#DataDunkers

PBL: Creating a “Hoops” Graph

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bit.ly/pbl-hoops

The latest version of these slides can be found at https://bit.ly/pbl-hoops.

Overview

- Overview of Master Lessons
- Just for fun: Mini Basketball Labyrinth
- The end in mind…
- Introduction to Jupyter Notebooks
- Where does the data come from?
- Introducing the Mini Hoops Graph Notebook
- Previewing and Preparing the Data
- Visualizing the Data
- Finishing the Mini Hoops Graph

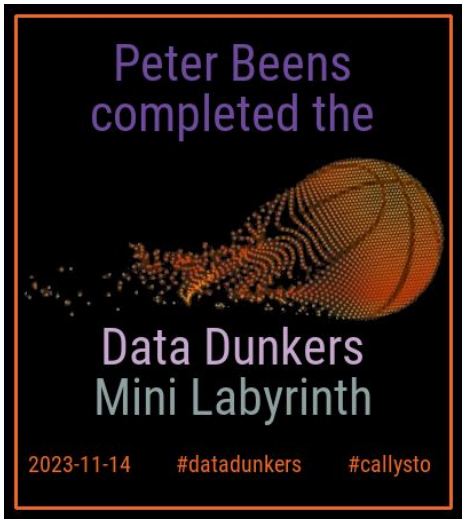
Overview of Master Lessons

Note: This workshop is adapted from the master lessons found at:

bit.ly/dd-slides

(let's do a quick review)

