



Computação para a Ciência dos Dados

Aula 04 – Gráficos e Visualização

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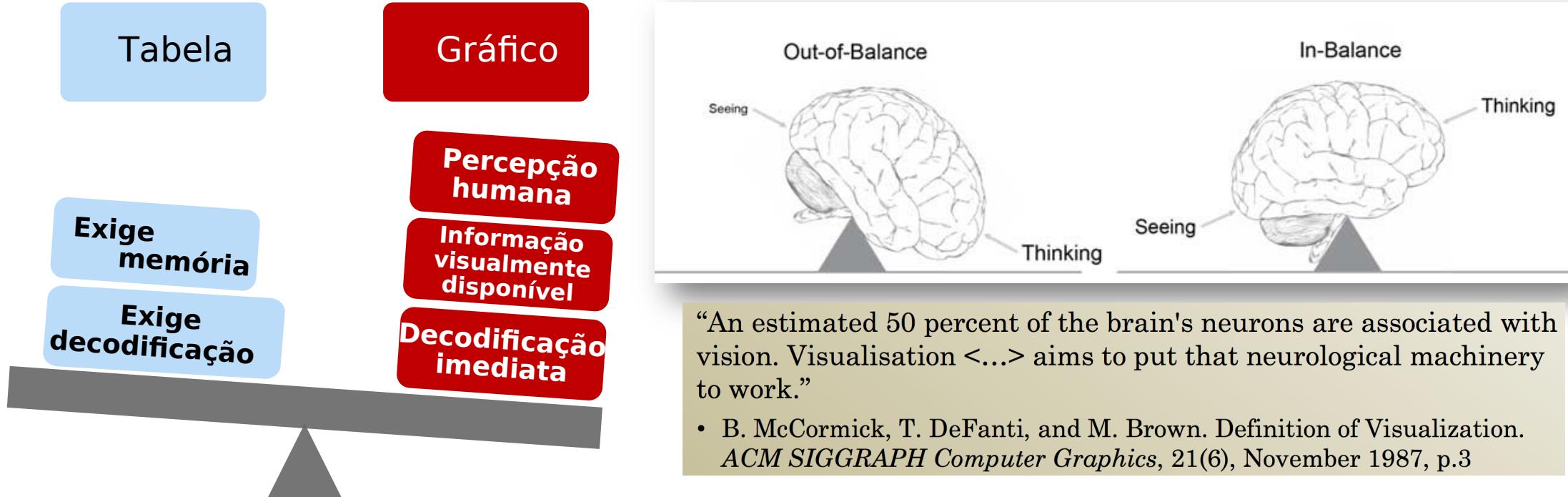
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A close-up, low-angle shot of many optical fibers. The fibers are oriented diagonally from the bottom left towards the top right. They emit bright, colorful light at their ends, creating a vibrant, glowing effect against a dark, out-of-focus background. The colors range from deep reds and blues to bright yellows and greens.

Vamos começar!

Visualizar os dados faz parte do processo de Data Science

Somos seres visuais!

