

TALK2DATA

Introduction

Initialization

Smart Import

Just paste a URL!

- Use the function T2D for all queries
- You can import any data set on you local machine or on the internet by pasting the link.
- The file format and data structure is automatically recognized. (Units are also preserved)

Some sample data:

<http://tiny.cc/crimedata>

C:\\Users\\dan7g\\Dropbox\\Talk2Data\\FireIncidents.csv

C:\\Users\\dan7g\\Dropbox\\Talk2Data\\BikeTrails.txt

C:\\Users\\dan7g\\Dropbox\\Talk2Data\\Demographics.dat

C:\\Users\\dan7g\\Dropbox\\Talk2Data\\Accidents.csv

```
In[59]:= T2D@"C:\\Users\\dan7g\\Dropbox\\Talk2Data\\BikeTrails.txt"
```

Out[59]=

OBJECTID	Path_Type	Dx_Miles	Name
1	1	1.00759	Lincoln Avenue Trail (Florida–Windsor)
2	1	1.00598	Windsor Road S SP (Race–Philo)
3	1	0.871845	Windsor Road N SP (Myra Ridge–Stone Creek)
4	3	0.011526	Ethel S. Robeson Trail
5	3	0.090604	Ethel S. Robeson Trail
6	3	0.434932	Greenbelt Bikeway (Bradley–Heritage Park)
7	3	0.233575	Greenbelt Bikeway (Heritage Park)
8	3	0.026472	Greenbelt Bikeway Spur to Kaufman Lake
9	3	0.396546	Robeson Meadows Trail
10	3	0.198388	Robeson Meadows Trail
11	3	0.367029	Robeson Meadows Trail
12	3	0.089302	Robeson Crossing Trail
13	3	0.077562	Robeson Meadows Trail
14	3	0.088699	Robeson Meadows Trail
15	3	0.059209	Burwash Park Path
16	3	0.086881	Burwash Park Path
17	3	0.071846	Burwash Park Path
18	3	0.414718	Boulware Trail (Devonshire–Fox)
19	3	0.077037	Boulware Trail around Mattis Lake
20	3	0.46144	Boulware Trail (Fox–Devonshire)

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Queries

View any columns or rows

You can ask just about anything related to the data in any way you like.

In[60]:= T2D@"show me the data"

Out[60]=

OBJECTID	Path_Type	Dx_Miles	Name
1	1	1.00759	Lincoln Avenue Trail (Florida–Windsor)
2	1	1.00598	Windsor Road S SP (Race–Philo)
3	1	0.871845	Windsor Road N SP (Myra Ridge–Stone Creek)
4	3	0.011526	Ethel S. Robeson Trail
5	3	0.090604	Ethel S. Robeson Trail
6	3	0.434932	Greenbelt Bikeway (Bradley–Heritage Park)
7	3	0.233575	Greenbelt Bikeway (Heritage Park)
8	3	0.026472	Greenbelt Bikeway Spur to Kaufman Lake
9	3	0.396546	Robeson Meadows Trail
10	3	0.198388	Robeson Meadows Trail
11	3	0.367029	Robeson Meadows Trail
12	3	0.089302	Robeson Crossing Trail
13	3	0.077562	Robeson Meadows Trail
14	3	0.088699	Robeson Meadows Trail
15	3	0.059209	Burwash Park Path
16	3	0.086881	Burwash Park Path
17	3	0.071846	Burwash Park Path
18	3	0.414718	Boulware Trail (Devonshire–Fox)
19	3	0.077037	Boulware Trail around Mattis Lake
20	3	0.46144	Boulware Trail (Fox–Devonshire)

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Built-in spell correction.

```
In[68]:= T2D@"can you display columnn 2 to foure please?"
```