Just for fun: Mini Basketball Labyrinth



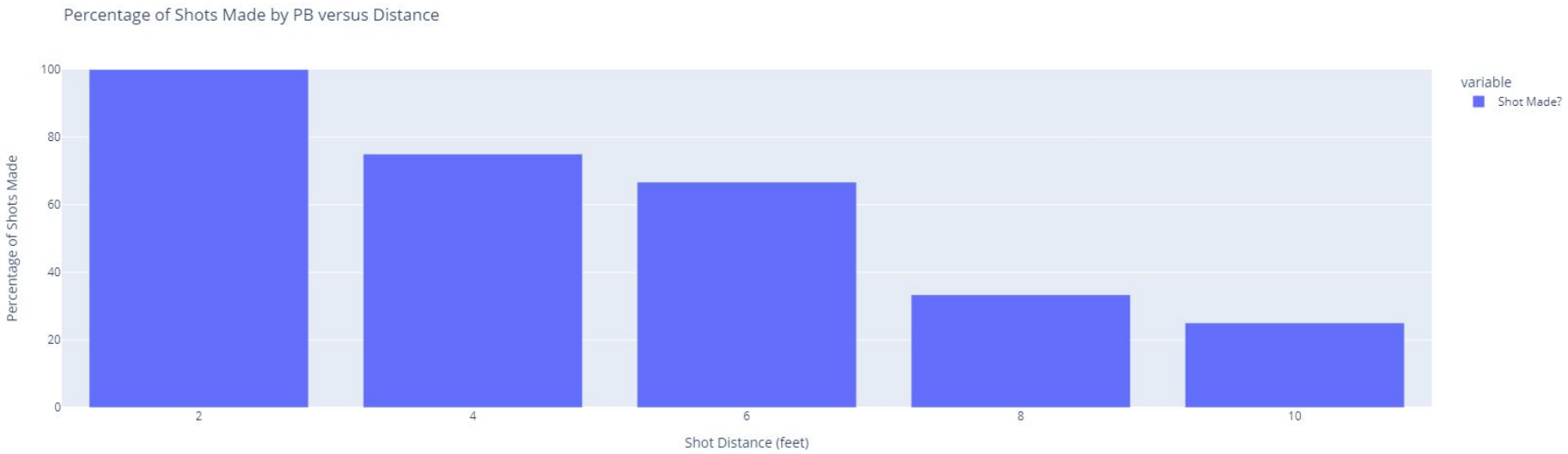
bit.ly/dd-mini-bb

Key: WNBA

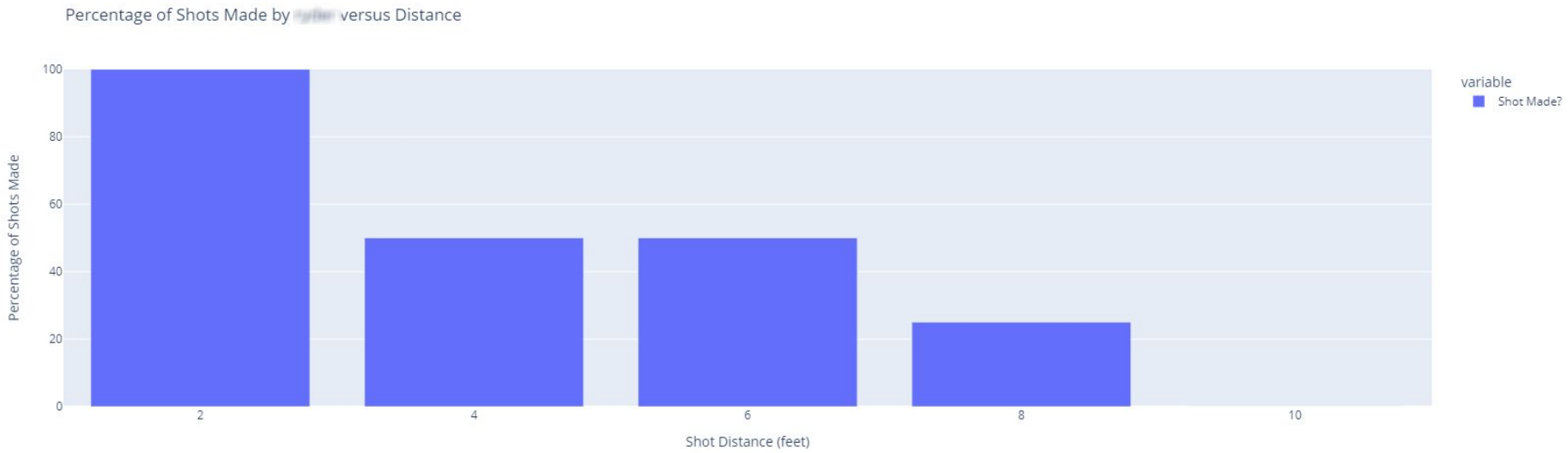
Note: any time you see this image, go shoot some hoops when the activity is finished!

Clicking on the image will take you to the form.

The End in Mind… (1/3)

