

IMD0033 - Probabilidade

Aula 10 - Análise Exploratória de Dados II

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Abril, 2019



Agenda

- Estudo de caso: analisando filmes
- Motivação: enviesamento de dados
- Gráfico de barra & personalização
- Gráficos de dispersão & personalização

Atualizar o repositório

```
git clone https://github.com/ivanovitchm/imd0033_2019_1
```

Ou

```
git pull
```




WEAPONS OF MATH DESTRUCTION



HOW BIG DATA INCREASES INEQUALITY
AND THREATENS DEMOCRACY

CATHY O'NEIL

Metacritic




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[New Releases](#) [Coming Soon](#) [High Scores](#) [Browse A-Z](#) [Publications](#) [Critics](#) [People](#) [Trailers](#)

Avengers: Age of Ultron

Walt Disney Studios Motion Pictures | Release Date: May 1, 2015

[Summary](#) [Critic Reviews](#) [User Reviews](#) [Details & Credits](#) [Trailers & Videos](#)



66

Metascore

Generally favorable reviews based on 49 Critics

What's this?

7.1

User Score

Generally favorable reviews based on 2133 Ratings

Your Score

Starring: Chris Evans, Chris Hemsworth, James Spader, Jeremy Renner, Mark Ruffalo, Robert Downey Jr., Samuel L. Jackson, Scarlett Johansson

Director: Joss Whedon

Genre(s): Action, Adventure, Sci-Fi, Thriller, Fantasy


Rating: PG-13


Runtime: 141 min

[More Details and Credits >](#)

Summary: When Tony Stark tries to jumpstart a dormant peacekeeping program, things go awry and Earth's Mightiest Heroes, including Iron Man, Captain America, Thor, The Incredible Hulk, Black Widow and Hawkeye, are put to the ultimate test as the fate of the planet hangs in the balance. [Expand >](#)

Rotten Tomatoes




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[HOME > MARVEL CINEMATIC UNIVERSE > AVENGERS: AGE OF ULTRON](#)

AVENGERS: AGE OF ULTRON (2015)

Part of the Collection: [Marvel Cinematic Universe](#) [View Collection >](#)



TOMATOMETER

75%

Average Rating: 6.7/10
Reviews Counted: 309
Fresh: 233
Rotten: 76

All Critics | Top Critics


Critics Consensus: Exuberant and eye-popping, Avengers: Age of Ultron serves as an overstuffed but mostly satisfying sequel, reuniting its predecessor's unlikely cast with a few new additions and a worthy foe.


AUDIENCE SCORE

84%
liked it

Average Rating: 4.1/5
User Ratings: 262,764

ADD YOUR RATING




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 **Avengers: Age of Ultron** (2015)

PG-13 | 2h 21min | Action, Adventure, Sci-Fi | 1 May 2015 (USA)

7.5

472,861


 Rate This



1:31 | Trailer

33 VIDEOS | 340 IMAGES


Fandango



Enter City + State, ZIP Code, or Movie [GO](#)

AVENGERS: AGE OF ULTRON (2015)


