This program simulates a single server queue with Poisson arrivals and exponential service times, up to the time when the Nth customer departs.

```matlab
N = 500; % Length of simulation
lambda = 1; % Arrival rate
mu = 10/9; % Service rate
NSim = 2000; % Number of simulation runs
W = zeros(N,1); % Initialize waiting times vector
for k = 1:NSim
    % Initialize simulation
    t = 0;
    NA = 0;
    ND = 0;
    n0 = 10; % Initial number of customers
    n = n0;
    if n > 0
        tD = -log(rand)/mu;
    else
        tD = Inf;
    end
    tA = -log(rand)/lambda;
    Output = [];
    % Main algorithm
    while ND < N + n0
        if tA <= tD
            t = tA;
            NA = NA + 1;
            n = n+1;
            tA = t - log(rand)/lambda;
            if n == 1
                Y = -log(rand)/mu;
                tD = t + Y;
            end
            Output = [Output; NA t 0];
        end
    end
end
```
else
    t = tD;
    ND = ND + 1;
    n = n-1;
    if n == 0
        tD = Inf;
    else
        Y = -log(rand)/mu;
        tD = t + Y;
    end
    Output(ND, 3) = t;
end

% Compute the waiting times

w = Output(n0+1:n0+N, 3) - Output(n0+1:n0+N, 2);
W = W + w;

end

EW = W/NSim;

totTime = toc

figure
plot((1:1:N), EW)
title('Expected Waiting Time')
xlabel('i')
ylabel('EW_i')