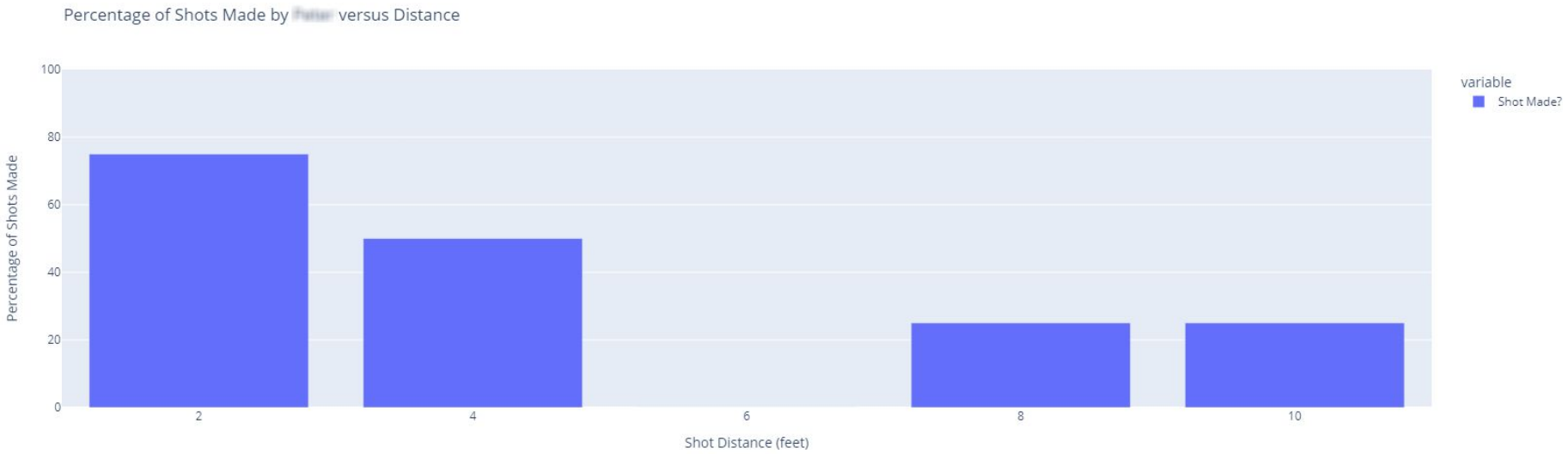


The End in Mind… (2/3)



What's the minimum number of shots this person took? Do you feel it's enough for this plot?

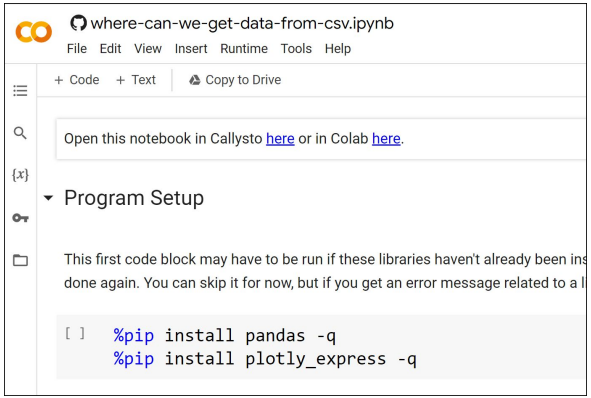
The End in Mind… (3/3)



Is this realistic? Did the person make enough attempts to measure and graph their skill level?

Introduction to Jupyter Notebooks (1/2)

1. Lesson: Jupyter Notebook Demo
    a. Callysto vs Google Colab Discussion
    b. Basics of Markdown
        i. Code Cells vs Markdown Cells *(Pay attention to "Hello world" example program!)*
2. Class Activity: hello-world



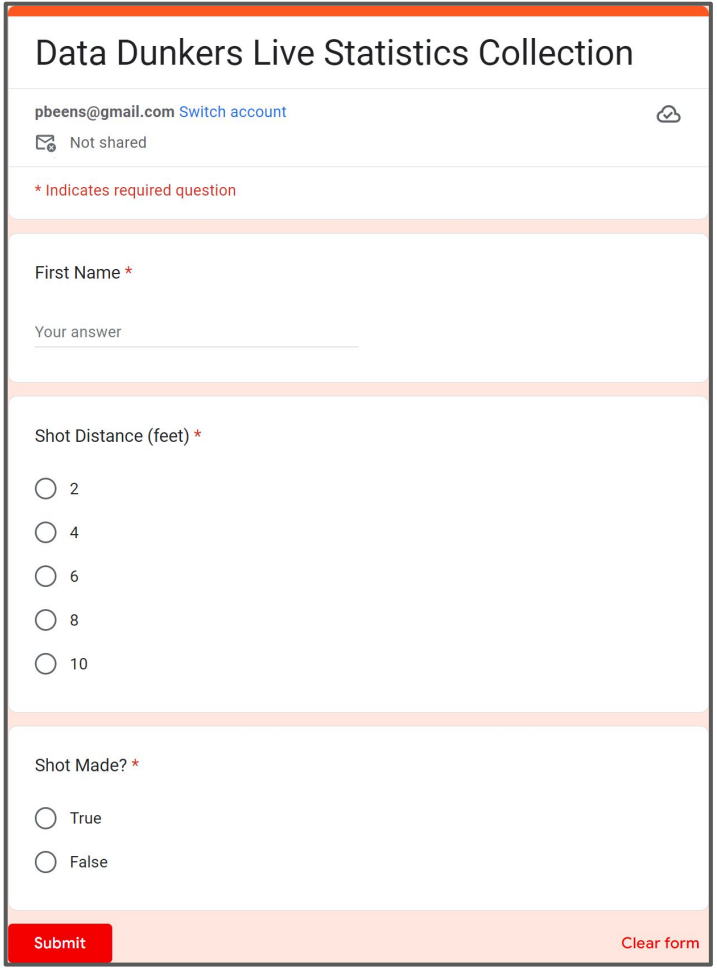
Introduction to Jupyter Notebooks (2/2)