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Released
MAY 1, 2015

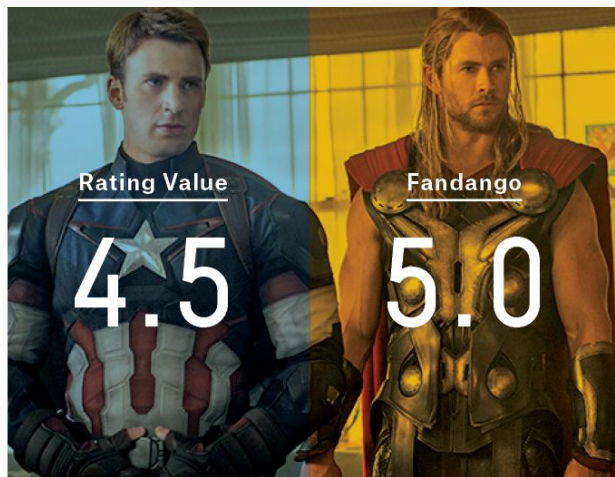
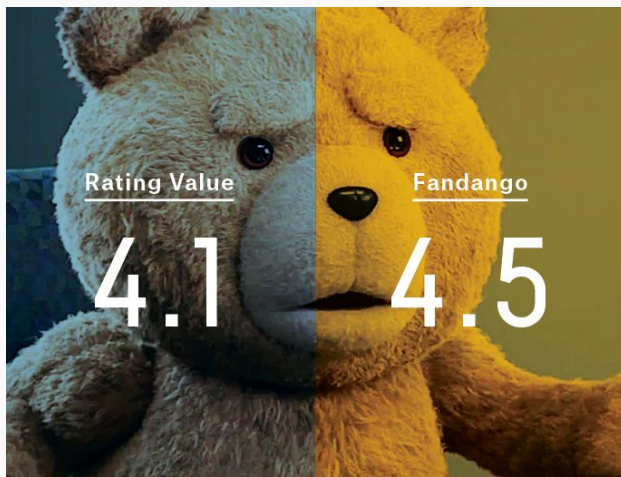
PG-13, 2 hr 21 min
Action/Adventure
Family

★★★★★
15,861 Fan Ratings



◀ ▶

Enviesamiento de dados

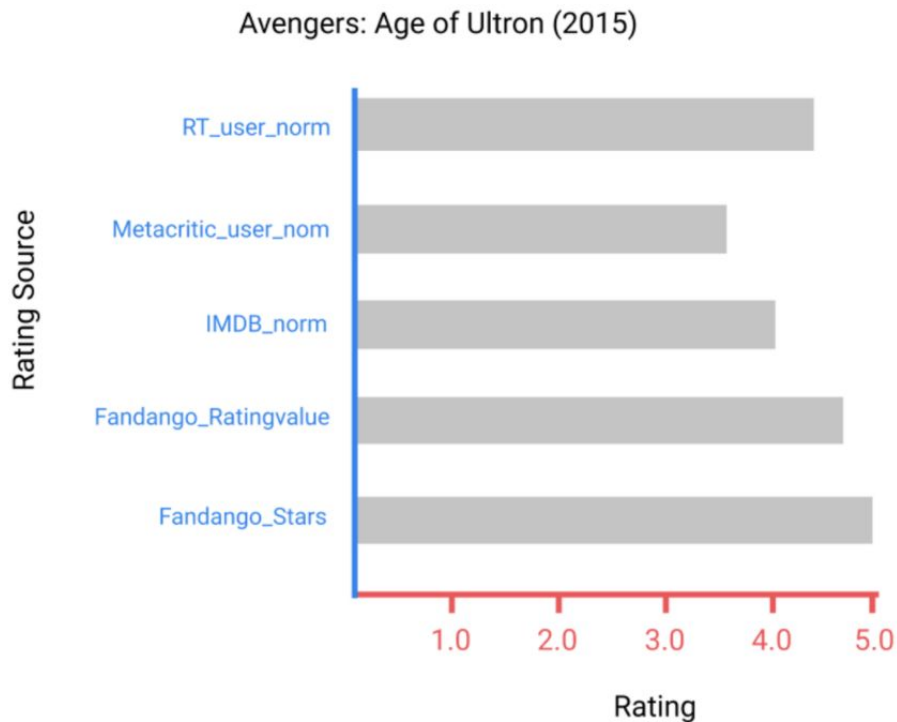
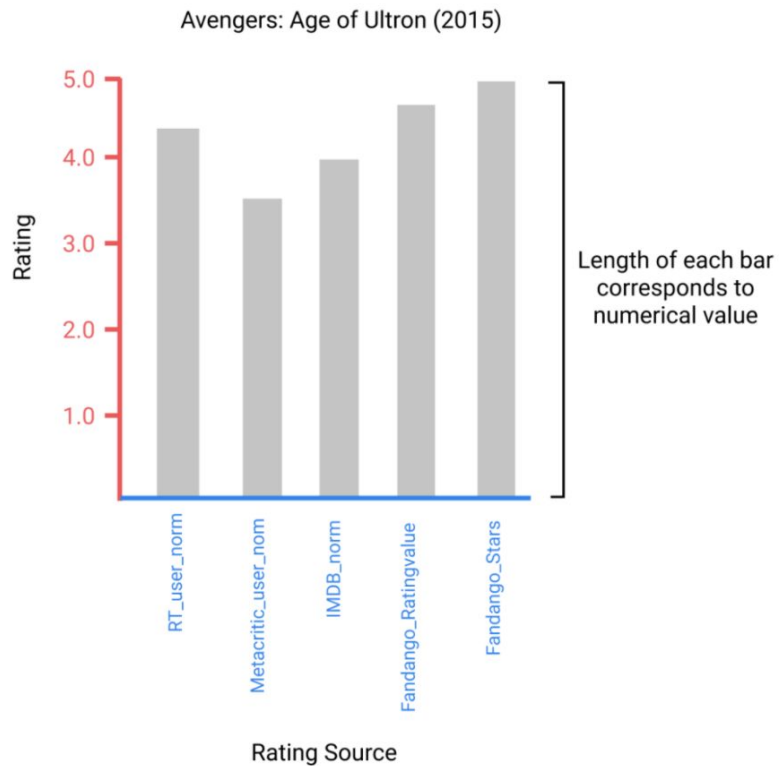