Out[68]=

Path_Type	Dx_Miles	Name
1	1.00759	Lincoln Avenue Trail (Florida–Windsor)
1	1.00598	Windsor Road S SP (Race–Philo)
1	0.871845	Windsor Road N SP (Myra Ridge–Stone Creek)
3	0.011526	Ethel S. Robeson Trail
3	0.090604	Ethel S. Robeson Trail
3	0.434932	Greenbelt Bikeway (Bradley–Heritage Park)
3	0.233575	Greenbelt Bikeway (Heritage Park)
3	0.026472	Greenbelt Bikeway Spur to Kaufman Lake
3	0.396546	Robeson Meadows Trail
3	0.198388	Robeson Meadows Trail
3	0.367029	Robeson Meadows Trail
3	0.089302	Robeson Crossing Trail
3	0.077562	Robeson Meadows Trail
3	0.088699	Robeson Meadows Trail
3	0.059209	Burwash Park Path
3	0.086881	Burwash Park Path
3	0.071846	Burwash Park Path
3	0.414718	Boulware Trail (Devonshire–Fox)
3	0.077037	Boulware Trail around Mattis Lake
3	0.46144	Boulware Trail (Fox–Devonshire)
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Sort by columns or rows

In[70]:= T2D@"please sort by column threee?"

Out[70]=

OBJECTID	Path_Type	Dx_Miles	Name
1666	3	0.00153	Sunset Ridge Park Path H
1668	3	0.001659	Sunset Ridge Park Path J
175	1	0.002666	Maplewood Detention Pond Path Trailhead
295	3	0.002848	Lower Boneyard Trail B
50	5	0.002876	Iowa Bike Path Spur B
205	1	0.003037	Maplewood Detention Pond Path Trailhead
126	3	0.003649	Robeson Meadows Trail Spur
82	3	0.00378	Robeson Meadows West Trail
1681	3	0.003976	AMBUCS Park Playground Path B
297	3	0.004	Lower Boneyard Trail C
134	3	0.004121	Duncan Road Path to Stoneybrook Dr
104	5	0.004143	Davenport Bike Path Spur
78	3	0.004277	Robeson Meadows West Trail
215	3	0.004543	Crystal Lake Park Path
123	3	0.004677	Hessel Park Path Spur to Hamilton Dr
127	3	0.004829	Robeson Meadows Trail Spur
156	1	0.004892	Hazelwood Drive N SP
137	3	0.005449	Robeson Meadows Trail Spur
201	3	0.005528	Clearview Detention Pond Path
124	3	0.00555	Hessel Park Path Spur to Cedar St

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Delete

```
In[74]:= T2D@"delete rows one to fivehundred please"
```

Out[74]=

OBJECTID	Path_Type	Dx_Miles	Name
3698	3	0.030041	Douglass Park Library Path
4089	6	0.24329	Washington Street Bike Lanes (Pfeffer–IL 130)
4090	3	0.106954	Garden Hills Park Path B
4091	3	0.103987	Garden Hills Park Path C
4491	1	0.19412	Cunningham Avenue E SP
4891	6	0.247462	Fourth Street Bike Lanes (Kirby–St. Mary's)
4892	6	0.417991	First Street Bike Lanes (Gregory–Kirby)

Add, Subtract, etc.

```
In[75]:= T2D@"hey add column 3 to column 5!"
```

Out[75]=

1.00759	1.00598	0.871845
0.011526	0.090604	0.434932
0.233575	0.026472	0.396546
0.198388	0.367029	0.089302
0.077562	0.088699	0.059209
0.086881	4.07185	0.414718
6.07704	0.46144	1.0309
1.03009	0.053996	0.554044
0.559732	0.078442	0.07862
0.096137	0.031484	0.103301
0.038626	0.5121	0.255667
0.04681	0.431182	0.047333
0.817485	0.522744	0.253424
0.079914	0.353247	0.52782
0.294635	0.106257	0.101773
0.23232	0.517043	0.320447
0.388765	0.002876	0.141759
0.28017	1.16606	5.09571
3.36298	1.00494	0.603972
0.559949	0.295376	0.051964

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Word Clouds

In[76]: T2D@ "draw a word cloud of column four"



Combine multiple results for complex tasks

```
In[77]:= T2D@"showw me columnn 2 to 5 please"
```

