Data Visualization Tools for High School Teachers

Day 3

Before We Begin

Pre-workshop notes

Use headphones · Everyone their own laptop · Quiet space · Reliable internet connection · Camera on

online etiquette

Mute yourself · Press spacebar to unmute · Want to speak · Yes / agree

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Coastal Ecology Assessment Innovation & Modeling

Agenda

- 9:00 – 9:10: Recap of Day 1 and 2

- 9:10 – 09:55: Data Visualization using Python

- 09:55 – 10:00: Break

- 10:00 – 10:55: Teachers Group Activities

- 10:55 – 11:00: Break

- 11:00 – 11:45: Teachers Debrief

- 11:45 – 12:00: Next steps and discussions
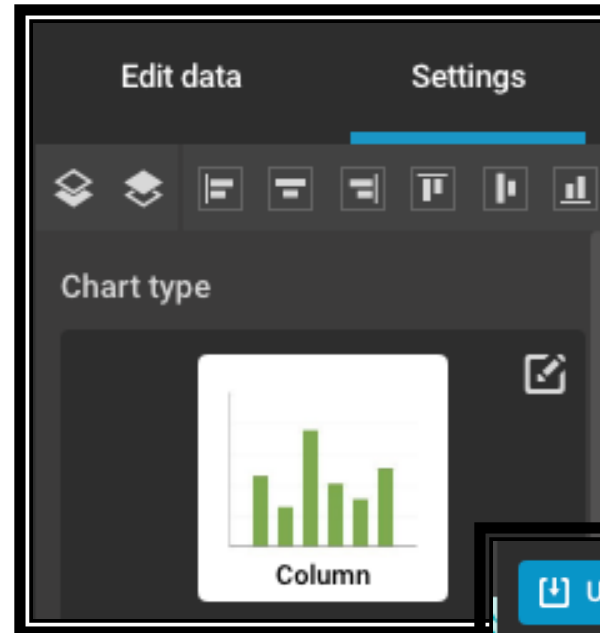
Charts

infogr.am

- Charts are graphical representations of data.
- Charts make it easy to understand large quantities of data, find patterns and relationships and identify trends.
- Infogram offers a wide variety of charts ranging from interactive bar charts, area charts, pie charts to more complex ones like treemaps, word clouds, scatter charts or candlestick charts.
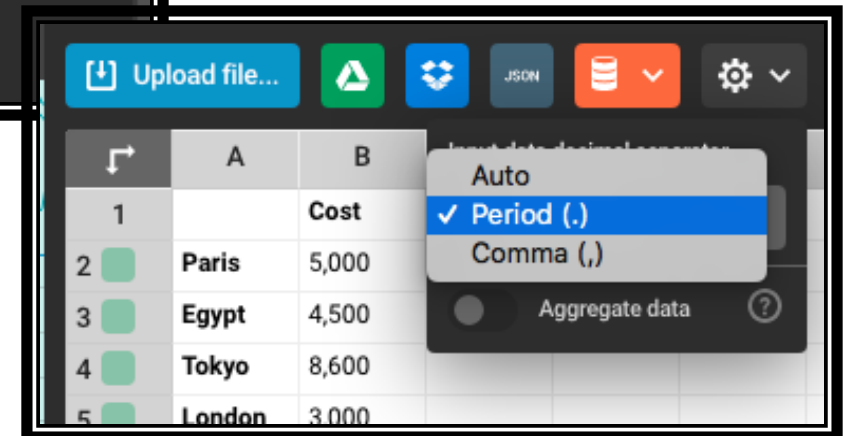
How does it work?

Importing Data

- If the data set is so small, I can just edit the chart element directly
  - While the bar chart is selected, click "Edit data" to bring up the spreadsheet and fill in your data
- What if I already have a spreadsheet of data? Simple!
  - The "Edit data" tab allows you to upload an Excel file, a .csv file, a Google Sheets file, and much more
- With .csv, make sure to click on the little gear icon to change how the data is separated

I chose to use a bar chart

How does it work?