Conjunto de dados

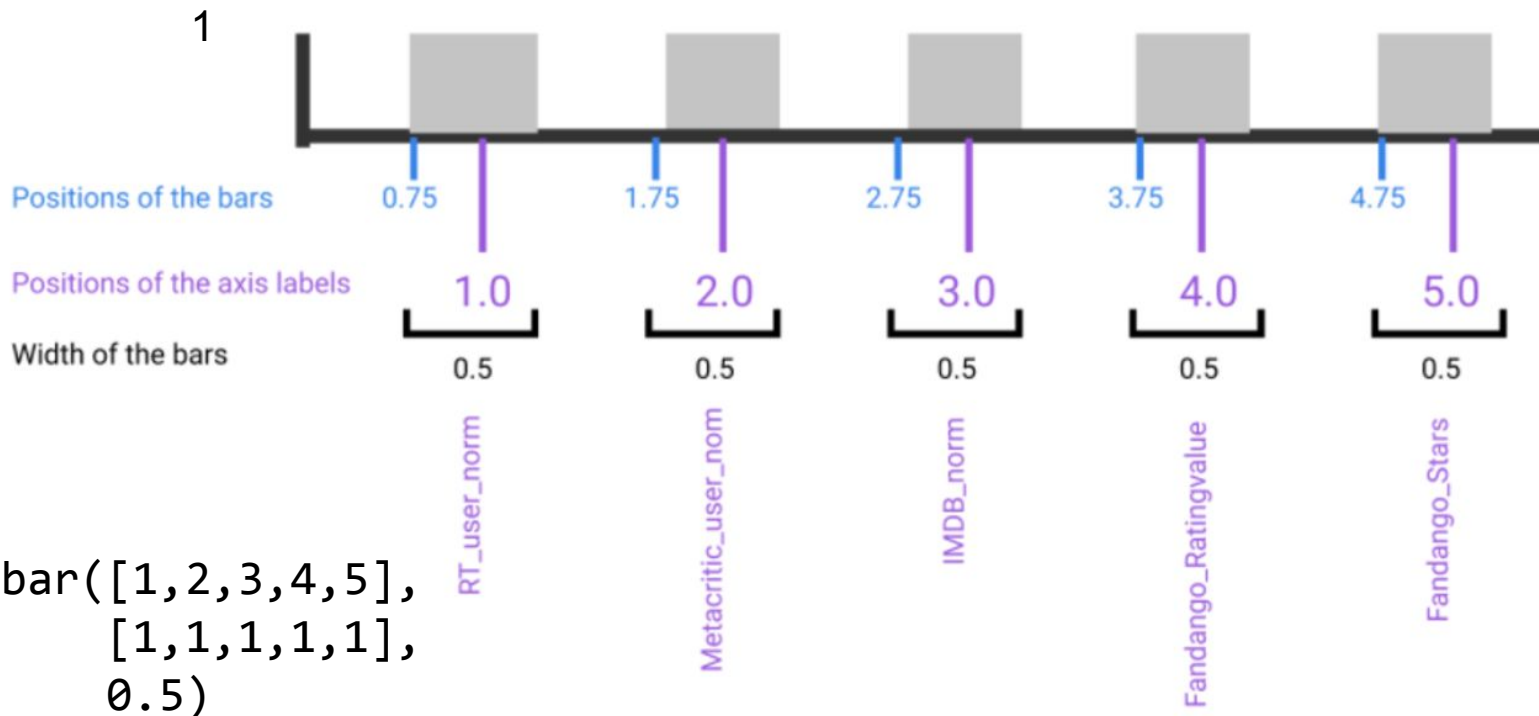
	FILM	RT_user_norm	Metacritic_user_nom	IMDB_norm	Fandango_Ratingvalue	Fandango_Stars
0	Avengers: Age of Ultron (2015)	4.3	3.55	3.90	4.5	5.0
1	Cinderella (2015)	4.0	3.75	3.55	4.5	5.0
2	Ant-Man (2015)	4.5	4.05	3.90	4.5	5.0
3	Do You Believe? (2015)	4.2	2.35	2.70	4.5	5.0
4	Hot Tub Time Machine 2 (2015)	1.4	1.70	2.55	3.0	3.5

