

Lecture Notes for **Machine Learning in Python**



Visualization

Class Logistics and Agenda

- Logistics:
 - Office Hours Zoom
- Agenda:
 - Finish Visualization Demo
 - Town Hall Lab One
- Next Time:
 - Dimensionality Reduction
 - PCA
 - Sampling
 - Images

Class Overview, by topic

Table Data
Visualization

Numpy, Pandas, Seaborn
Overviews with some in-depth discussion

Dimension
Reduction and
Image Processing

Scikit-learn, Scikit Image,
Intuition only, Some mathematics

Linear and
Logistic
Regression

Numpy, Recreate API for Scikit-learn
Detailed mathematics for simple optimization
intuition for advanced optimization

Neural Networks
and Back Prop.

Numpy
Detailed mathematics for NN operations

Wide and Deep
Networks

Convolutional
Networks

Recurrent
Networks

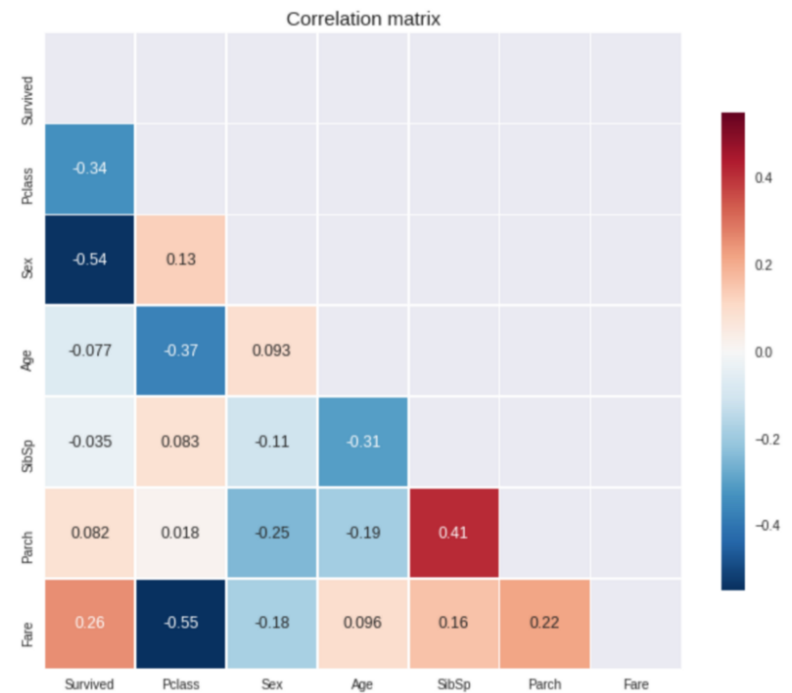
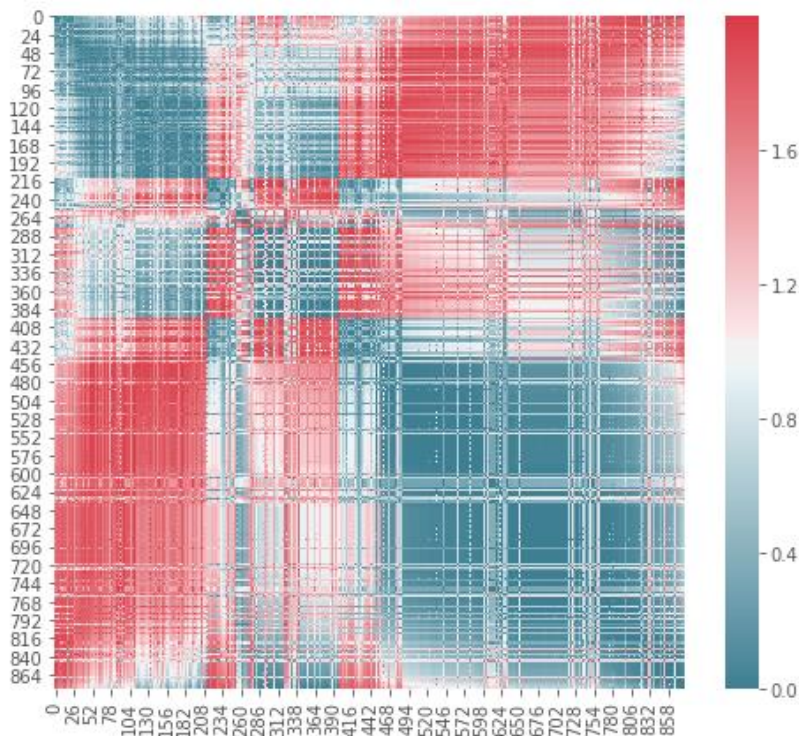
Keras, Tensorflow
Intuition, Detailed implement.