Out[77]=

Path_Type	Dx_Miles	Name
1	1.00759	Lincoln Avenue Trail (Florida–Windsor)
1	1.00598	Windsor Road S SP (Race–Philo)
1	0.871845	Windsor Road N SP (Myra Ridge–Stone Creek)
3	0.011526	Ethel S. Robeson Trail
3	0.090604	Ethel S. Robeson Trail
3	0.434932	Greenbelt Bikeway (Bradley–Heritage Park)
3	0.233575	Greenbelt Bikeway (Heritage Park)
3	0.026472	Greenbelt Bikeway Spur to Kaufman Lake
3	0.396546	Robeson Meadows Trail
3	0.198388	Robeson Meadows Trail
3	0.367029	Robeson Meadows Trail
3	0.089302	Robeson Crossing Trail
3	0.077562	Robeson Meadows Trail
3	0.088699	Robeson Meadows Trail
3	0.059209	Burwash Park Path
3	0.086881	Burwash Park Path
3	0.071846	Burwash Park Path
3	0.414718	Boulware Trail (Devonshire–Fox)
3	0.077037	Boulware Trail around Mattis Lake
3	0.46144	Boulware Trail (Fox–Devonshire)

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```
In[78]:= T2D@"select rows two to nine of output 77"
```

Out[78]=

Path_Type	Dx_Miles	Name
1	1.00598	Windsor Road S SP (Race–Philo)
1	0.871845	Windsor Road N SP (Myra Ridge–Stone Creek)
3	0.011526	Ethel S. Robeson Trail
3	0.090604	Ethel S. Robeson Trail
3	0.434932	Greenbelt Bikeway (Bradley–Heritage Park)
3	0.233575	Greenbelt Bikeway (Heritage Park)
3	0.026472	Greenbelt Bikeway Spur to Kaufman Lake
3	0.396546	Robeson Meadows Trail

In[79]:= **T2D@"can you show column three of the last result?"**

Out[79]=

Windsor Road S SP (Race-Philo)
Windsor Road N SP (Myra Ridge-Stone Creek)
Ethel S. Robeson Trail
Ethel S. Robeson Trail
Greenbelt Bikeway (Bradley-Heritage Park)
Greenbelt Bikeway (Heritage Park)
Greenbelt Bikeway Spur to Kaufman Lake
Robeson Meadows Trail

Ask for any statistics about the data

In[84]:= **T2D@"tell me the most common element of column two"**

Out[84]= {3. }

In[85]:= **T2D@"find the length column 4"**

Out[85]= 507

In[86]:= **T2D@"what is the mean of column 3"**

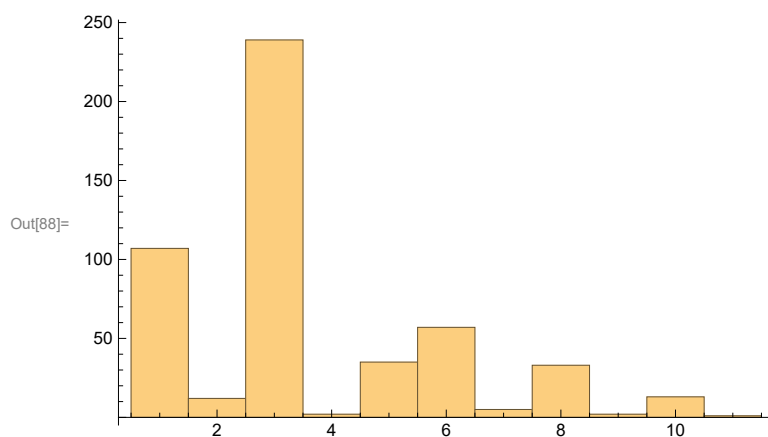
Out[86]= 0.235238

In[87]:= **T2D@"compute max of row 3"**

Out[87]= 4603.34

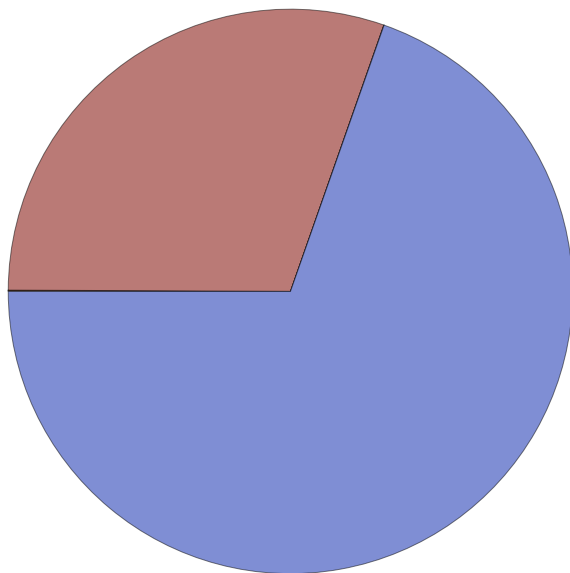
You can make all kinds of plots with the data

In[88]:= **T2D@"histogramm of column eight?"**



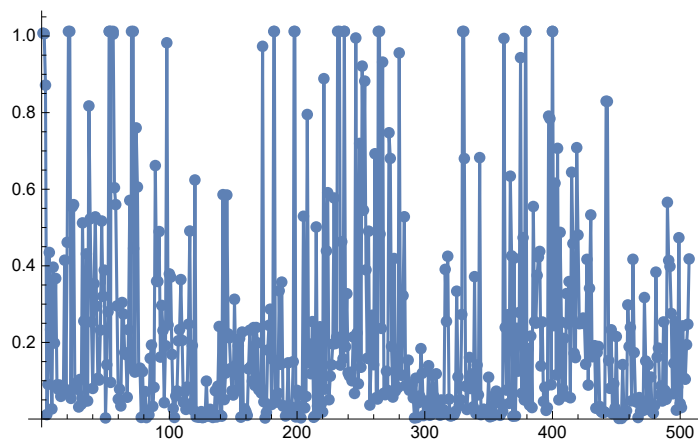
```
In[89]:= T2D@"piechart of row 3"
```

Out[89]=



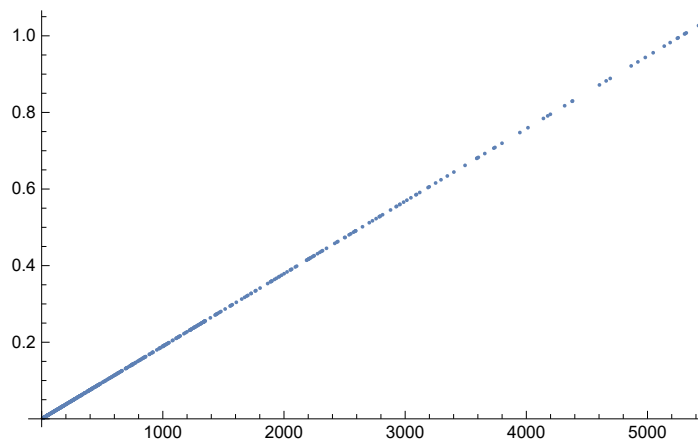
```
In[117]:= T2D@"what is the plot of column three?"
```

Out[117]=