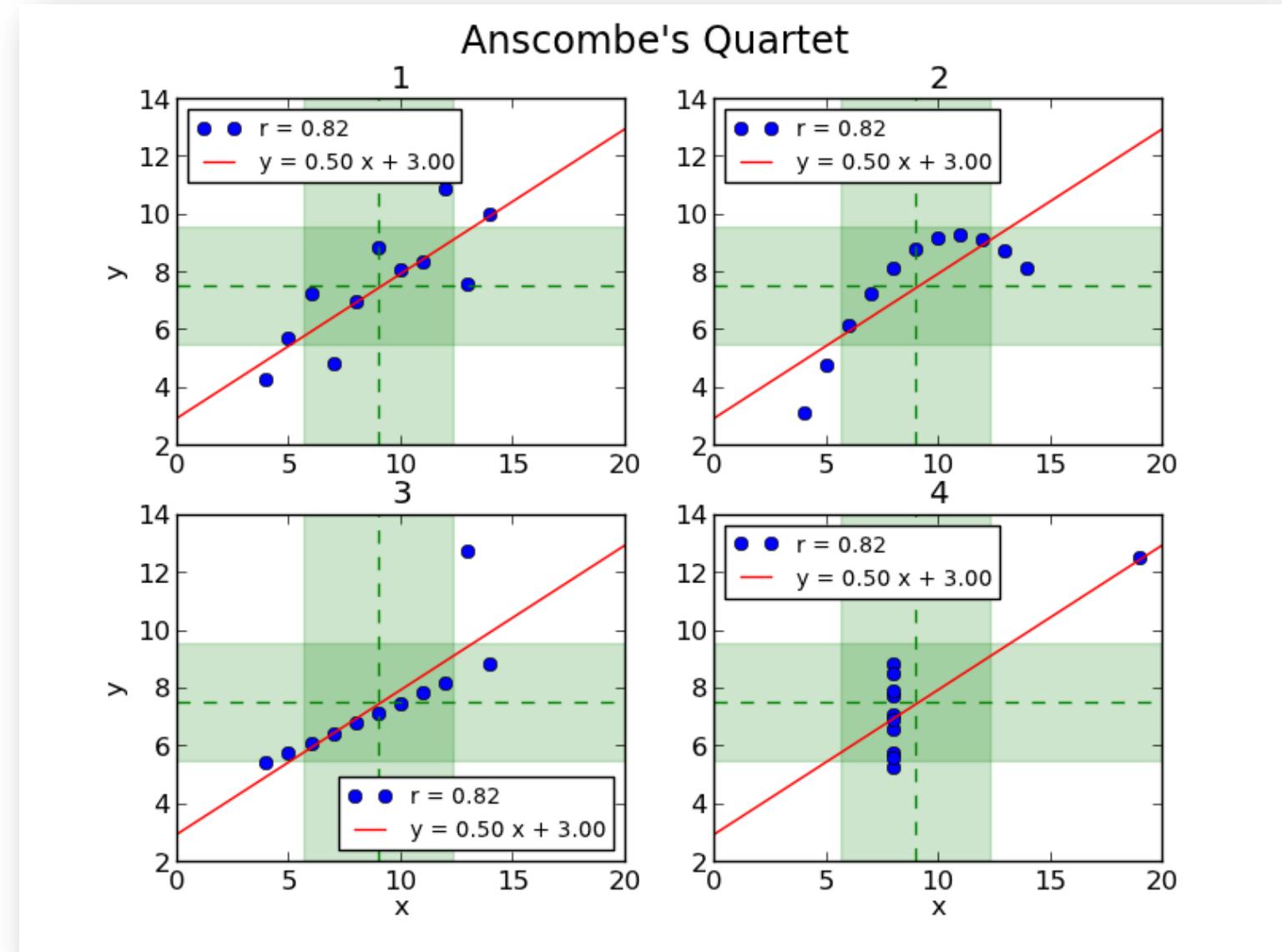


Limitações

Estes dados parecem similares ...

