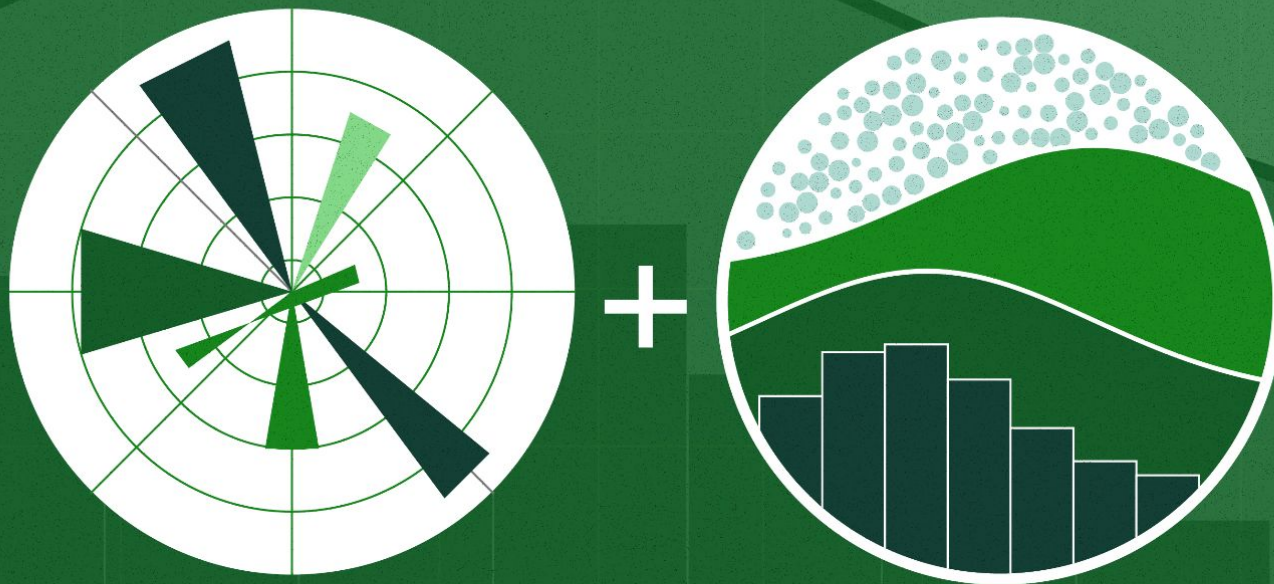


Curso Básico de

Visualizaciones de Datos con Matplotlib y Seaborn

Carlos Alarcón



La importancia de la visualización de datos

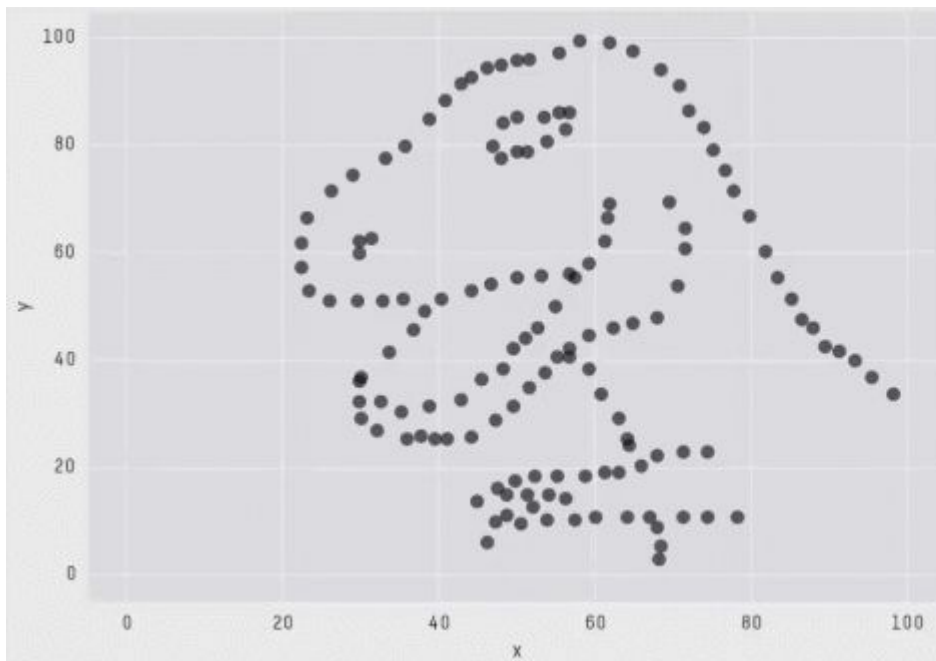
“

**Visualization gives you
answers to questions you
didn't know you had.**

”