```
In[118]:= T2D@"make a scatter plot column 3 v nine"
```

Out[118]=



Find fits, formulas, distributions

```
In[112]:= T2D@"fit a line to column 3 vs column nine please"
```

```
Out[112]:=  $1.75819 \times 10^{-6} + 0.000189393 x$ 
```

```
In[100]:= T2D@"find distribution of column three"
```

```
Out[100]:= WeibullDistribution[0.785897, 0.201524]
```

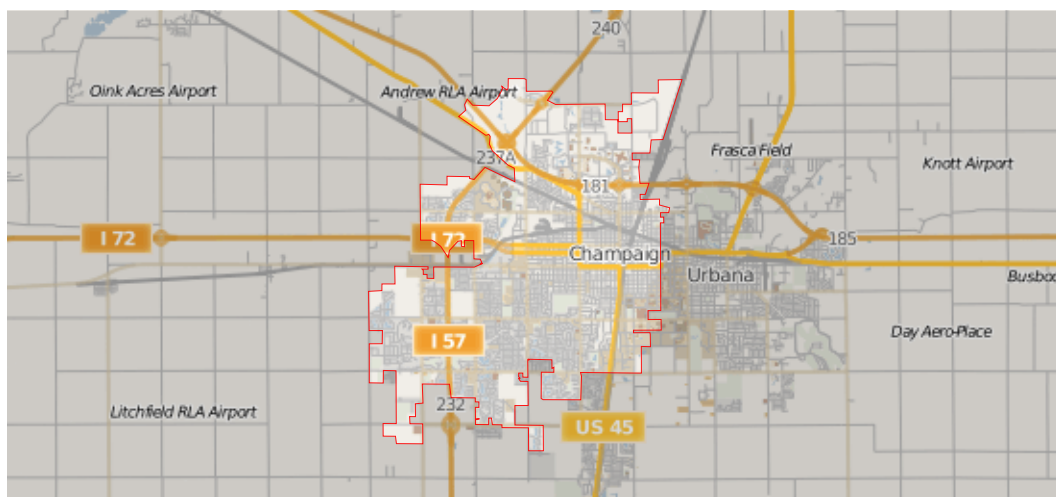
Adding functions

General Knowledge

You can ask anything

If a query is recognized to be unrelated to the data, it will be interpreted using the Wolfram Knowledgebase.