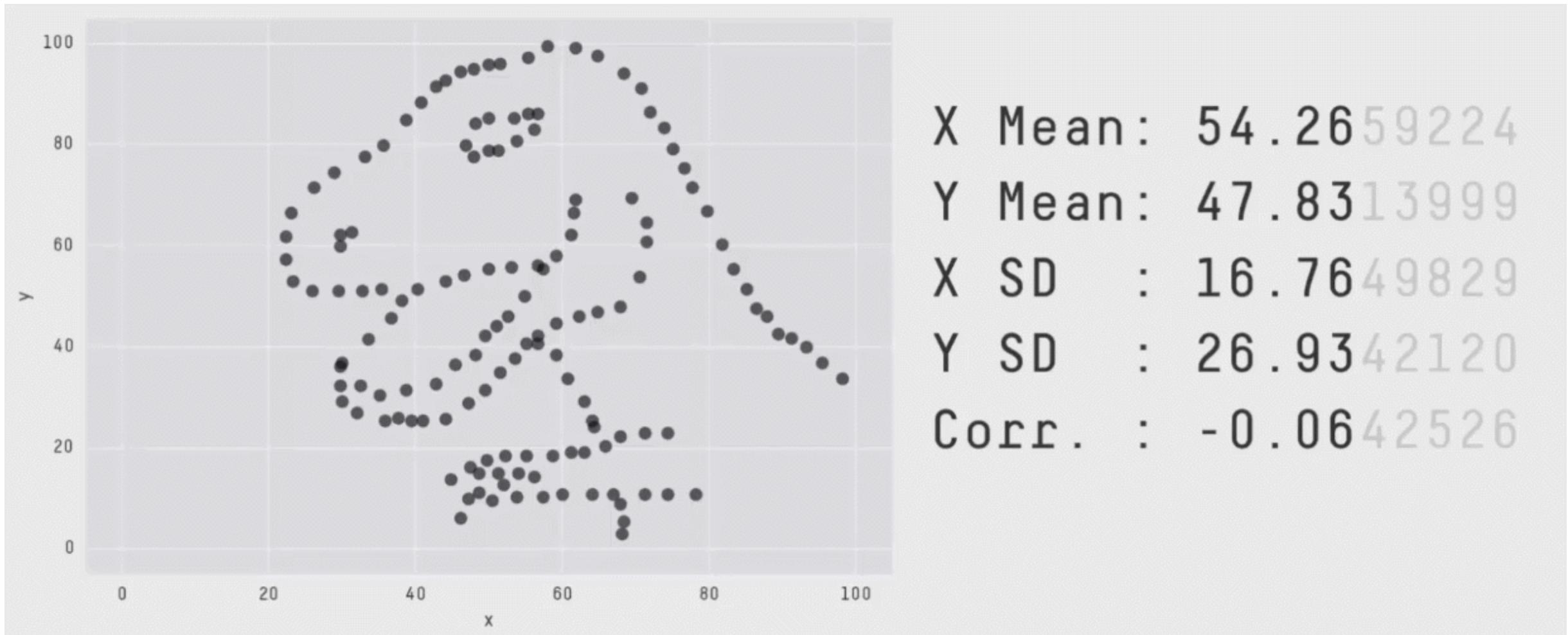
| | I | | II | | III | | IV | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | x | y | x | y | x | y | x | y |
| | 10 | 8,04 | 10 | 9,14 | 10 | 7,46 | 8 | 6,58 |
| | 8 | 6,95 | 8 | 8,14 | 8 | 6,77 | 8 | 5,76 |
| | 13 | 7,58 | 13 | 8,74 | 13 | 12,74 | 8 | 7,71 |
| | 9 | 8,81 | 9 | 8,77 | 9 | 7,11 | 8 | 8,84 |
| | 11 | 8,33 | 11 | 9,26 | 11 | 7,81 | 8 | 8,47 |
| | 14 | 9,96 | 14 | 8,1 | 14 | 8,84 | 8 | 7,04 |
| | 6 | 7,24 | 6 | 6,13 | 6 | 6,08 | 8 | 5,25 |
| | 4 | 4,26 | 4 | 3,1 | 4 | 5,39 | 19 | 12,5 |
| | 12 | 10,84 | 12 | 9,13 | 12 | 8,15 | 8 | 5,56 |
| | 7 | 4,82 | 7 | 7,26 | 7 | 6,42 | 8 | 7,91 |
| | 5 | 5,68 | 5 | 4,74 | 5 | 5,73 | 8 | 6,89 |
| SUM | 99,00 | 82,51 | 99,00 | 82,51 | 99,00 | 82,50 | 99,00 | 82,51 |
| AVG | 9,00 | 7,50 | 9,00 | 7,50 | 9,00 | 7,50 | 9,00 | 7,50 |
| STDEV | 3,32 | 2,03 | 3,32 | 2,03 | 3,32 | 2,03 | 3,32 | 2,03 |

Limitações Mas não são



Limitações

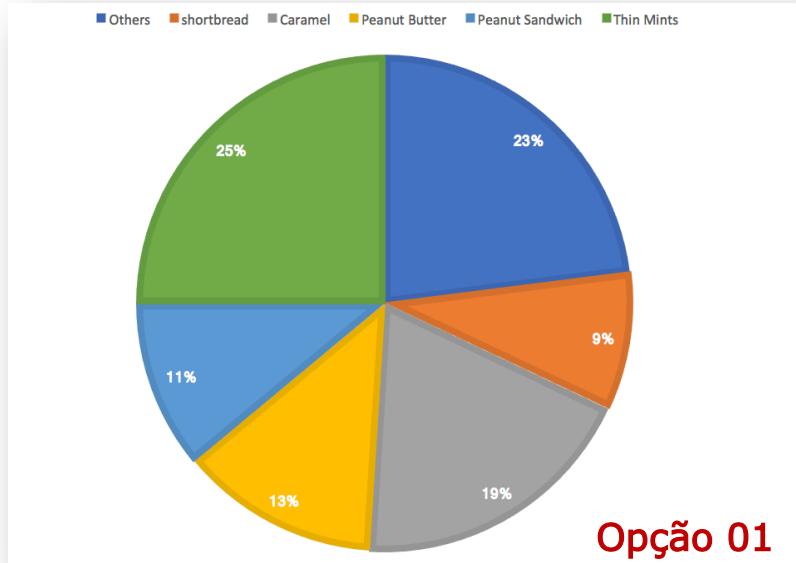
Dados “similares”



Limitações

Qual das imagens é mais fácil de ser compreendida?