<https://github.com/fivethirtyeight/data/tree/master/fandango>

Gráfico de barra



Criando gráfico de barras

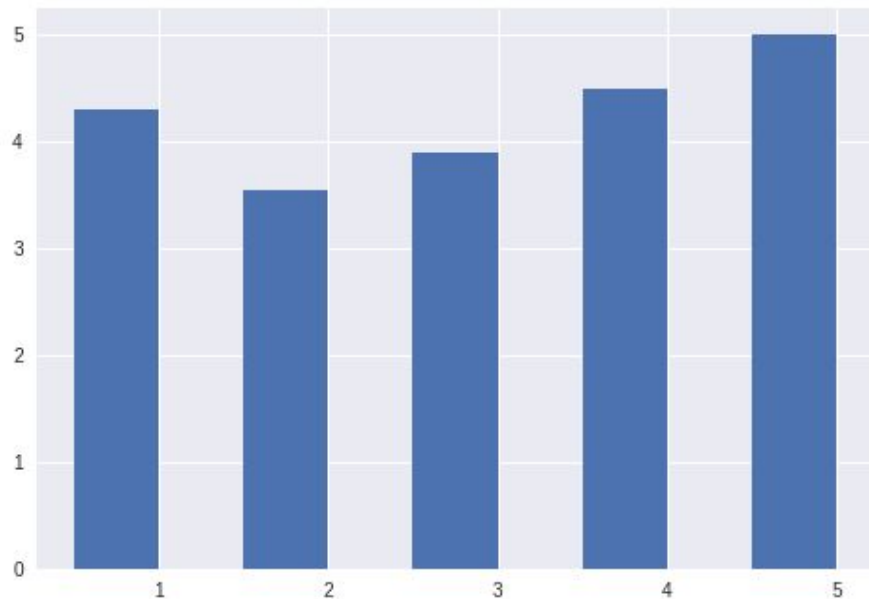


Criando gráfico de barras

```
# [0.75, 1.75, 2.75, 3.75, 4.75]  
bar_positions = np.arange(5) + 0.75
```

```
num_cols = ['RT_user_norm', 'Metacritic_user_nom',  
            'IMDB_norm', 'Fandango_Ratingvalue',  
            'Fandango_Stars']
```

```
bar_heights = norm_reviews[num_cols].iloc[0]  
fig, ax = plt.subplots()  
ax.bar(bar_positions, bar_heights, 0.5)
```

