```matlab
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
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% DATE: Feb 10, 2022
%
% PROGRAM: maxcollatz.m
% PURPOSE:  Inputs some first number x and outputs the length of the
% sequence.
% CREDIT: Adapted from an example written by Dr. Lucus
%
% VARIABLES:
%    a = zeros from 1 to 1000
%    M = length of longest sequence
%    N = longest hailstone sequence
%
% JMU PLEDGE
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

clear
a = zeros(1,1000);

for i = 1:1000
    a(i) = collatz(i);
end

[M,N] = max(a)

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%{
M =
   179
N =
   871
%}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

$M =$
   179
$N =$
   871

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