infogr.am

Making a Visualization

- Look at your data and choose a chart type that works, not one that looks interesting
- Let's say I want to make a poster for the Travel Abroad club at school
  - I want to show the cost per person to different destinations the group may go to
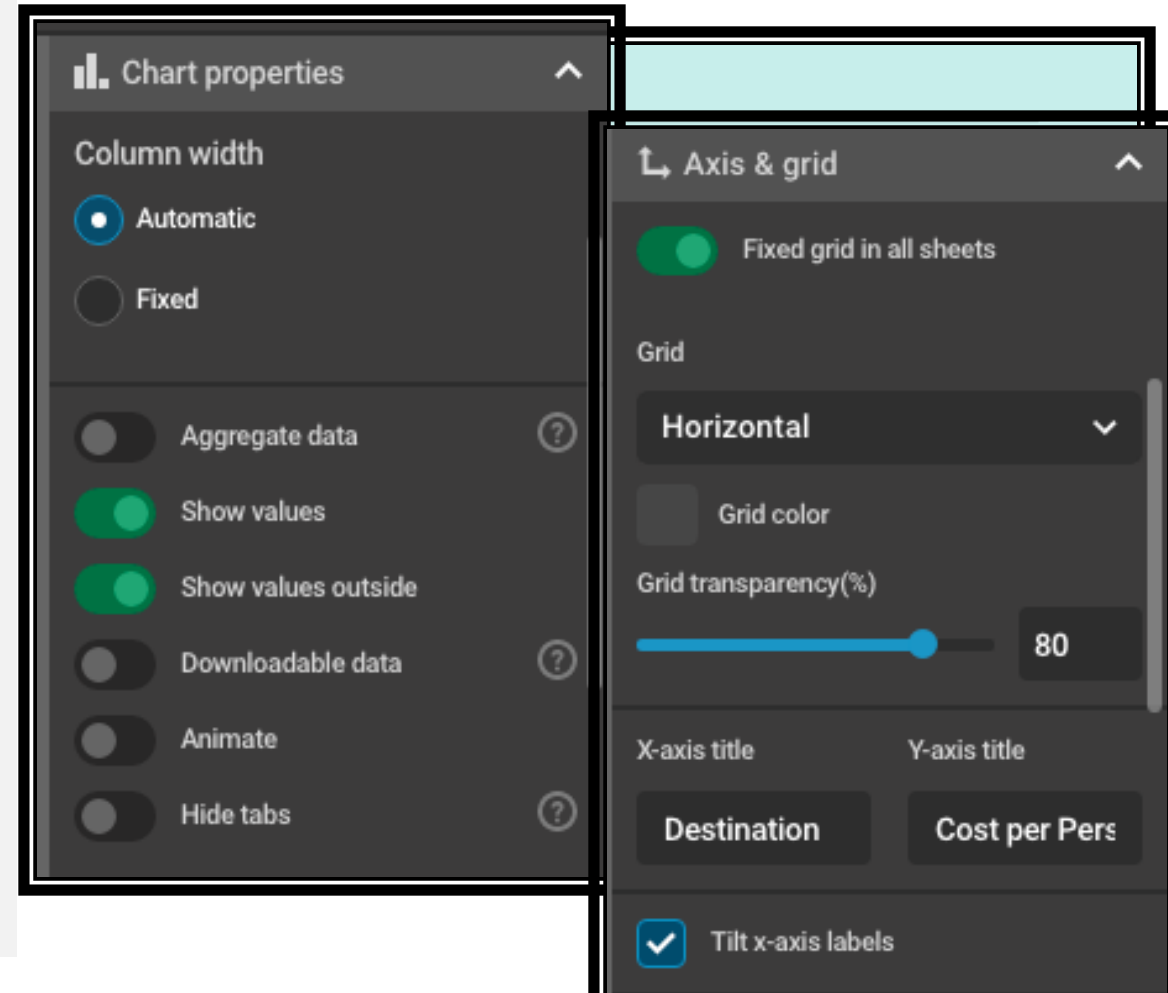- What chart type do you think would work for this data?

Destination	Cost
Paris	5,000
Cairo	4,500
Tokyo	8,600
London	3,000
Brazil	3,300

How does it work?

infogr.am

Finalizing the Graph

- Going back to the settings, I want to add some elements
- I want data labels since this will be a printed poster
  - Go to "Chart properties" --> "Show values" and/or "Show values outside"
  - If I share the poster from Infogram digitally, you may not need data labels since the labels appear when you hover over a column
- I want axis titles
  - Go to "Axis & grid" and scroll down to find the text boxes for each axis
- There are many more options to play around with if you make a chart on Infogram

Chart properties

Column width
- Automatic
- Fixed

Aggregate data
Show values
Show values outside
Downloadable data
Animate
Hide tabs

Axis & grid

Fixed grid in all sheets

Grid
Horizontal

Grid color

Grid transparency(%)
80

X-axis title   Y-axis title

Destination   Cost per Pers

Tilt x-axis labels

Charts

infogr.am

- Let's try it on Infogram

Infogram Pricing

More Resources

- https://www.youtube.com/c/Infogram/videos

- https://infogram.com/page/best-resources

5 Minutes Break!

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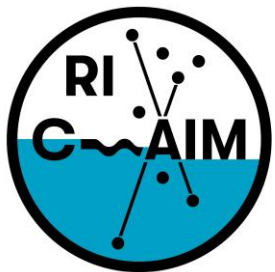## online etiquette