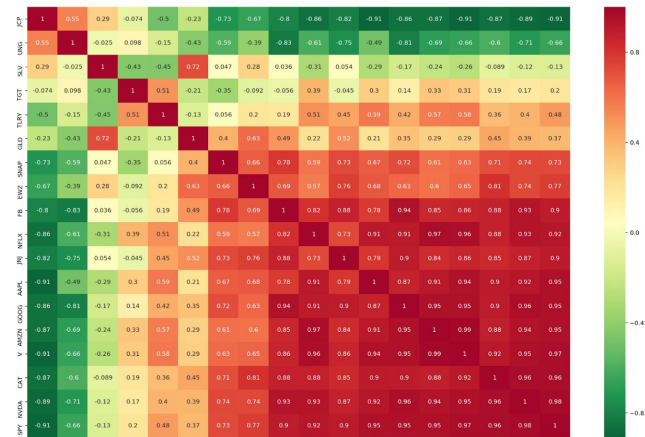
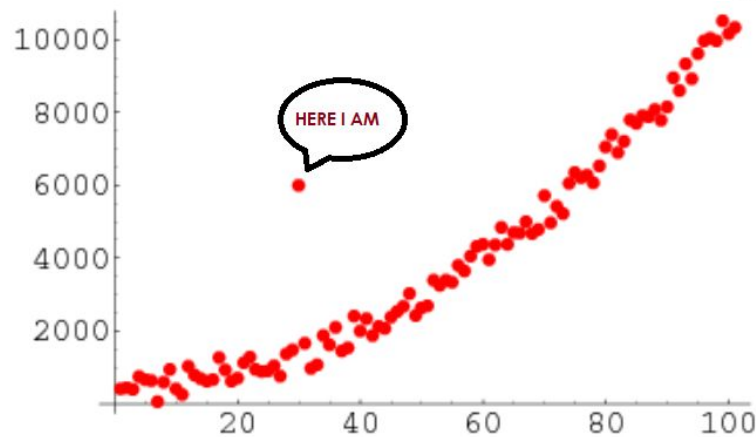
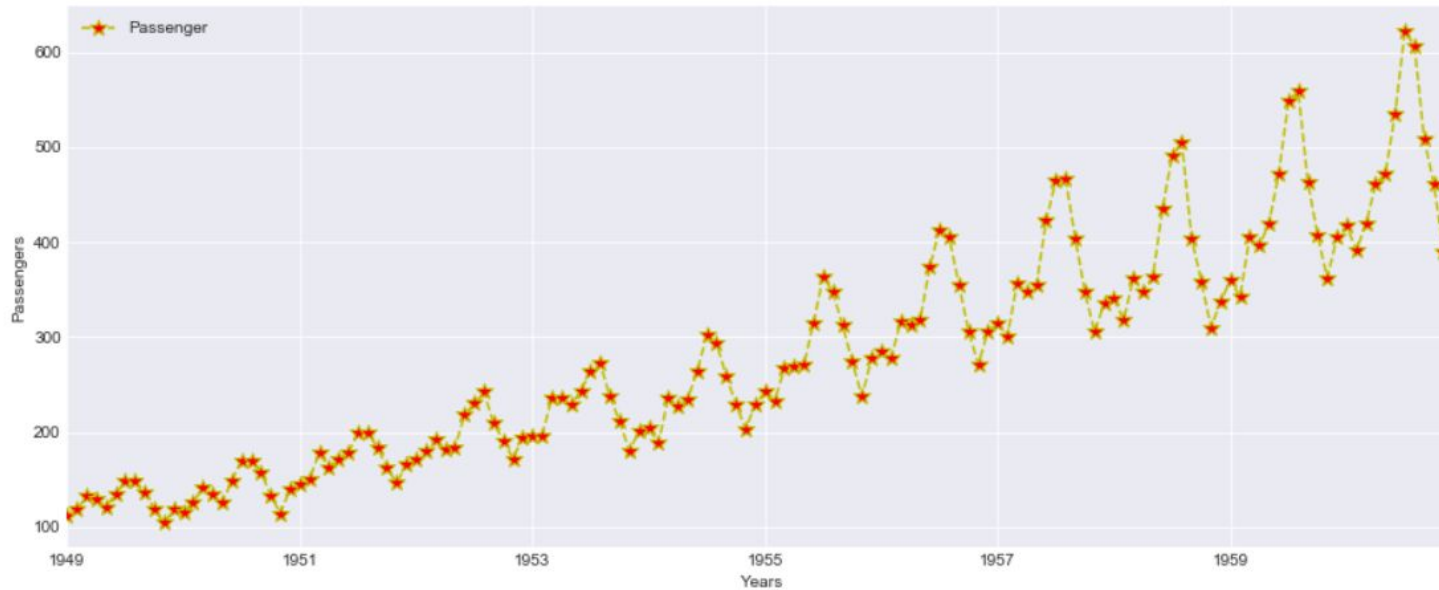
Ben Schneiderman

Mayor contexto

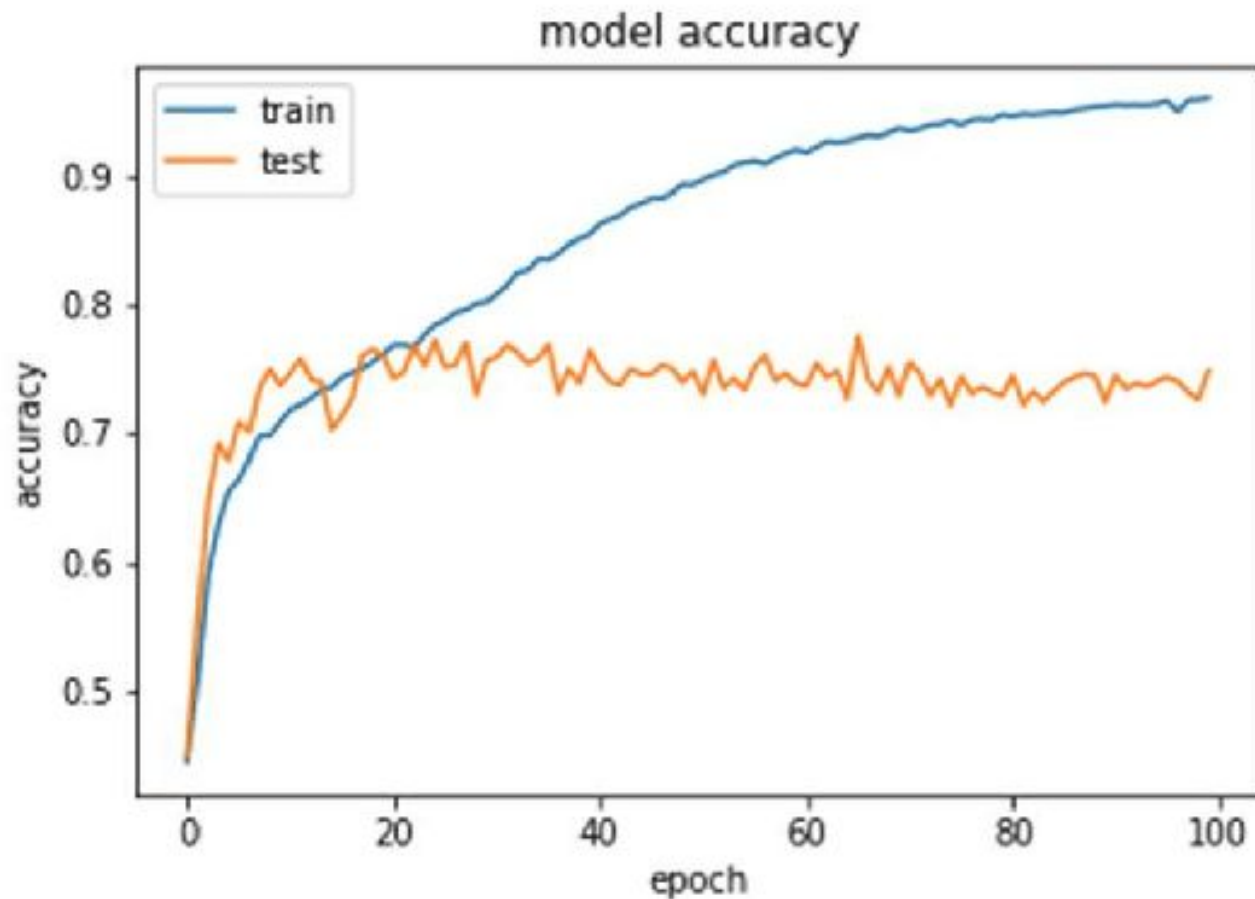


X Mean: 54.2659224
Y Mean: 47.8313999
X SD : 16.7649829
Y SD : 26.9342120
Corr. : -0.0642526

