degree>=1 ){
                        for ( i = 0 ; i <num.value.length();i++ )
                                cout << num.value[i];
                        cout << " is a multiple of 9 and has 9-degree " << num.nine_degree<<"."  <<endl;

                }//if
                else{
                        for ( i = 0 ; i <num.value.length();i++ )
                                cout << num.value[i];
                        cout << " is not a multiple of 9." <<endl;

                }//else

        }//while


        return 0;
}//main
```