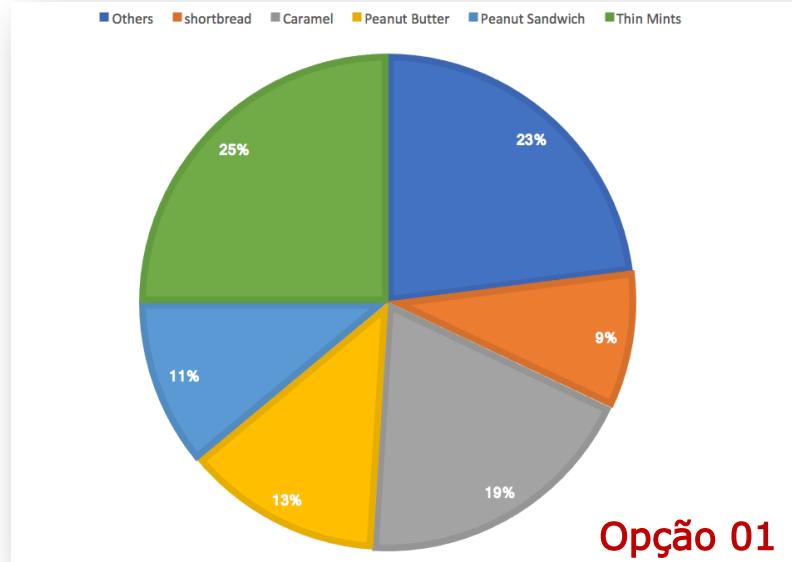
It's Girl Scout
Cookie time



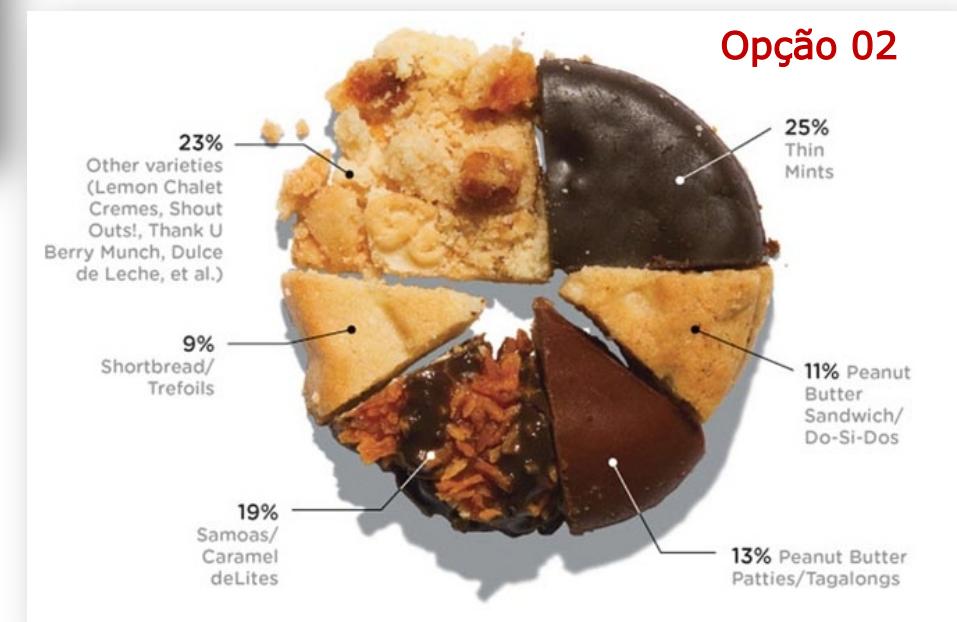
Limitações

Qual das imagens é mais fácil de ser compreendida?

