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%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% ENGR 133
% Program Description Calculate velocity of a rocket over a time
 interval
% given some data
%
% Assignment Information
%   Assignment:     Ma3 Task7
%   Author:         Name, login@purdue.edu
%   Team ID:        LC1-04
%   Contributor:    Roshan Sundar
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

INITIALIZATION

```
Data = csvread('Data_RDAS.csv',1,0);
Time = Data(:,1);
Altitude = Data(:,2);
Accel = Data(:,3);
```

CALCULATIONS

```
Velocity = [0];
for t=2:numel(Time)
    currentVel = 0;
    for k=2:t
        currentVel = currentVel +((Time(k)-
Time(k-1))*(Accel(k)+Accel(k-1))/2);
    end
    Velocity = [Velocity; currentVel];
end
```

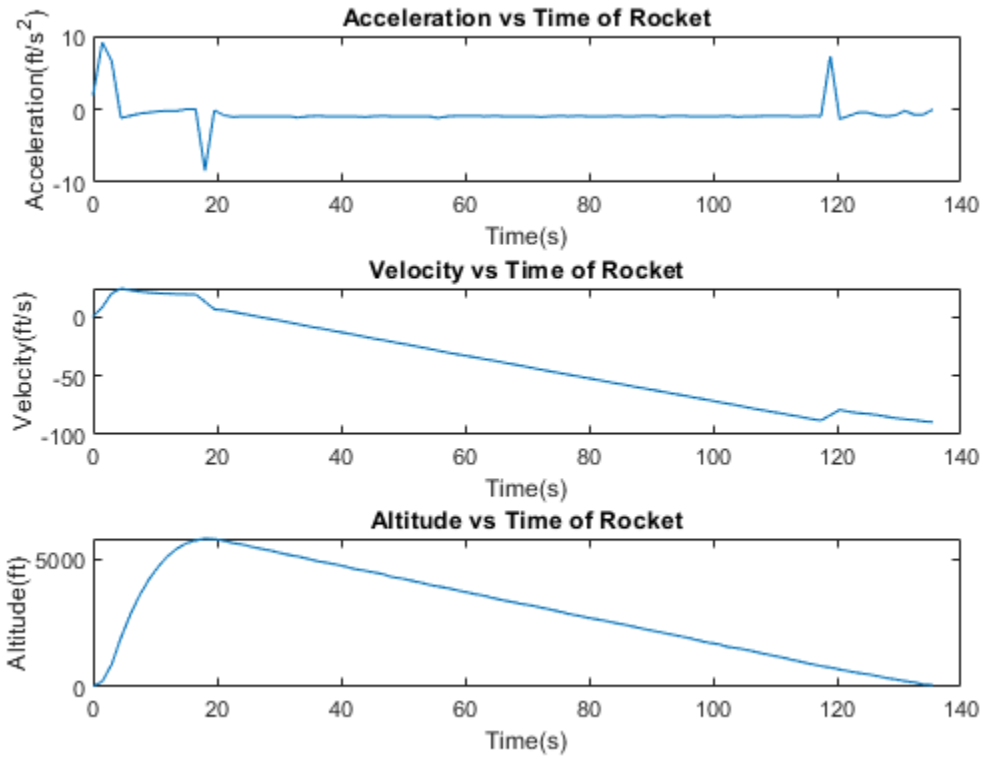
```
[maxVel, maxVel_i] = max(Velocity);
maxVel_time = Time(maxVel_i);
```

FIGURE DISPLAY

```
subplot(3,1,1)
plot(Time, Accel)
title('Acceleration vs Time of Rocket')
xlabel('Time(s)')
ylabel('Acceleration(ft/s^2)')

subplot(3,1,2)
plot(Time, Velocity)
title('Velocity vs Time of Rocket')
xlabel('Time(s)')
ylabel('Velocity(ft/s)')

subplot(3,1,3)
plot(Time, Altitude)
title('Altitude vs Time of Rocket')
xlabel('Time(s)')
ylabel('Altitude(ft)')
```



TEXT DISPLAY

```
fprintf('The maximum launch velocity is %0.4f ft/s and occurs at %0.3f
 s\n', maxVel, maxVel_time)
```

```
The maximum launch velocity is 24.2369 ft/s and occurs at 4.516 s
```

ACADEMIC INTEGRITY STATEMENT

I have not used source code obtained from any other unauthorized source, either modified or unmodified. I have not provided access to my code to anyone in any way. The script I am submitting is my own original work.

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