Ethics in
Language Models

ConceptNet
Case studies

What is the difference in these plots?

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Embarked	2	3	male	Q	S	
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	S	0	1	1	0	1
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C	0	0	0	0	0
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	S	0	1	0	0	1



- You tell me what conclusions we are getting from these graphs
 - . Histogram
 - . KDE
 - . HeatMaps and Correlation
 - . Scatter and Scatter Matrix
 - . Box / Violin / Swarm

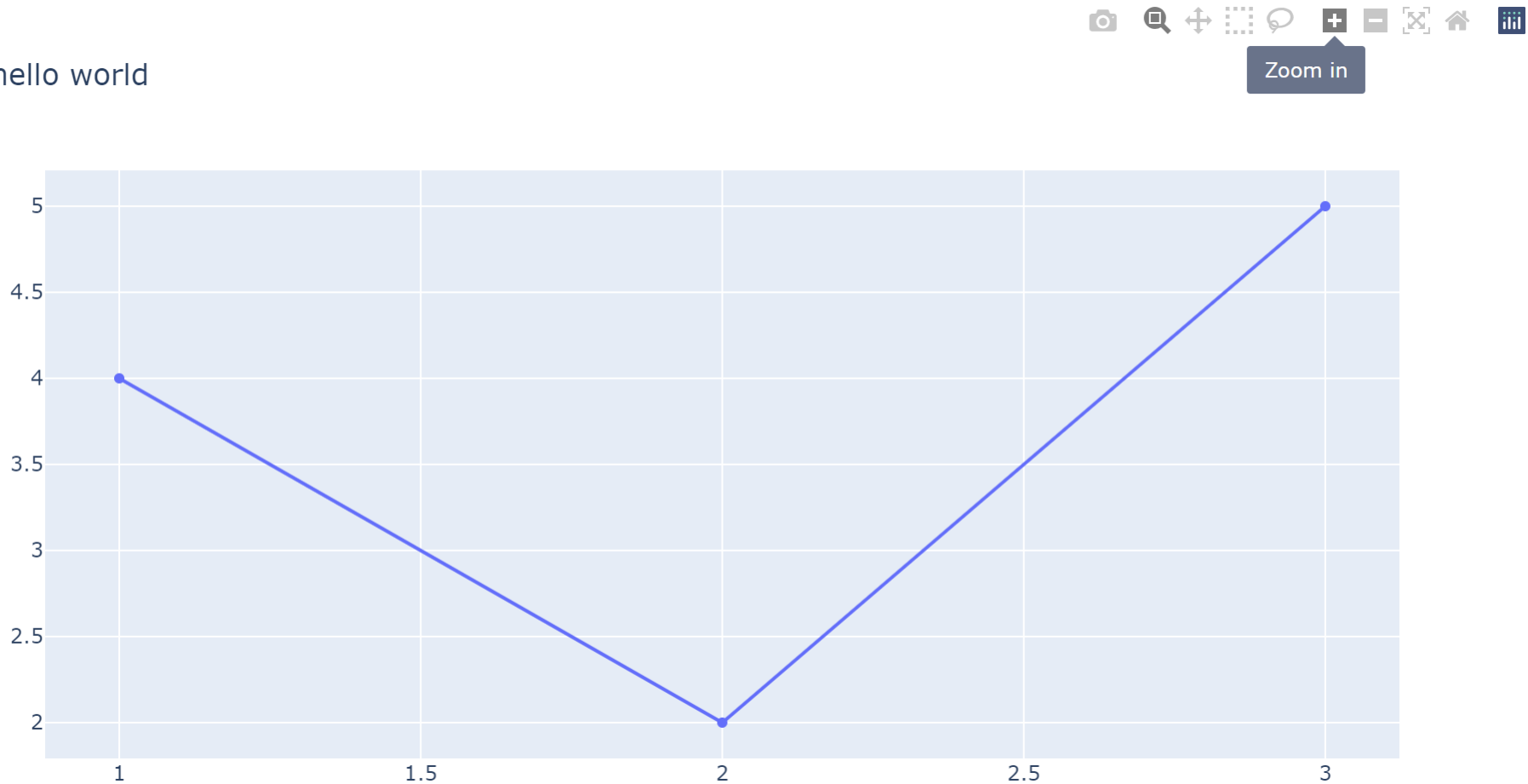


03.Data Visualization.ipynb

Matplotlib
Seaborn
Plotly

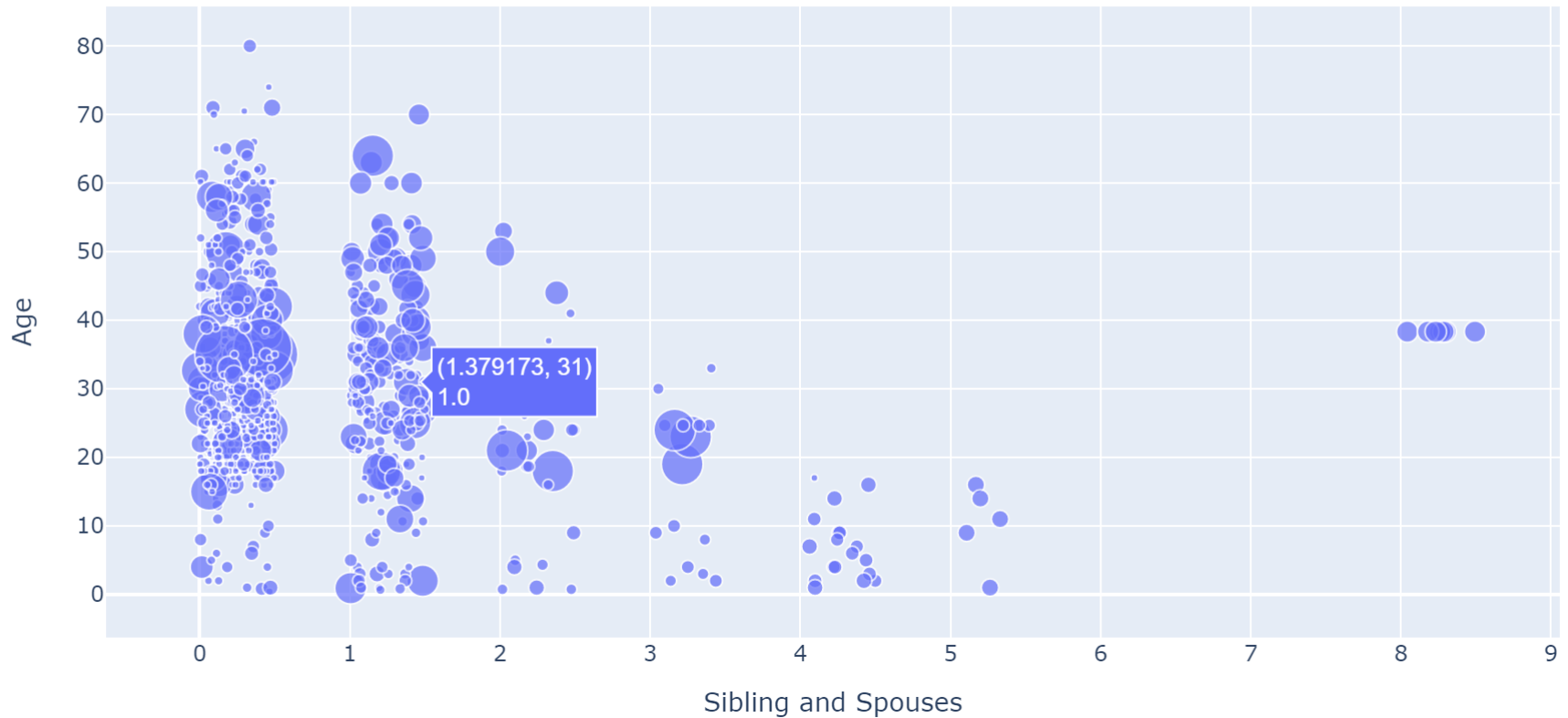
Interactive Plot

hello world



Interactive Plot

Age and Family Size (Marker Size==Fare)