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Opção 01



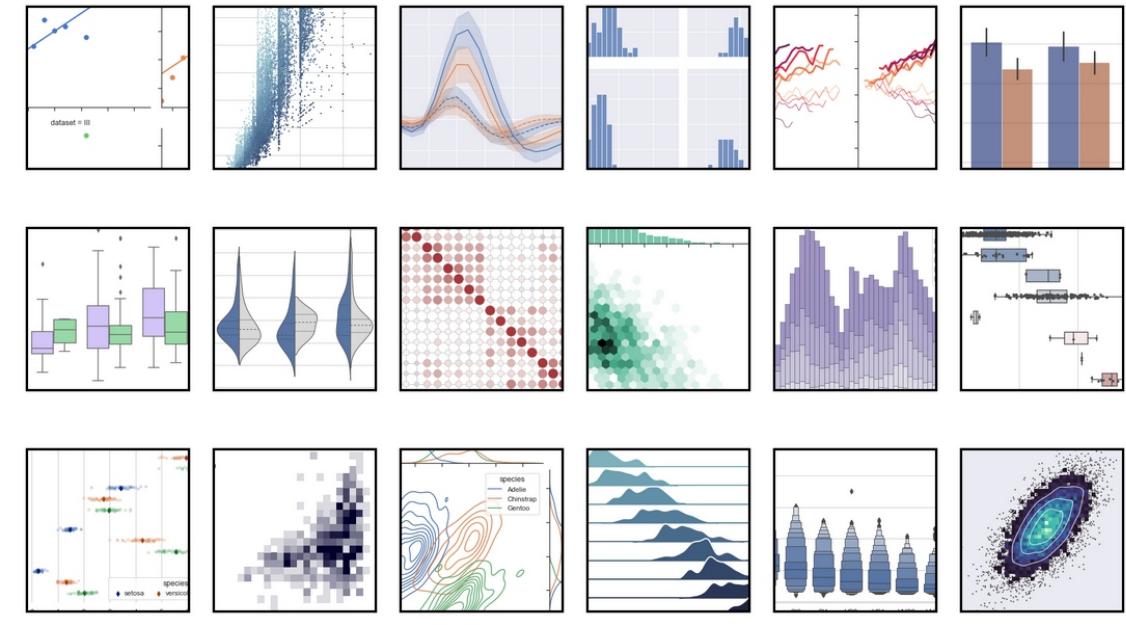
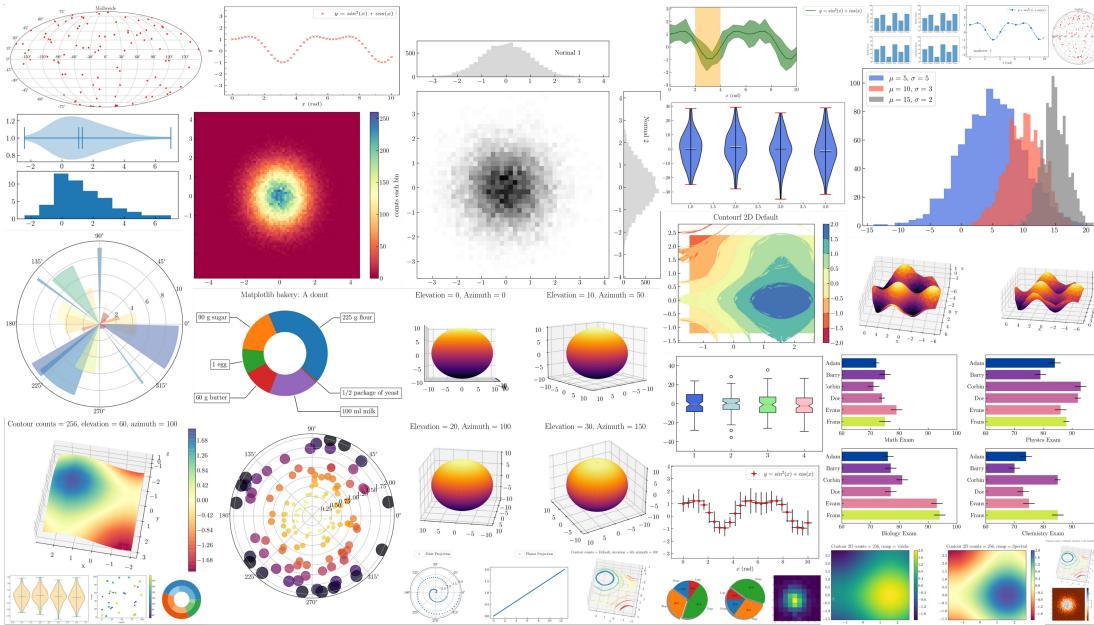
Opção 02