1. Lesson: Jupyter Notebook Demo
2. Class Activity: hello-world
    a. Basic Python syntax
    b. How to run code in a code cell

Where does the data come from?

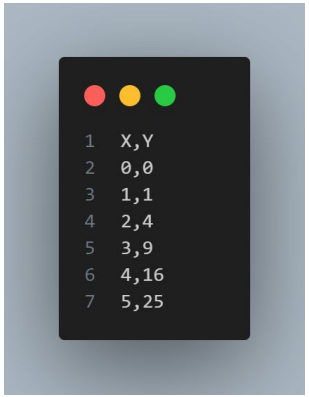
	A	B	C	D
1	**Timestamp**	**First Name**	**Shot Distance (feet)**	**Shot Made?**
2	10/18/2023 10:51:01	David	10	FALSE
3	10/18/2023 10:53:00	David	10	TRUE
4	10/18/2023 13:38:16	MG	8	TRUE
5	10/18/2023 13:38:25	MG	8	FALSE
6	10/18/2023 13:38:33	MG	8	FALSE
7	10/18/2023 13:38:40	MG	8	TRUE
8	10/18/2023 13:53:05	MG	8	TRUE
9	10/18/2023 13:53:15	MG	10	TRUE
10	10/18/2023 13:53:22	MG	10	TRUE
11	10/20/2023 9:05:25	LN	8	FALSE
12	10/20/2023 9:05:28	NP	10	FALSE
13	10/20/2023 9:05:45	Tainy	2	TRUE
14	10/20/2023 9:05:51	MPT	4	FALSE
15	10/20/2023 9:05:53	AD	10	FALSE
16	10/20/2023 9:05:57	Lesley	4	TRUE

(Images are links)



How Do We Get the Data? (2/5)

1. Internal List Data
2. CSV (Comma Separated Values) File
   a. Shows how to access data from a Comma Separated Values (CSV) file.
   b. Introduces how to use `head()` and `tail()` to show the top or bottom rows, respectively, of your data.
   c. Introduces how to get the name of the columns using `df.columns`.
   d. Introduces how to rename columns.
   e. Introduces Python variables.
3. Excel File
4. Webpage
5. Google Sheets



How Do We Get the Data? (5/5)

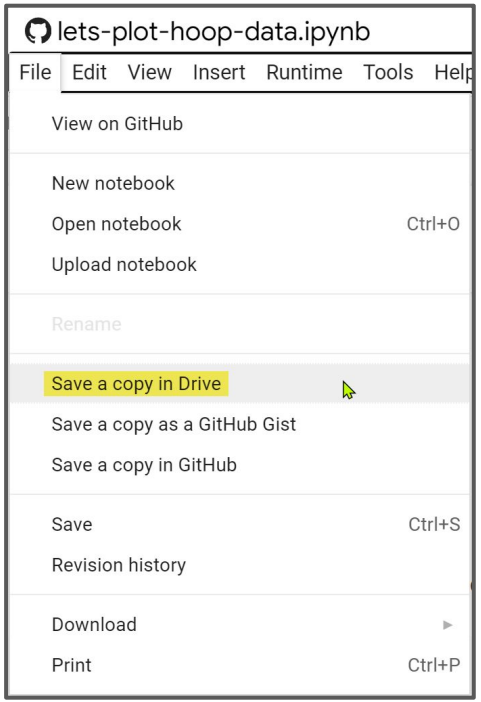
1. Internal List Data
2. CSV (Comma Separated Values) File
3. Excel File
4. Webpage
5. Google Sheets
    a. Shows how to access data from a Google Sheet.
    b. Pay attention to the Google Sheet permission and how to change the URL.