```
T2D@"give me map of champaign"
```



(based on current OpenStreetMap data)

```
T2D@"distance from chicago to NY divided by distance between paris and berlin"
```

```
1.27553
```

```
T2D@"area of India divided by area of moon"
```

```
0.0866596
```

```
T2D@"stock price of amazon vs google"
```

```
{ $784.93 , $802.03 }
```

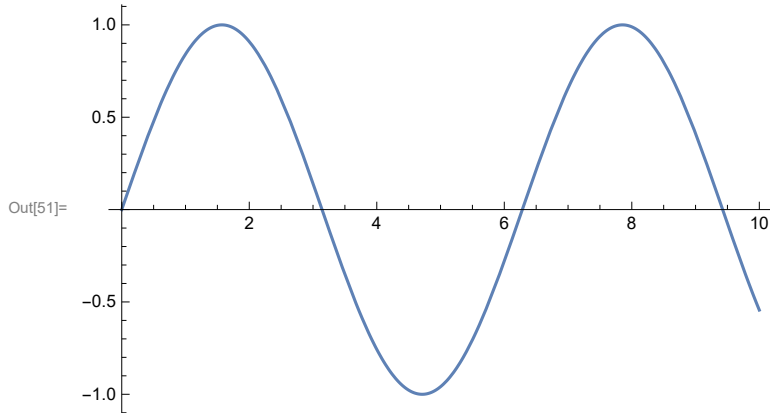
```
T2D@"list of prime numbers less than 1000 ending with 7"
```