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Data Visualization Using Python

- Online Tool
  https://trinket.io/embed/python3

- Examples
  https://www.geeksforgeeks.org/graph-plotting-in-python-set-1/

Data Visualization Using Python

- Example 1:

Data Visualization Using Python – Example 1

```python
# importing the required module
import matplotlib.pyplot as plt

# x axis values
x = [1,2,3]
# corresponding y axis values
y = [2,4,1]

# plotting the points
plt.plot(x, y)

# naming the x axis
plt.xlabel('x - axis')

# naming the y axis
plt.ylabel('y - axis')

# giving a title to my graph
plt.title('My first graph!')

# function to show the plot
plt.show()
```
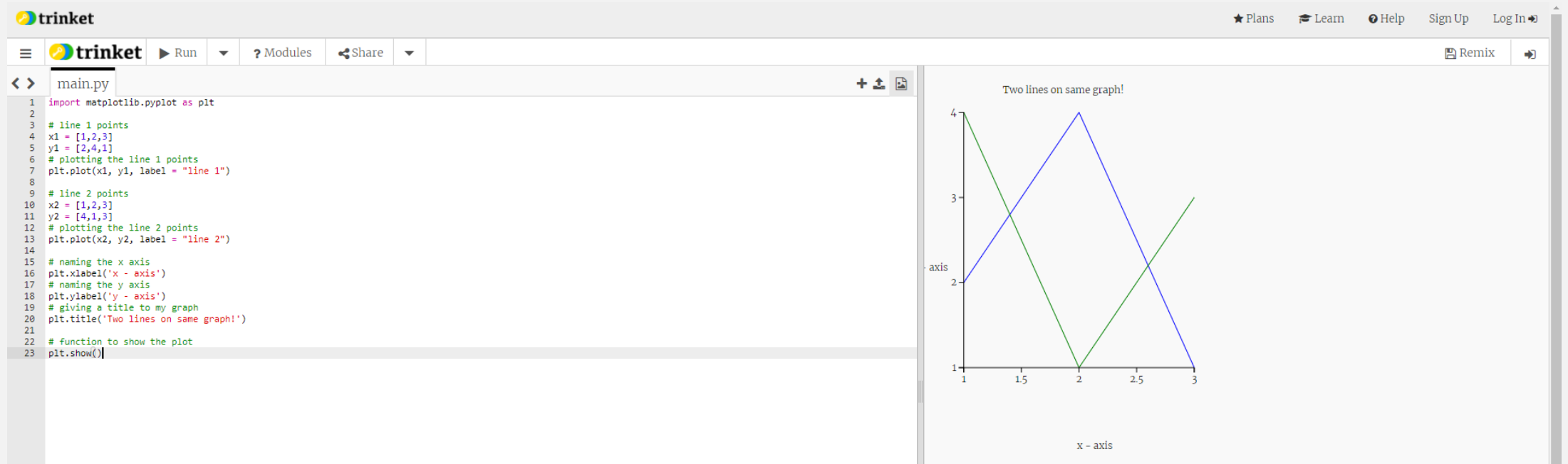
Just copy and paste the code into the website: Online Tool
https://trinket.io/embed/python3

Data Visualization Using Python

- Example 2:

Data Visualization Using Python – Example 2

```python
import matplotlib.pyplot as plt

# line 1 points
x1 = [1,2,3]
y1 = [2,4,1]
# plotting the line 1 points
plt.plot(x1, y1, label = "line 1")

# line 2 points
x2 = [1,2,3]
y2 = [4,1,3]
# plotting the line 2 points
plt.plot(x2, y2, label = "line 2")

# naming the x axis
plt.xlabel('x - axis')
# naming the y axis
plt.ylabel('y - axis')
# giving a title to my graph
plt.title('Two lines on same graph!')

# function to show the plot
plt.show()
```
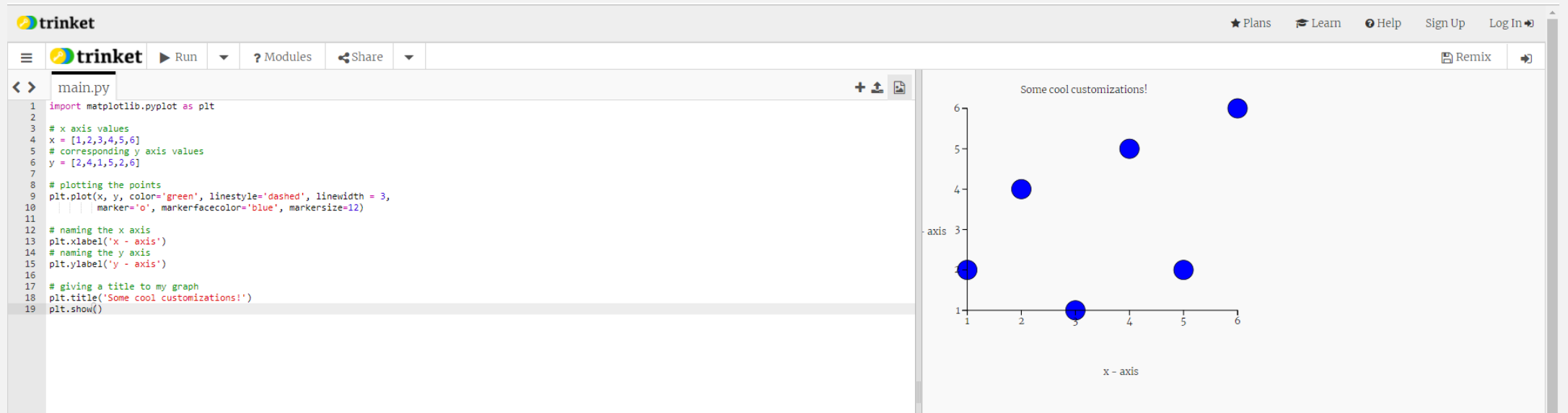
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Data Visualization Using Python

- Example 3:

Data Visualization Using Python – Example 3

```python
import matplotlib.pyplot as plt

# x axis values
x = [1,2,3,4,5,6]
# corresponding y axis values
y = [2,4,1,5,2,6]

# plotting the points
plt.plot(x, y, color='green', linestyle='dashed', linewidth = 3,
        marker='o', markerfacecolor='blue', markersize=12)

# naming the x axis
plt.xlabel('x - axis')
# naming the y axis
plt.ylabel('y - axis')

# giving a title to my graph
plt.title('Some cool customizations!')
plt.show()
```

Just copy and paste the code into the website: Online Tool
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5 Minutes Break!

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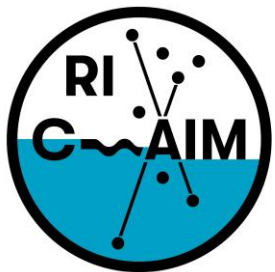

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Teacher Group Activities

- Teacher Activity Book http://simplechartsri.com/additional-files/Teacher%20Activity%20Book%20Ver%203%20with%20back%20cover.pdf

- Student Activity Book http://simplechartsri.com/additional-files/Student%20Activity%20Book%20Ver%203%20with%20back%20cover.pdf

- Activities Created By Teachers http://simplechartsri.com/resources.html

- Teacher Report Template http://simplechartsri.com/resources.html

Teacher Groups

Gina Cunha
Don Lurgio
Amy Kizzee
Joel Swan
Kelly Reese

Shannon Donovan
Whitney Biafore

Elizabeth Letourneau
Mark Davis

Justin Kuncz
Helaine Hager

5 Minutes Break!

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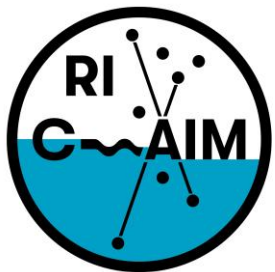

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Teachers Debrief

Gina Cunha
Don Lurgio
Amy Kizzee
Joel Swan
Kelly Reese

Shannon Donovan
Whitney Biafore

Elizabeth Letourneau
Mark Davis

Justin Kuncz
Helaine Hager

W-9 Forms and Next steps

If you haven't been paid by RIC before	➤	https://www.ric.edu/documents/w-9-form	➤	Fill the W9 form out by **August 7th**	➤	**Send it to shamouda@ric.edu**

- If you have been paid by RIC before, you're all set.
- We will send you an email when the **$120** first stipend for attending the workshop is ready.
- The **$80** second stipend is after submitting the report by **August 20th**.
- The completion certificates will be emailed and mailed to you next week.
- Your Infogram account is valid for a year. We can't offer student accounts.

- **Workshop evaluation link**: https://forms.office.com/r/BS8qT6mqq2

SimpleChartsRI Old vs New

- Old vs New Survey
https://forms.office.com/r/qJkK5UiBtu

Thank you!
It was a great pleasure meeting you all!
Questions/Comments?

End of the workshop