Mini Hoops Graph

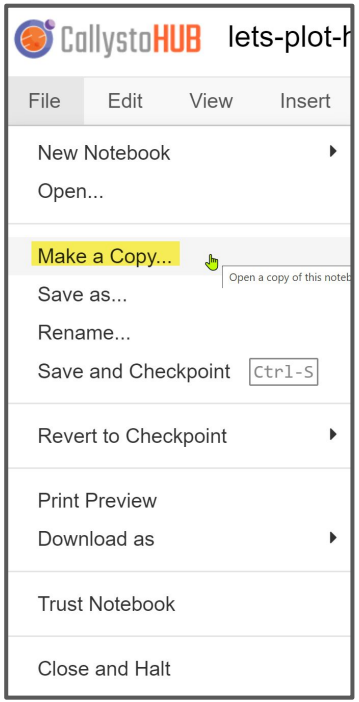
Introducing the Mini Hoops Graph Notebook

Open bit.ly/47YJF5d, then open in Colab or Callysto, then save a local copy as shown. You may wish to rename it.

Important! Work with your copy from then on!



Colab



Callysto

Previewing and Preparing the Data (1/4)

1. Columns
   a. How to see what columns are in the data.
   b. How how to view specific columns of the data.
2. Making New Columns
3. Filtering Data
4. Sorting Data

Previewing and Preparing the Data (3/4)

1. Columns
2. Making New Columns
3. Filtering Data
   a. How to extract data that meets specific criteria.
4. Sorting Data

Update your Hoops Graph notebook after this activity.

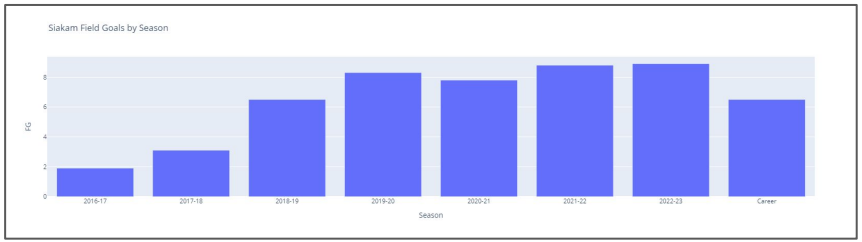
Previewing and Preparing the Data (4/4)

1. Columns
2. Making New Columns
3. Filtering Data
4. Sorting Data and Deleting Rows
    a. How to sort the data using `df.sort_values()`.
    b. How to delete unwanted rows using `df.drop()`.

Visualizing the Data (1/4)

1. Bar Charts
   a. How to create a bar chart.
   b. How to plot multiple columns using a list (`[ ]`).
   c. How to rename the x-axis using `fig.update_xaxes(title='')`.
   d. How to rename the y-axis using `fig.update_yaxes(title='')`.
2. Scatter Plots
3. Pie Charts
4. Histograms

(We have already done Line Charts)



Finishing the Mini Hoops Graph

Finish editing your Hoops Graph notebook.
Don’t forget to save your graph!

Additional Resources

- Master #DataDunkers Slideshow
- My Data Analysis Repository | Data Dunkers ReadMe
- Beens' Python Videos (YouTube)