Hallazgos en nuestros datos

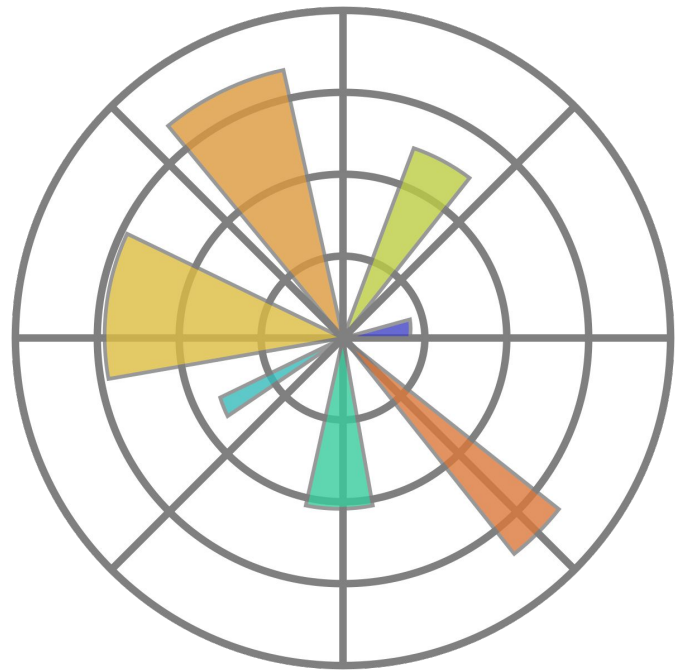


Mayor claridad en nuestro código



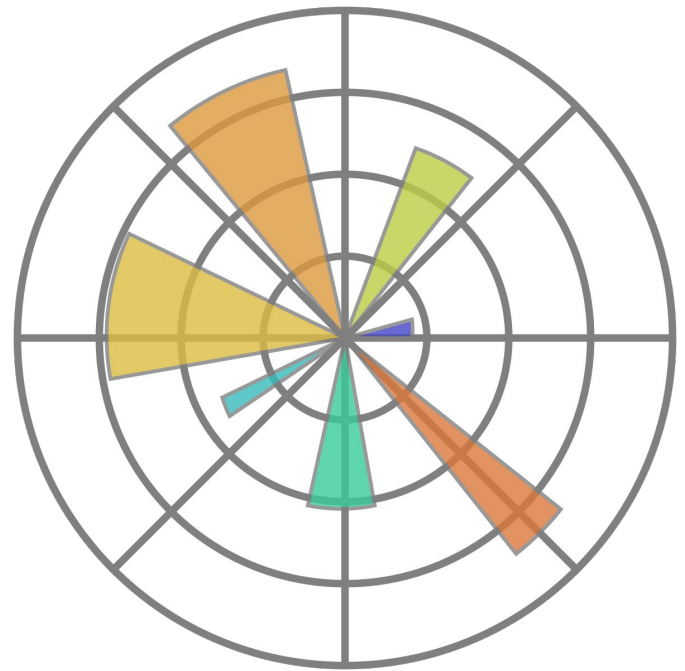
Matplotlib

- Escrita por John D. Hunter.
- Creada en 2003.



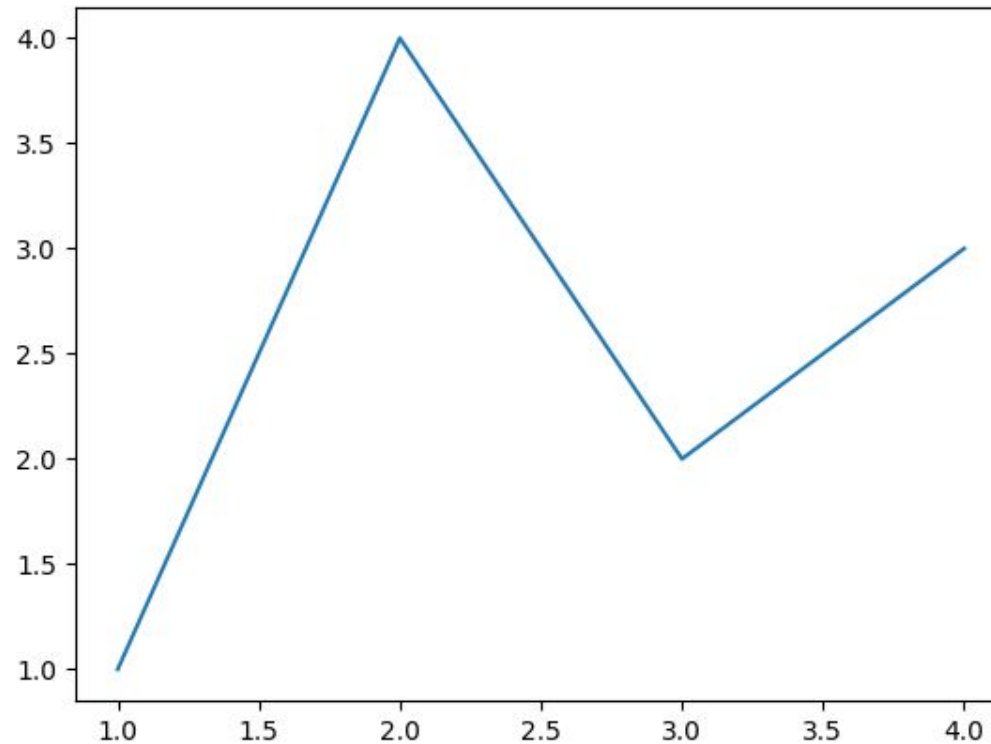
Matplotlib

- Emula comandos de MATLAB.
- Usa NumPy.
- Escrita en Python.