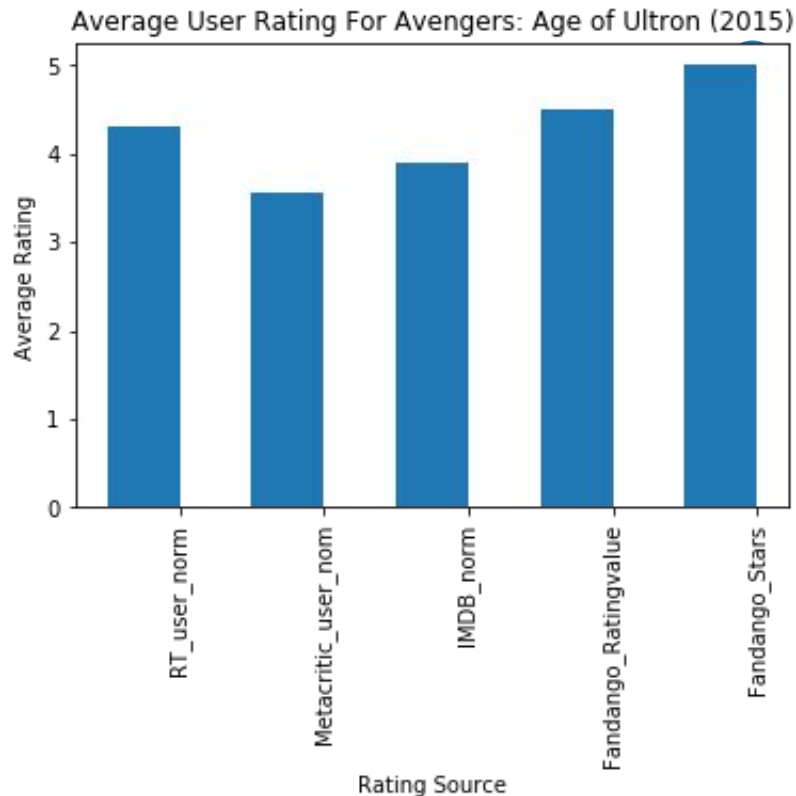


Configurando os eixos

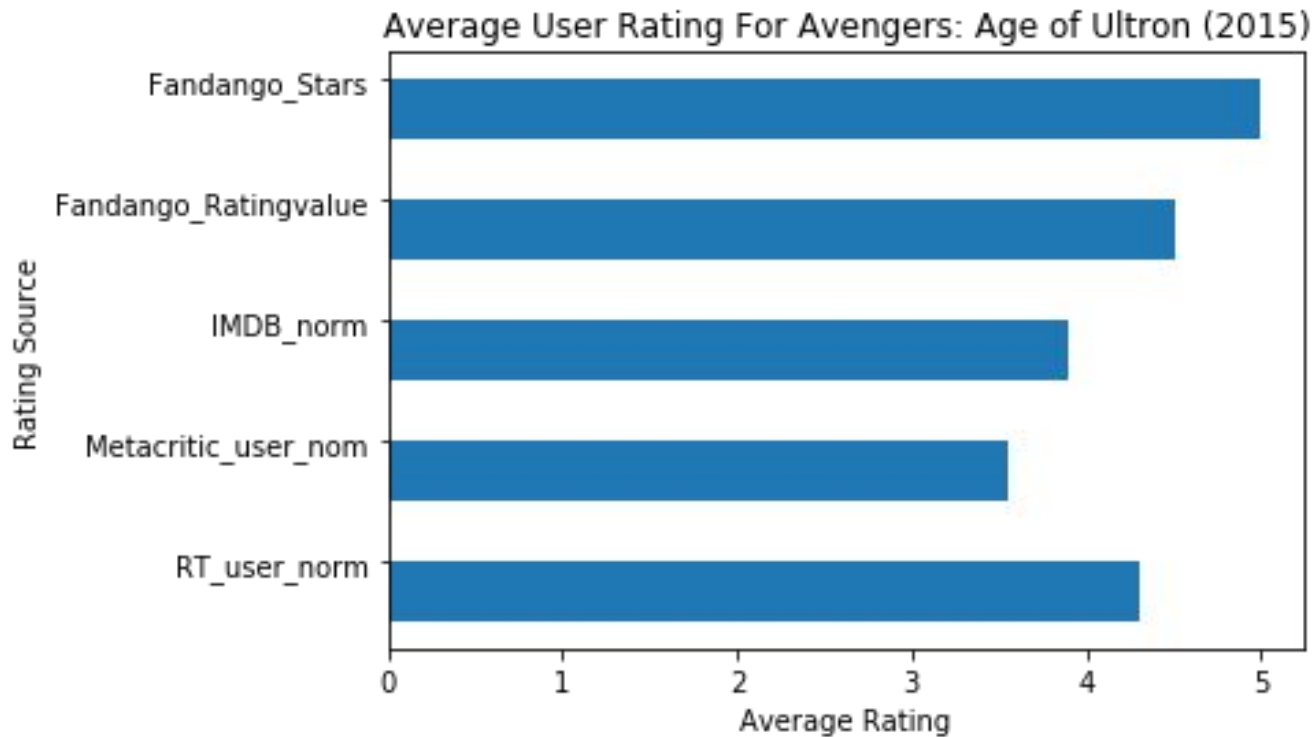
```
tick_positions = range(1,6)  
ax.set_xticks(tick_positions)
```

```
num_cols = ['RT_user_norm', 'Metacritic_user_nom', 'IMDB_norm', 'Fandango_Ra  
tingvalue', 'Fandango_Stars']  
ax.set_xticklabels(num_cols)
```

```
ax.set_xticklabels(num_cols, rotation=90)
```

