CW3

September 18, 2016

```
In [1]: import plot_ball1 as plotter
        import read2_columns as rc
```

1 Classwork 3

1.1 Sakthi and Will

1.1.1 September 20, 2016

1.2 Problem 2

1.2.1 Exercise 5.9

This problem asked me to plot a specified function, specifically the function

$$y(t) = v_0 t - \frac{1}{2} g t^2$$

It asked for a plot of this function first given $v_0 = 10$, and second given a set of v_0's specified by user input. To do this, I created a function that asked the user to input values of v_0, created sets of data for t and the corresponding $y(t)$ values, and plotted them all on one graph, as asked in the second part of the question. To plot just $v_0 = 10$ I didn't write a separate function into the file, I simply implemented the more general function and input only 10 as a v_0 value. So, here is the plot for $v_0 = 10$:

```
In [2]: l = plotter.getVTY()
        plotter.plot1(l[0], l[1], l[2])

Enter your list of v_0's, separated by commas: 1,2,3,4
```
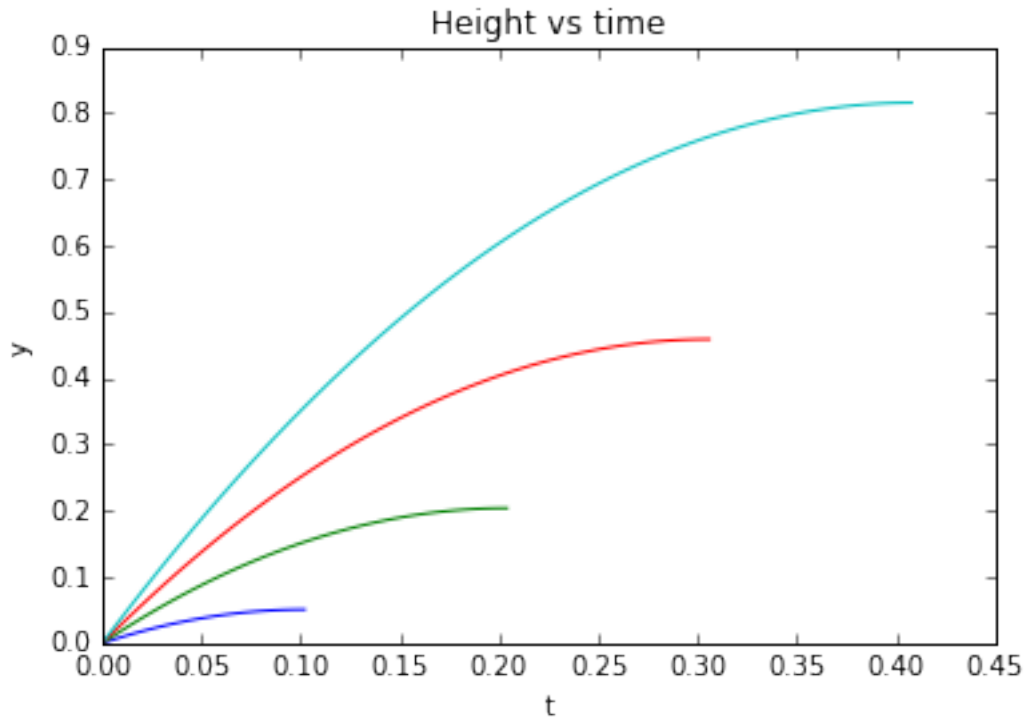
Height vs time
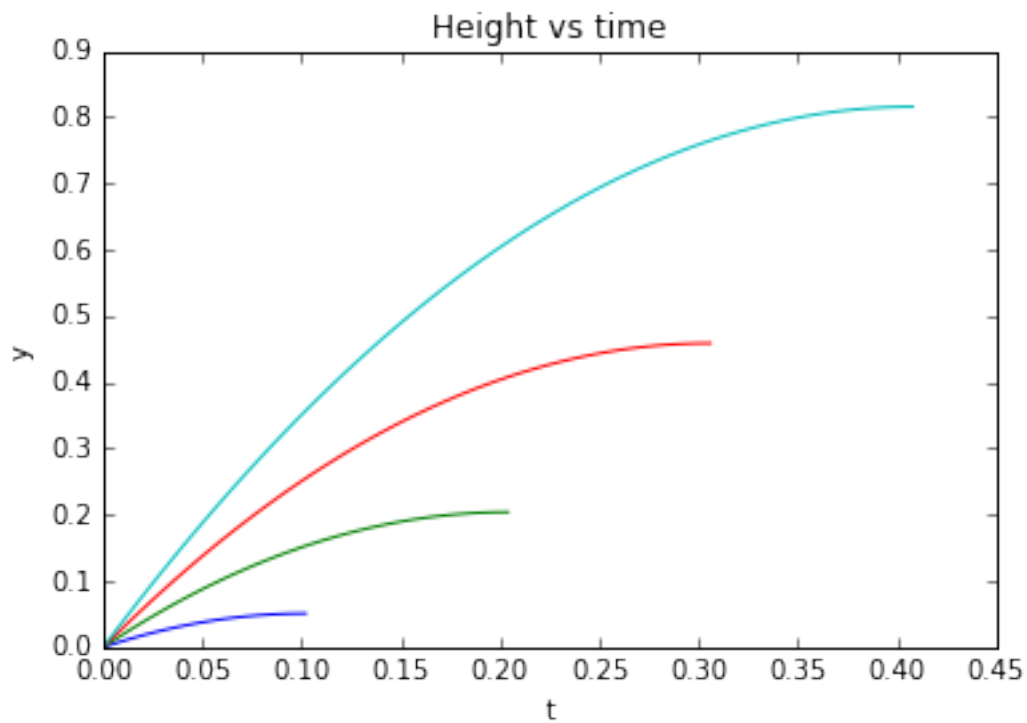
And here is the plot for a more interesting set of v_0's:

```
In [3]: l = plotter.getVTY()
        plotter.plot1(l[0],l[1],l[2])

Enter your list of v_0's, separated by commas: 1,2,3,4
```