Simple

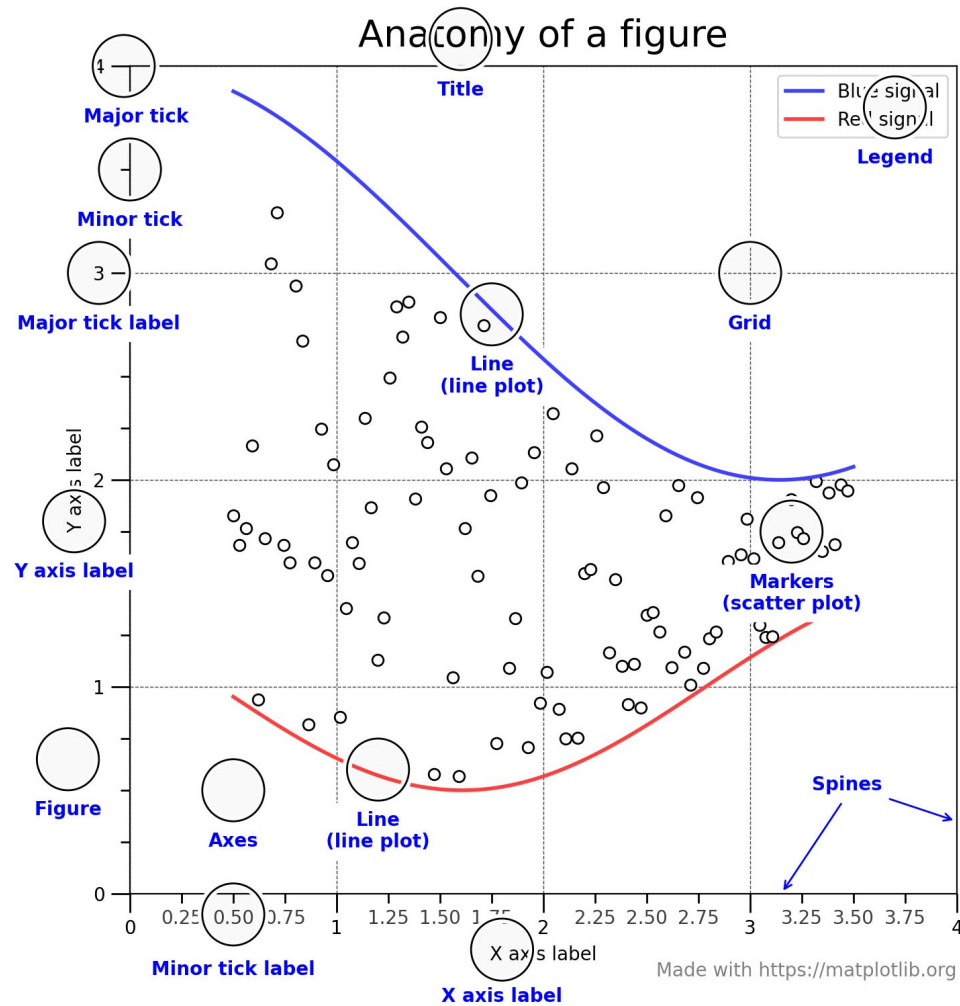
```
fig, ax = plt.subplots() # Create a figure containing a single axes.  
ax.plot([1, 2, 3, 4], [1, 4, 2, 3]); # Plot some data on the axes.
```



Rápida



Personalizable



Seaborn



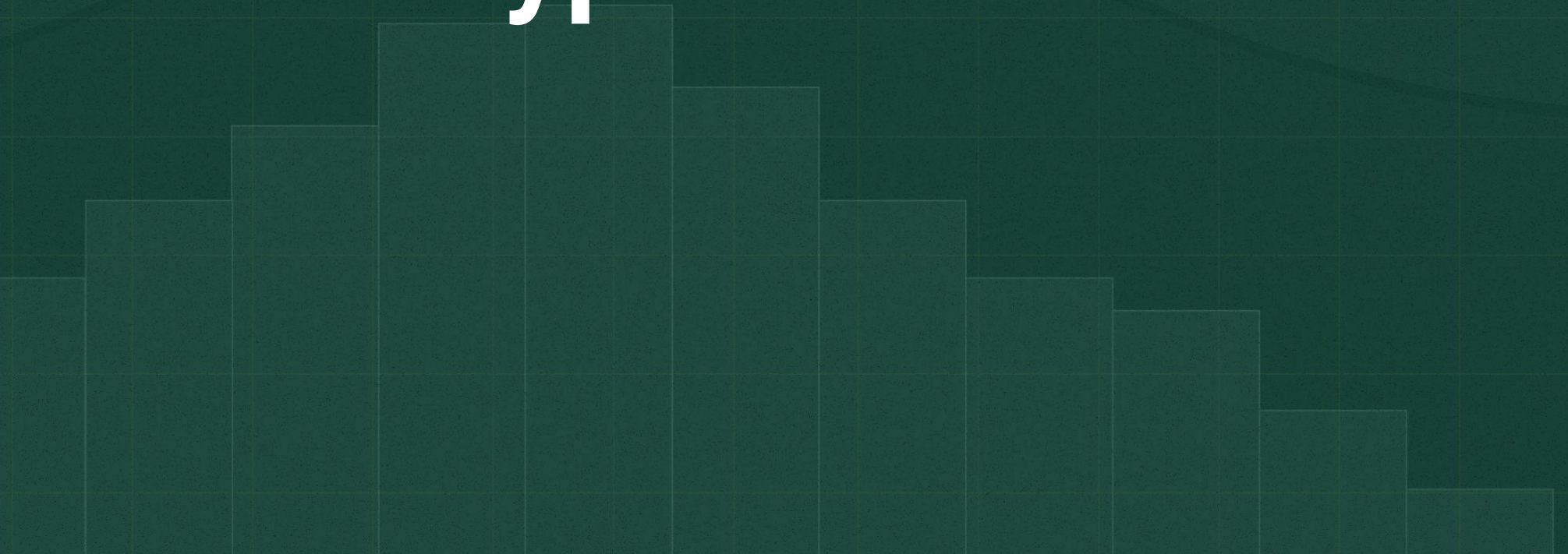
seaborn

Conocimientos previos

- Tipos de visualizaciones de datos.
- Python.
- Pandas y Numpy.



Pyplot básico



Subplot



Bar Index	Approximate Height
1	1.5
2	2.5
3	3.5
4	4.5
5	4.8
6	4.0
7	3.0
8	2.5
9	2.0
10	1.5

Método orientado a objetos

¿Para qué sirven?