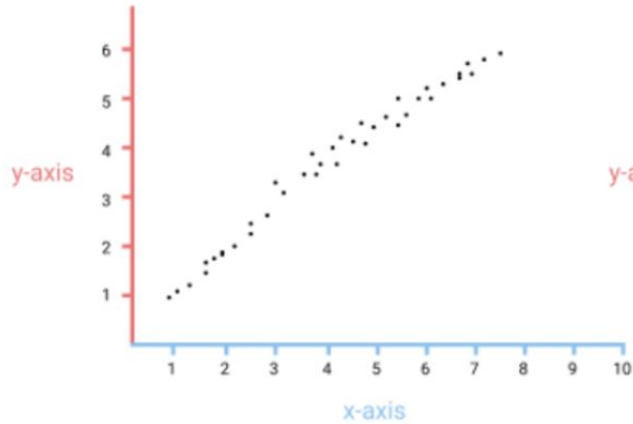


Barras horizontais

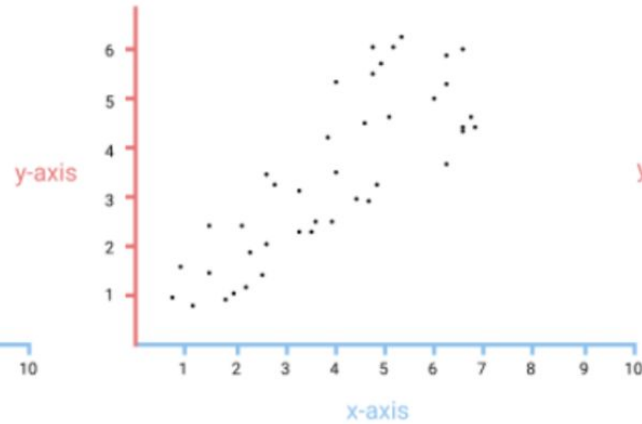


Gráficos de dispersão

