```
clear
G= 6.7e-11;                        % gravitational constant
mEarth = 5.97e24;                  % mass of earth
rEarth = 6.37e6;                   % radius of earth

n=2;
dt = 5;

p(1) = 500;                        % initial state
v(1) = 0;
t(1) = 0;

for i = 2:n+1
 t(i) = t(i - 1) + dt;             % time at start of subinterval I
 p(i) = p(i - 1) + dt*v(i-1);      % project position to start of subinterval i
 a = -G*mEarth/(p(i-1)+rEarth)^2;  % calculate accel at start of subinterval i-1
 v(i) = v(i - 1) + dt*a;           %  project velocity to start of subinterval i

end

plot(t, p)      % plot the position of the apple above the surface of the Earth
```