Height vs time

1.3 Problem 4

1.3.1 Exercise 5.14

This exercise asked me to read data points from a file. The file was formatted as two columns, one for x, one for y. To do so, i used urllib2 as suggested by the Python documentation, and read from the url at which the file was located. Then I split each line with spaces as delimiters, and appended the lists for x and y coordinates accordingly. Then I created a function to plot a simple graph of x vs y, and a function to return y_{mean}, y_{max}, and y_{min}.

```
In [7]: l = rc.getData()
        mmm = rc.yData(l[1])
        rc.plotData(l[0],l[1])
```
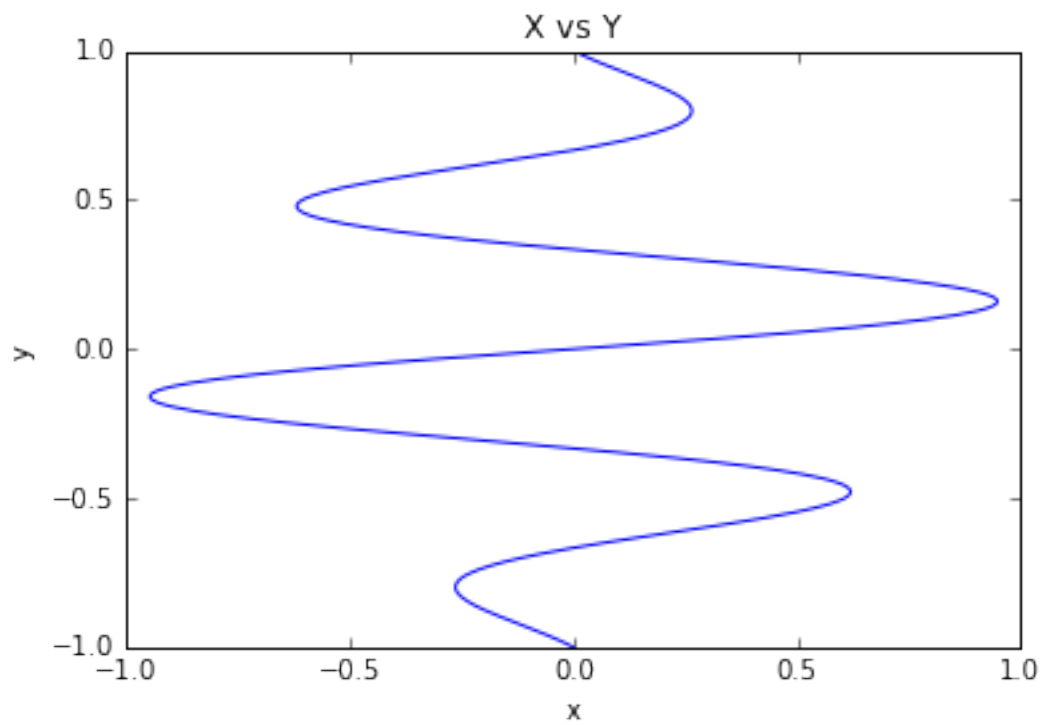
y_{mean}:

```
In [8]: mmm[0]

Out[8]: 2.581914010756178e-18
```

y_{max}:

```
In [9]: mmm[1]

Out[9]: 1.0
```

y_{min}:

```
In [10]: mmm[2]

Out[10]: -1.0

In [ ]:
```