Pyplot

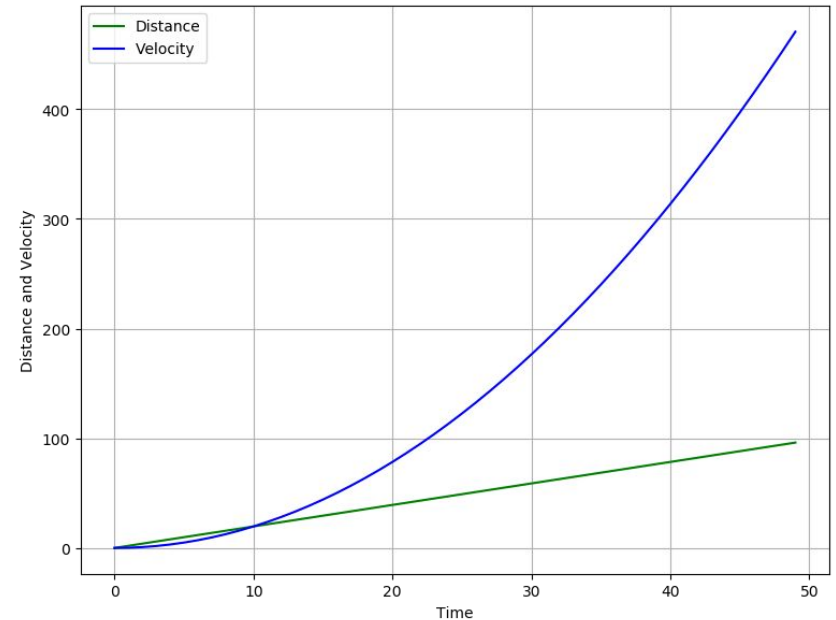
- Rápido
- Fácil
- Una sola figura

Object Oriented

- Mayor personalización.
- Más amigable a múltiples diagramas.
- Más código.

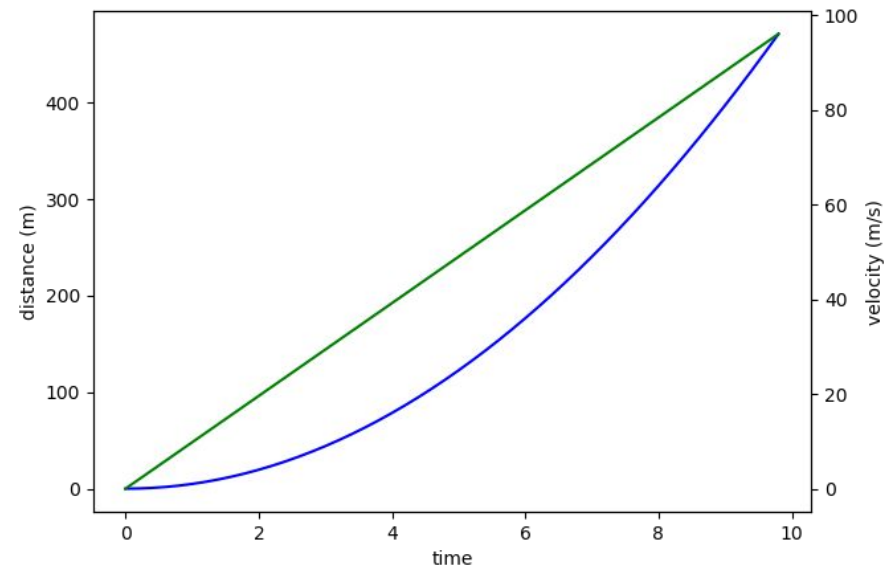
Pyplot

```
plt.figure(figsize=(9,7),  
dpi=100)  
plt.plot(time, velocity,'g-')  
plt.plot(time, distance,'b-')  
plt.ylabel("Distance and  
Velocity")  
plt.xlabel("Time")  
plt.grid(True)
```

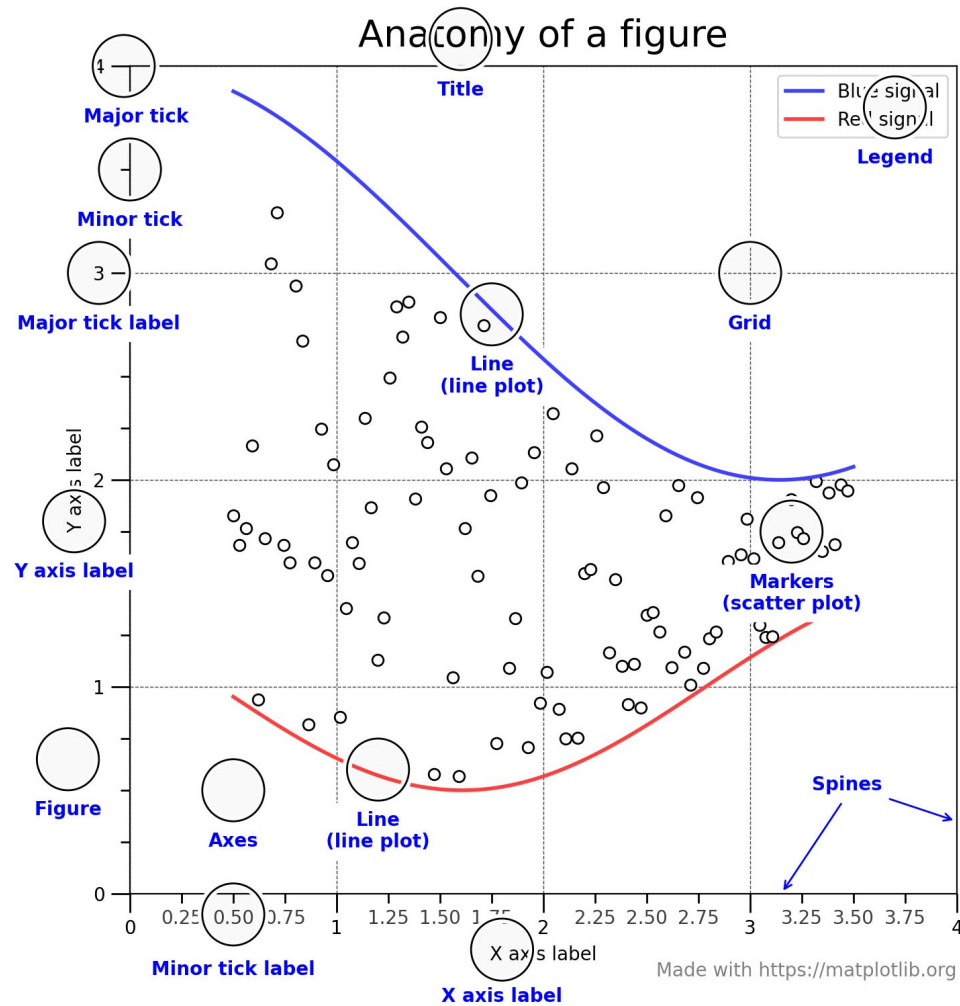


Object oriented

```
fig, ax1 = plt.subplots()
ax1.set_ylabel("distance (m)")
ax1.set_xlabel("time")
ax1.plot(time, distance, "blue")
ax2 = ax1.twinx()
ax2.set_ylabel("velocity (m/s)")
ax2.set_xlabel("time")
ax2.plot(time, velocity, "green")
fig.set_size_inches(7,5)
fig.set_dpi(100)
```