O poder de uma visualização



Assista em <https://twitter.com/weatherchannel/status/1040305773664980993>

Hoje vamos conhecer as bibliotecas Matplotlib e Seaborn



E ... ao longo do PADS, você terá uma disciplina focada em Visualização

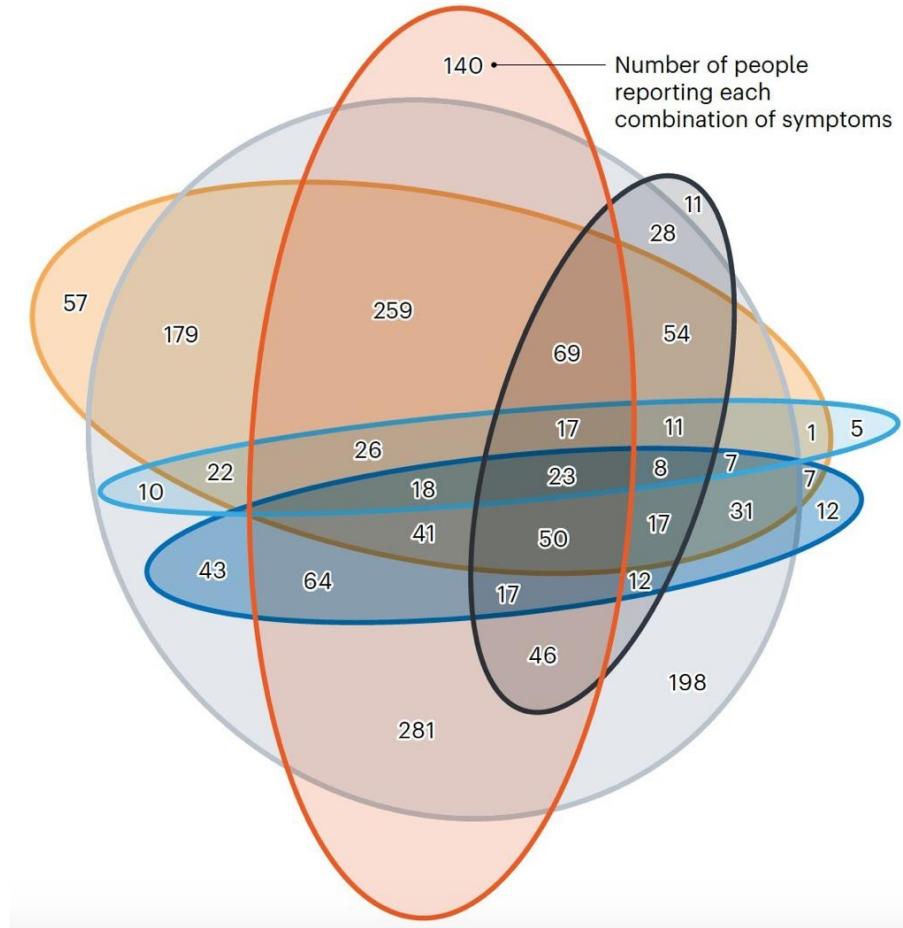
§ E vai aprender a não fazer isso:



TRACKING SYMPTOMS

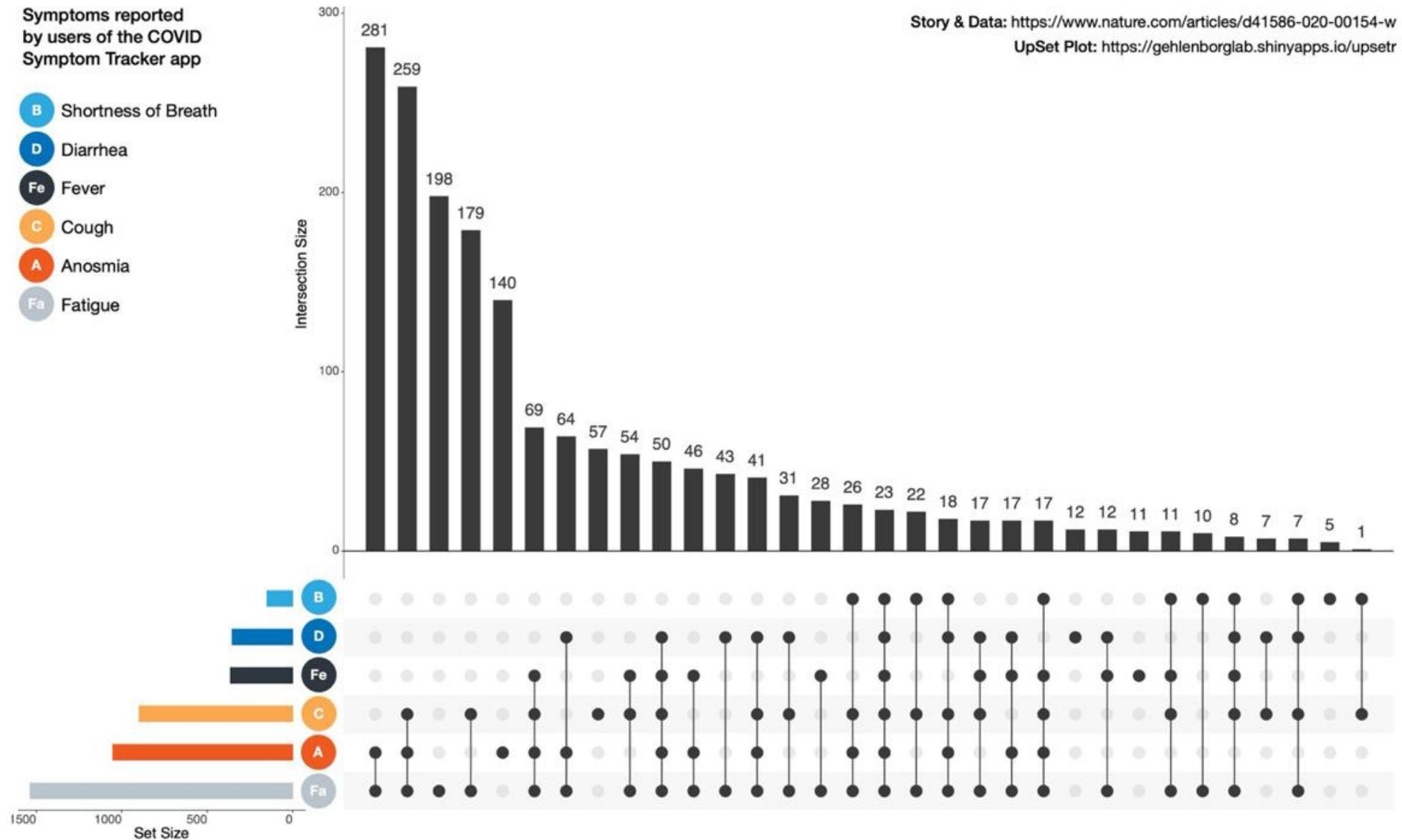
On 7 April, around 60% of app users who tested positive for COVID-19 and reported symptoms had lost their sense of smell.