```
{7, 17, 37, 47, 67, 97, 107, 127, 137, 157, 167, 197, 227, 257, 277,
307, 317, 337, 347, 367, 397, 457, 467, 487, 547, 557, 577, 587, 607, 617,
647, 677, 727, 757, 787, 797, 827, 857, 877, 887, 907, 937, 947, 967, 977, 997}
```

T2D@"number of protons in 50 grams of water"

1.6714×10^{25}

In[51]:= T2D@"can you plot sin x from 0 to 10 please?"



In[53]:= T2D@"what is the diameter of the moon times the integral of sin x from 0 to 1?"

Out[53]= 992.61 mi

Also works in any language!

Currently using the Google Translate API to translate other languages into English first.

Chinese

T2D@"芝加哥到北京的距离"

1120.81 km

T2D@"美国面积与中国面积"

$\{ 9.63142 \times 10^6 \text{ km}^2, 9.59696 \times 10^6 \text{ km}^2 \}$

Japanese

T2D@"米国人口"

322 422 965 people

Simple operations with any type of output

T2D@"show me an inverted picture of einstein"



WolframAlpha API

For a detailed report from WolframAlpha just say add the magic words wolfram alpha in your input.

T2D@"wolfram alpha crime rate in chicago vs urbana"

Assuming Urbana (Illinois, USA) | Use [Urbana \(Ohio, USA\)](#) or [Urbana \(Iowa, USA\)](#) or [more](#) ▾ instead

Input interpretation:

Chicago, Illinois

Urbana, Illinois

total rate of crime

Results:

Chicago, Illinois, United States	5353 crimes per 100 000 people per year (2009 estimate)
Urbana, Illinois, United States	5130 crimes per 100 000 people per year (1992 estimate)

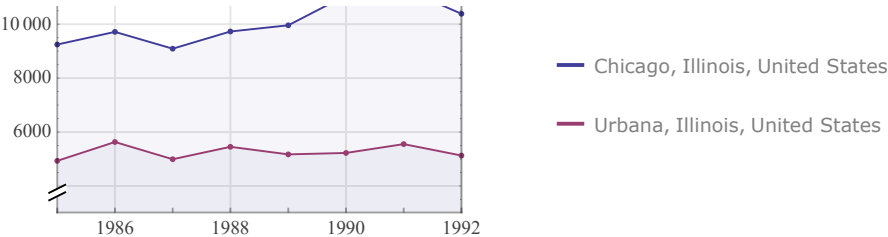
Comparisons:

Chicago, Illinois	Urbana, Illinois
one crime per person every 18.68 years	one crime per person every 19.49 years
1.8 × Illinois average	1.7 × Illinois average
1.6 × national average	1.6 × national average

+ Units

Crime rate history:

Crimes
Log scale
+



(from 1985 to 1992) (in crimes per 100 000 people per year)

Overall crime statistics:

Show chart +

	Chicago, Illinois	Urbana, Illinois
total rate of crime	5353 crimes/100 000 people/yr (2009)	5130 crimes/100 000 people/yr (1992)
total number of crimes	152 469 crimes per year (2009)	1897 crimes per year (1992)

(UCR Part I offenses)

+ Units