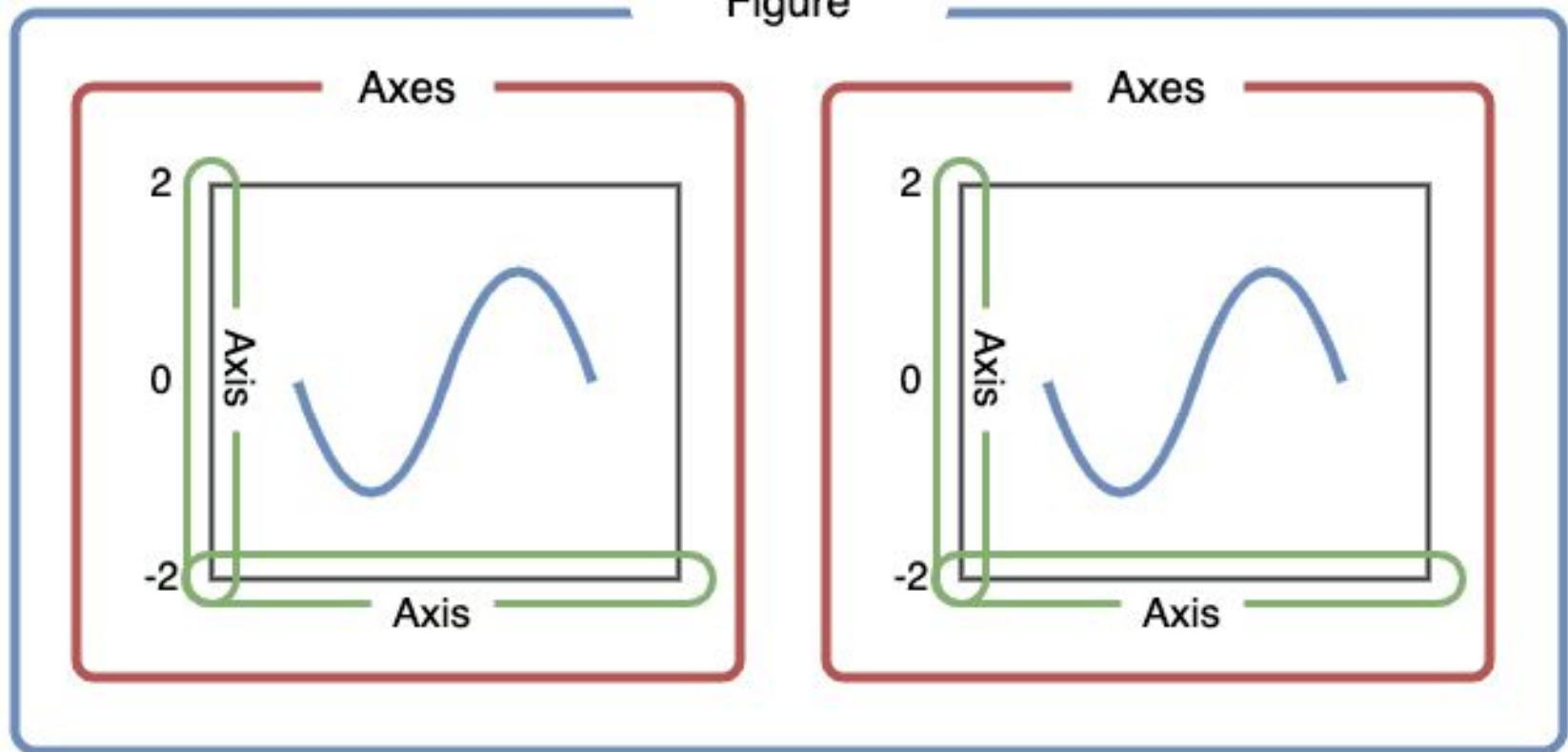


Personalizable



Estructura

Figure



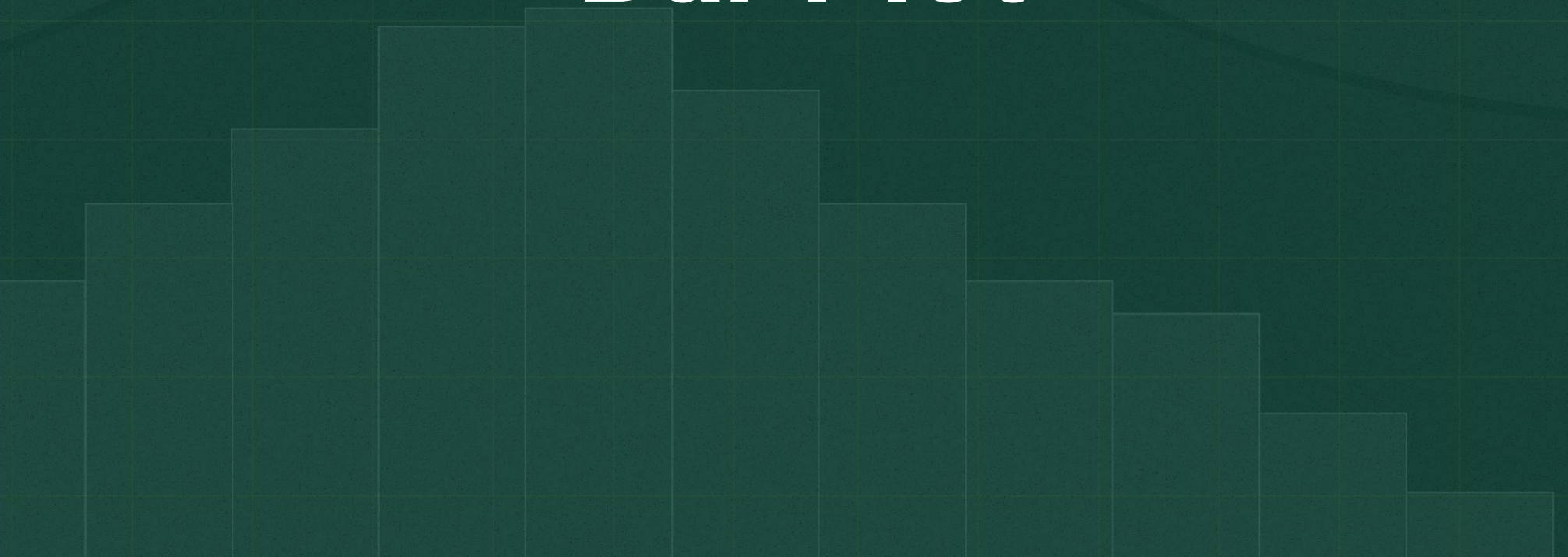
Subplots

The background is a dark green color with a subtle grid pattern. At the bottom of the image, there is a stylized bar chart with 11 bars of varying heights, rendered in a slightly lighter shade of green. The word "Subplots" is centered in the upper half of the image in a large, white, sans-serif font.