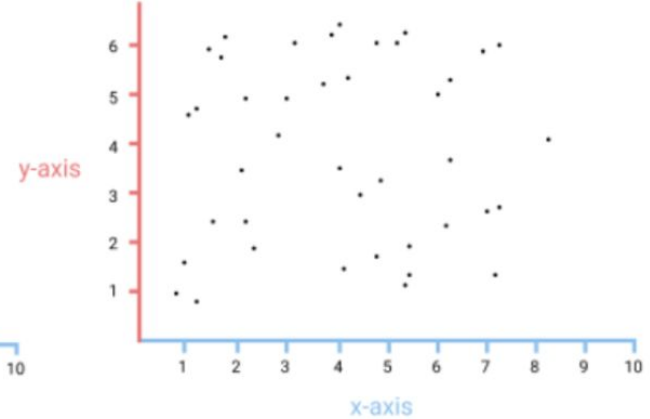
Strong correlation



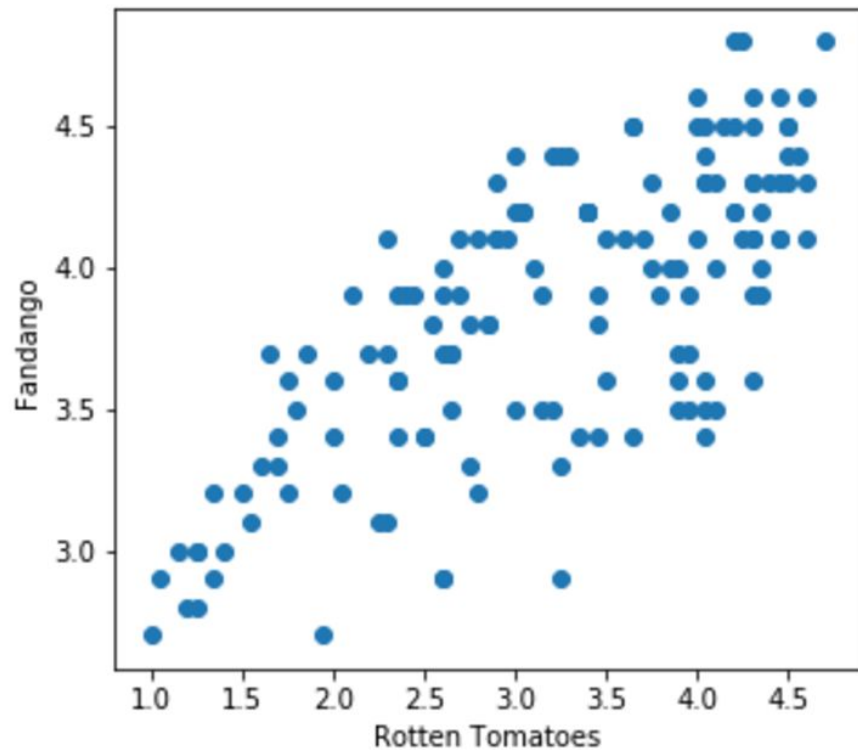
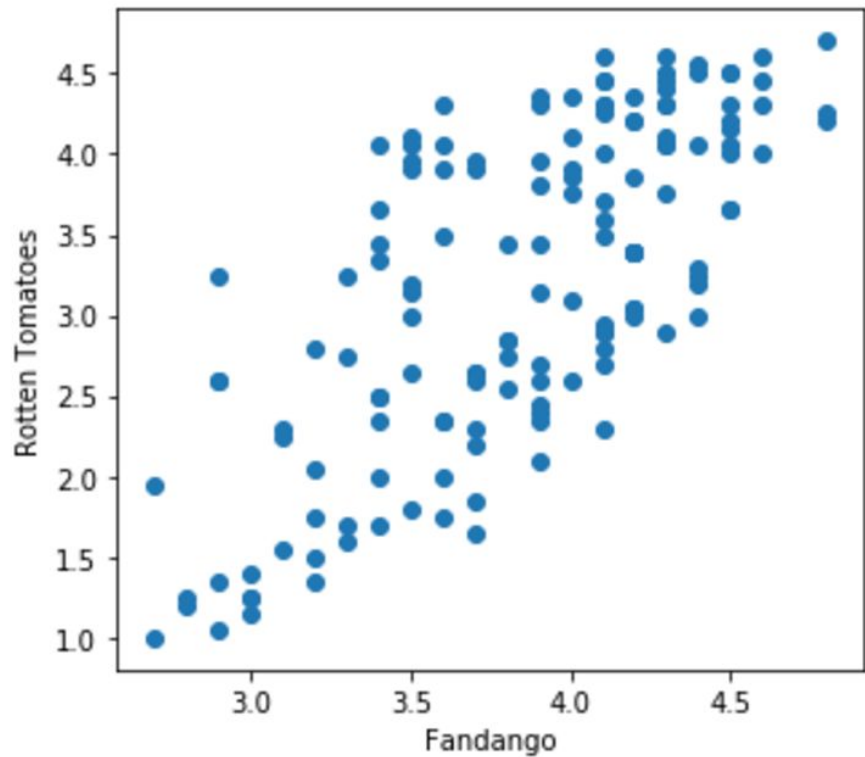
Weak correlation