Anosmia (loss of smell) Cough Fatigue
Diarrhoea Shortness of breath Fever

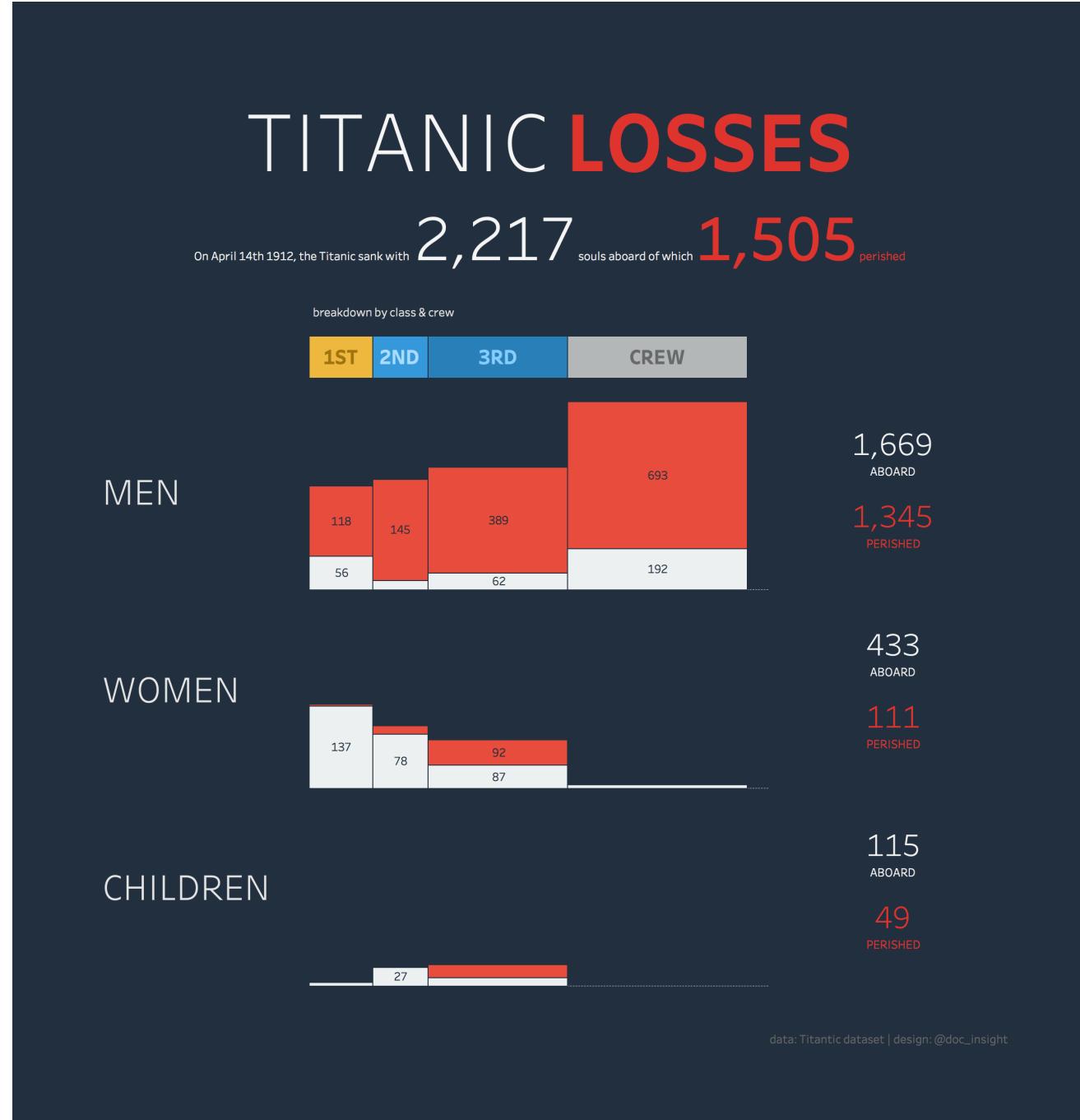


PHOTOGRAPH: PIER MARCO; DATA SOURCE: COVID SYMPTOM TRACKER TEAM

§ E irá entender porque assim é bem melhor:



§ Já usamos no curso
os dados do Titanic...



Vamos ao notebook!

É hora de aprender praticando!

```
        mirror_mod = modifier_ob.  
        if mirror_mod.mirror_to_mirror:  
            mirror_mod.mirror_object = context.object  
            mirror_mod.operation = "MIRROR_X"  
            mirror_mod.use_x = True  
            mirror_mod.use_y = False  
            mirror_mod.use_z = False  
        elif operation == "MIRROR_Y":  
            mirror_mod.use_x = False  
            mirror_mod.use_y = True  
            mirror_mod.use_z = False  
        elif operation == "MIRROR_Z":  
            mirror_mod.use_x = False  
            mirror_mod.use_y = False  
            mirror_mod.use_z = True
```

```
    selection at the end -add to selected  
    mirror_mod.select= 1  
    mirror_mod.select=1  
    context.scene.objects.active = one  
    ("Selected" + str(modifier))  
    mirror_mod.select = 0  
    bpy.context.selected_objects.append(mirror_mod)  
    data.objects[one.name].select = 1  
    print("please select exactly one object")
```

- OPERATOR CLASSES ---

```
types.Operator):  
    X mirror to the selected object.mirror_mirror_x"  
    "mirror X"
```

Insper