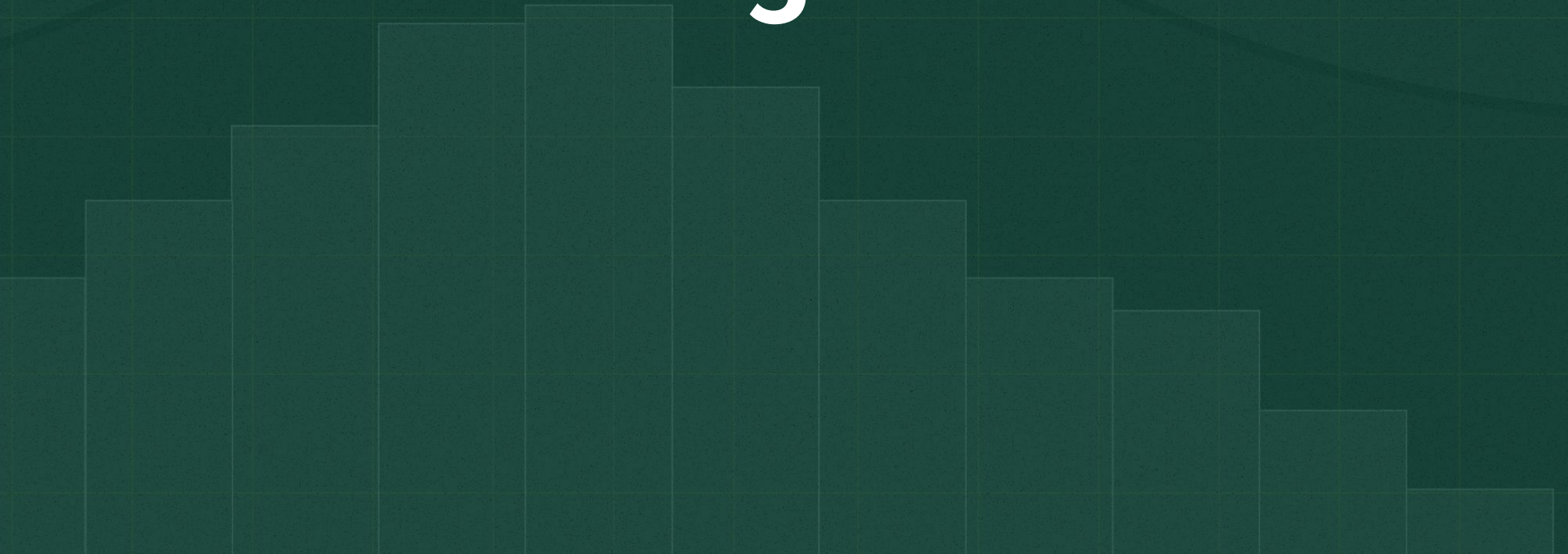
**Leyendas, etiquetas,
títulos, tamaño**

Colores y estilos

Bar Plot



Otras gráficas



Seaborn

The background of the slide is a dark teal color with a light teal grid. In the center, the word "Seaborn" is written in a large, white, sans-serif font. Below the text, there is a faint, light teal histogram with approximately 10 bars of varying heights. Behind the histogram, there are several overlapping, semi-transparent wavy lines in a slightly lighter shade of teal, creating a layered effect.

Seaborn

- Escrita por Michael Waskom.
- Construida sobre Matplotlib.
- Integrada para estructuras de Pandas.



¿Por qué Seaborn?

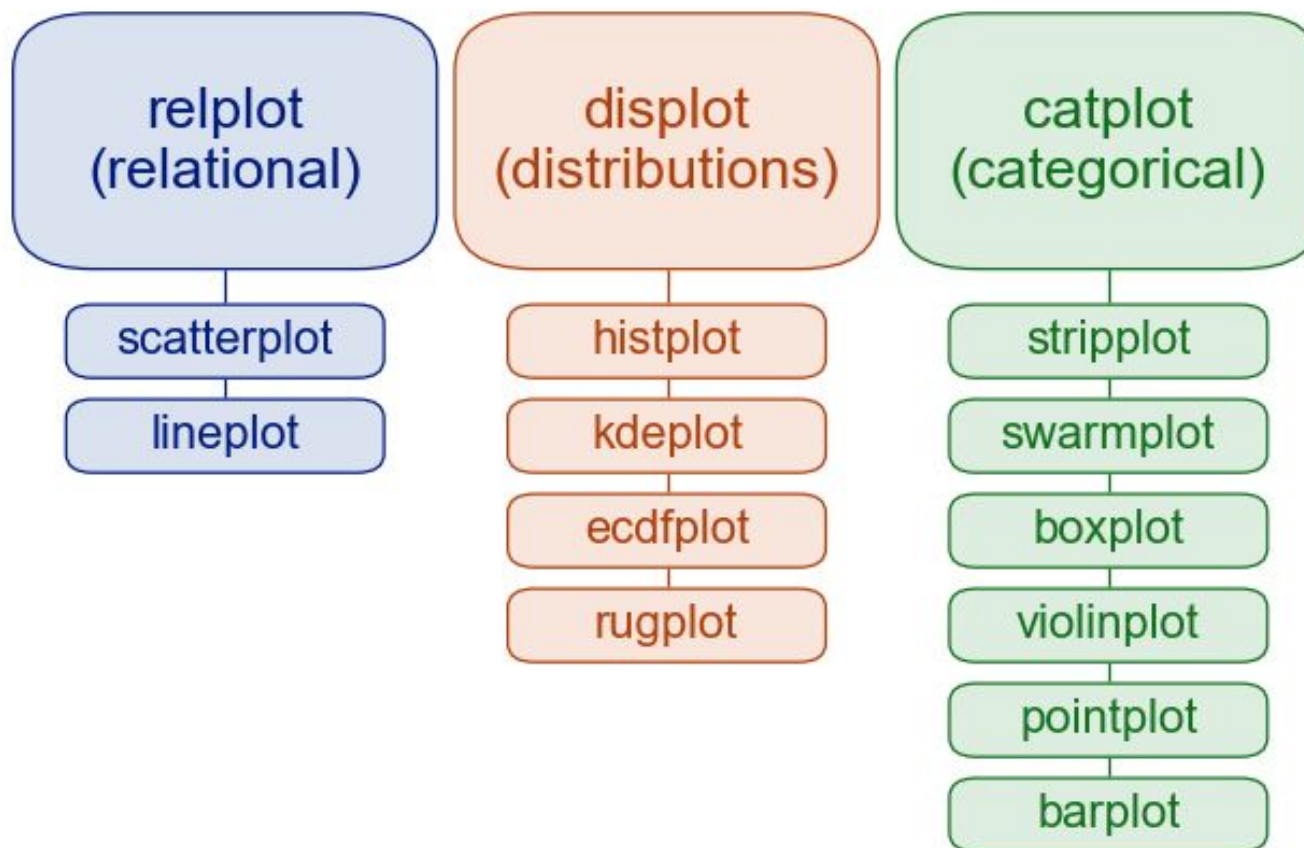
- Velocidad
- Poco código
- Customizable