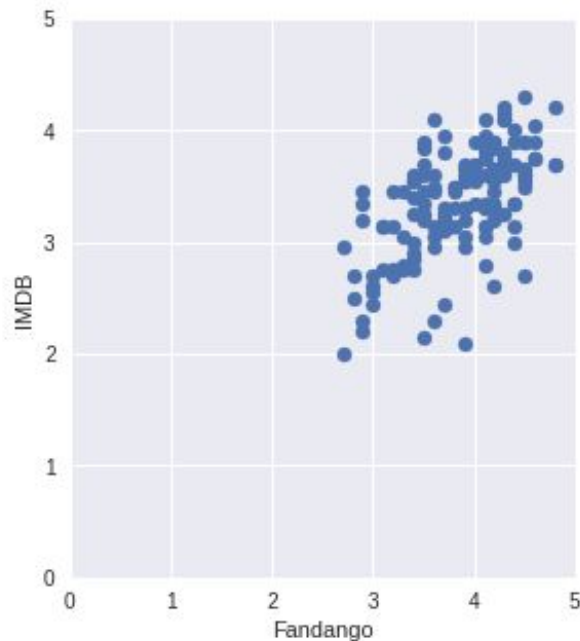
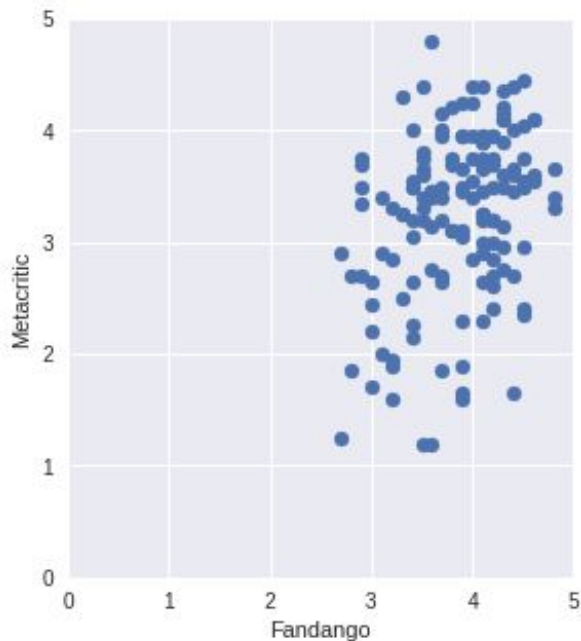
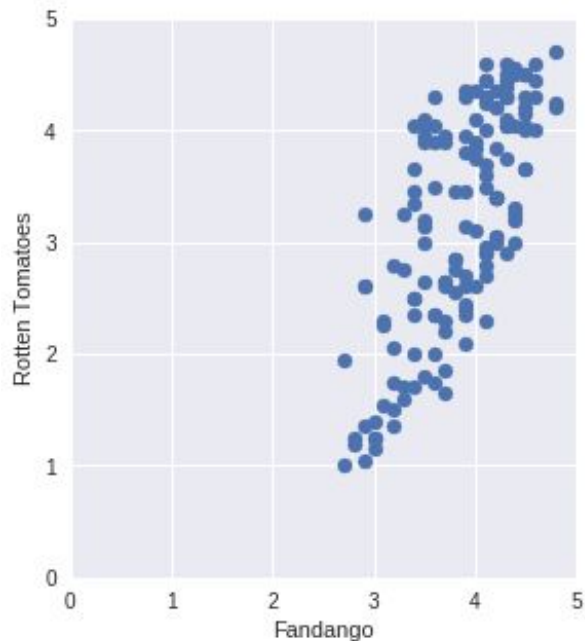
No correlation



Trocando os eixos



O que podemos concluir desses gráficos?



Aula#10 - gráficos de barras e dispersão.ipynb