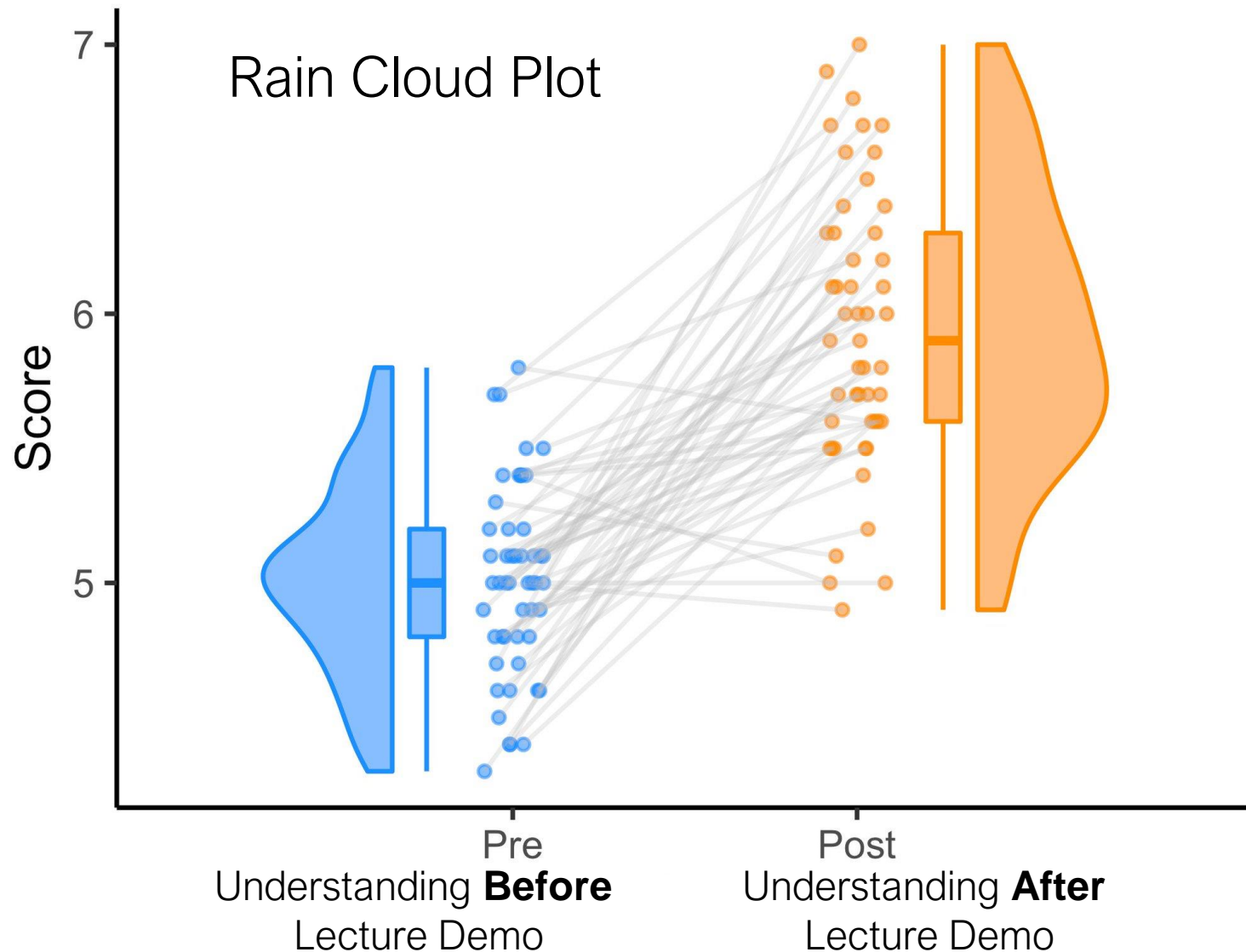


Interactive Plot

Age and Class Scatter Plot, Size = number of siblings and spouses

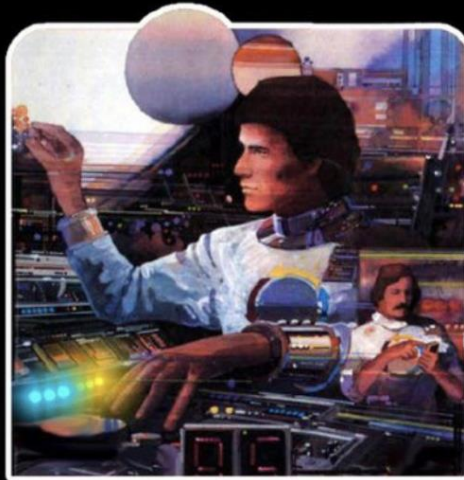


Now you have visualization building blocks

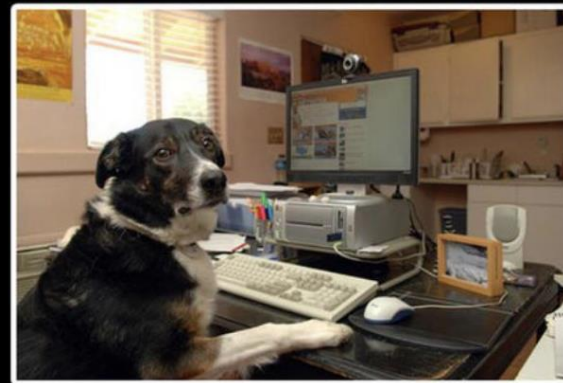


Lab One: Town Hall

THE TWO STATES OF EVERY PROGRAMMER



I AM A GOD.



**I HAVE NO IDEA
WHAT I'M DOING.**