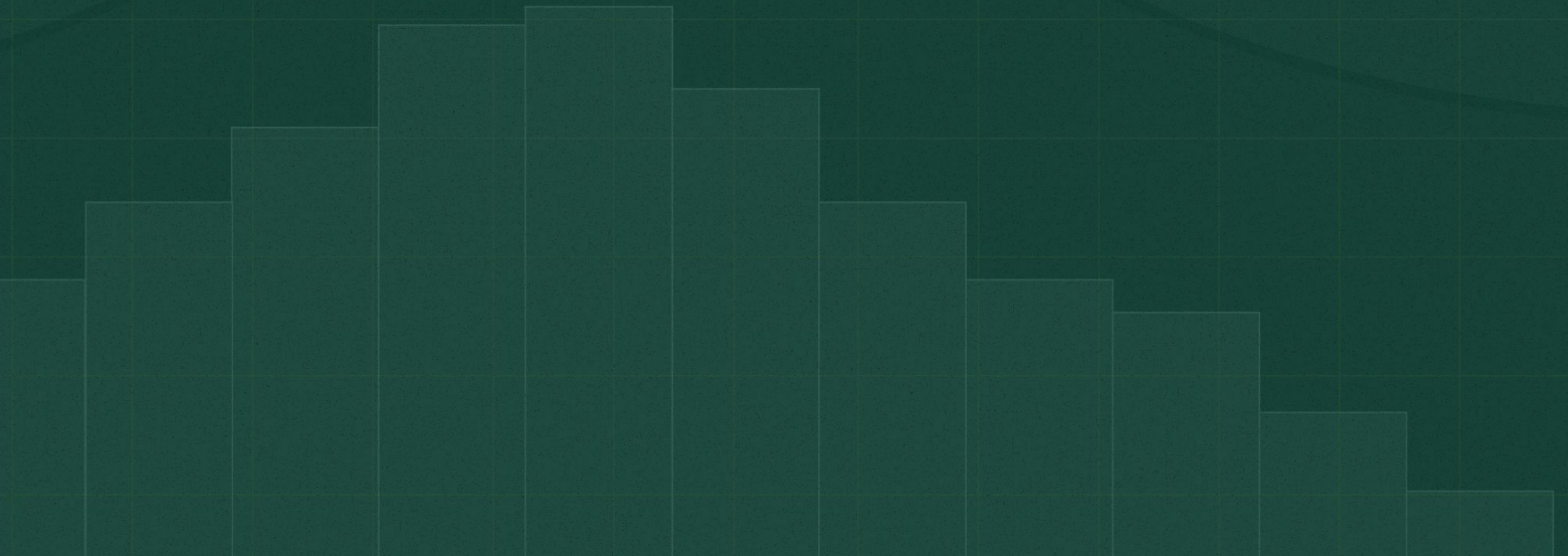

```
##Estructura básica
```

```
sns."Tipo de gráfica"(  
  data="Dataset",  
  x="Data en eje x",  
  y="Data en eje y",  
  hue="Variable de agrupamiento")
```

Tipos de gráficas



Set



Parámetros más usados

Distribuciones



Categoricos

Relation



Jointplot / Pairplot

Heatmap



Heatmap



Posibilidades con Matplotlib y Seaborn

Matplotlib

- Pyplot
- Orientado a objetos
- Subplots
- Tittle, legends, labels
- Colores y estilos
- Otros gráficos
- Tamaños

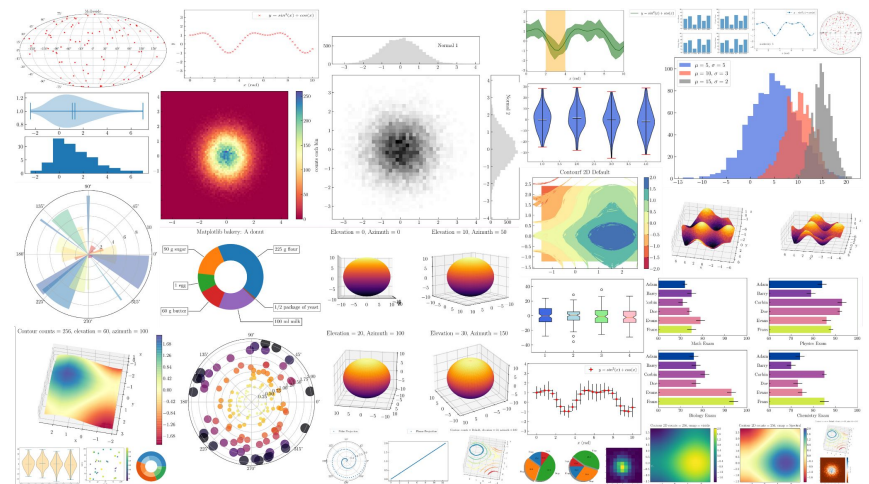


Seaborn

- Estructura
- Parámetros más usados
- Distributions
- Relational
- Categorical
- Jointplot - Pairplot
- Heatmap



kaggle →



Carlos Andrés Alarcón



@Alarcon7a