Property crime rates:

Crimes Show chart +

	Chicago, Illinois	Urbana, Illinois
larceny	2754 crimes/100 000 people/yr (2009)	3277 crimes/100 000 people/yr (1992)
burglary	930.1 crimes/100 000 people/yr (2009)	1176 crimes/100 000 people/yr (1992)
vehicle theft	543.1 crimes/100 000 people/yr (2009)	135.2 crimes/100 000 people/yr (1992)
property crime total	4227 crimes/100 000 people/yr (2009)	4589 crimes/100 000 people/yr (1992)

+ Units

Violent crime rates:

Crimes Show chart +

	Chicago, Illinois	Urbana, Illinois
robbery	557.4 crimes/100 000 people/yr (2009)	183.9 crimes/100 000 people/yr (1992)
aggravated assault	552.1 crimes/100 000 people/yr (2009)	351.5 crimes/100 000 people/yr (1992)
murder and nonnegligent manslaughter	16.08 crimes/100 000 people/yr (2009)	5.4 crimes/100 000 people/yr (1992)
violent crime total	1126 crimes/100 000 people/yr (2009)	540.8 crimes/100 000 people/yr (1992)

(forcible rape figures not available for some IL cities)

+ Units

WolframAlpha +

You can even do simple or complicated math easily

T2D@"wolfram alpha solve $y'' + y = 0$ "

Assuming "solve" is a word | Use as [referring to equation solving](#) instead

Input:

$$y''(x) + y(x) = 0$$

ODE names:

Autonomous equation:

$$y''(x) = -y(x)$$

Van der Pol's equation:

$$y''(x) + y(x) = 0$$

[van der Pol's equation »](#)

ODE classification:

second-order linear ordinary differential equation

Alternate form:

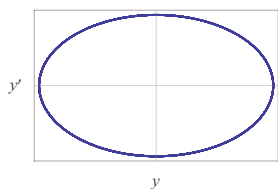
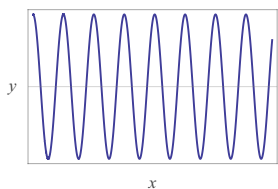
$$y''(x) = -y(x)$$

Differential equation solution:

[Step-by-step solution](#)

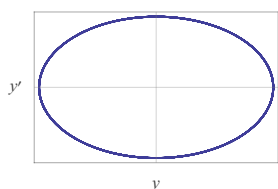
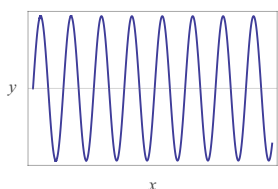
$$y(x) = c_2 \sin(x) + c_1 \cos(x)$$

Plots of sample individual solutions:



$$y(0) = 1$$

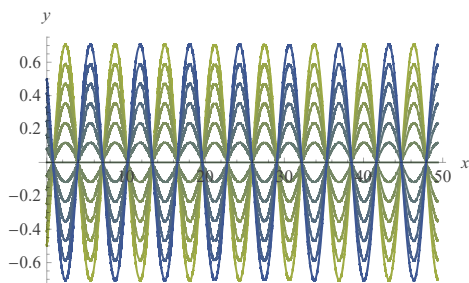
$$y'(0) = 0$$



$$y(0) = 0$$

$$y'(0) = 1$$

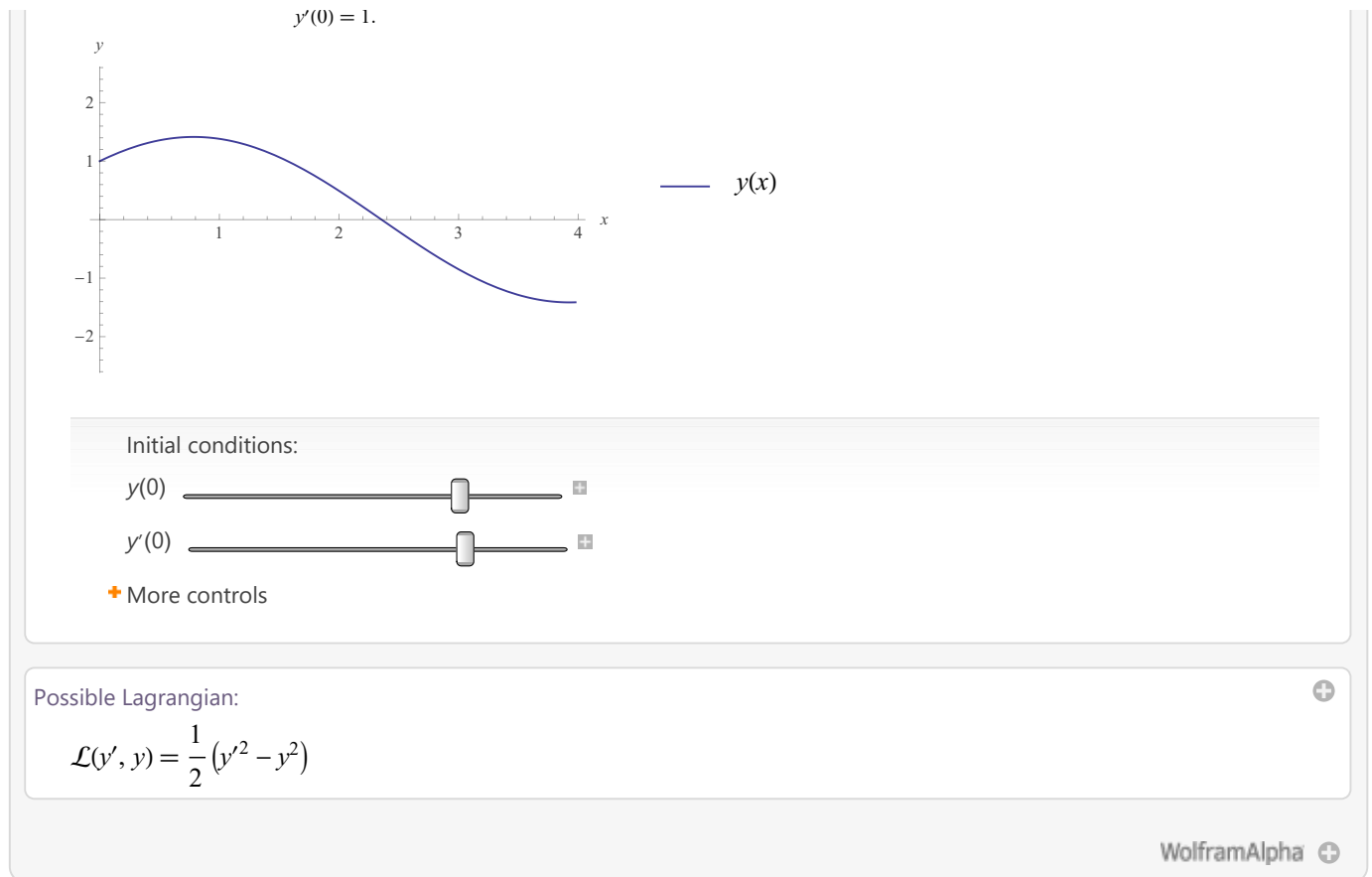
Sample solution family:



(sampling $y(0)$ and $y'(0)$)

Interactive differential equation solution plots:

$$y(0) = 1.$$



Other Functionality

Scope For Improvement

Machine Learning