

# Data storytelling



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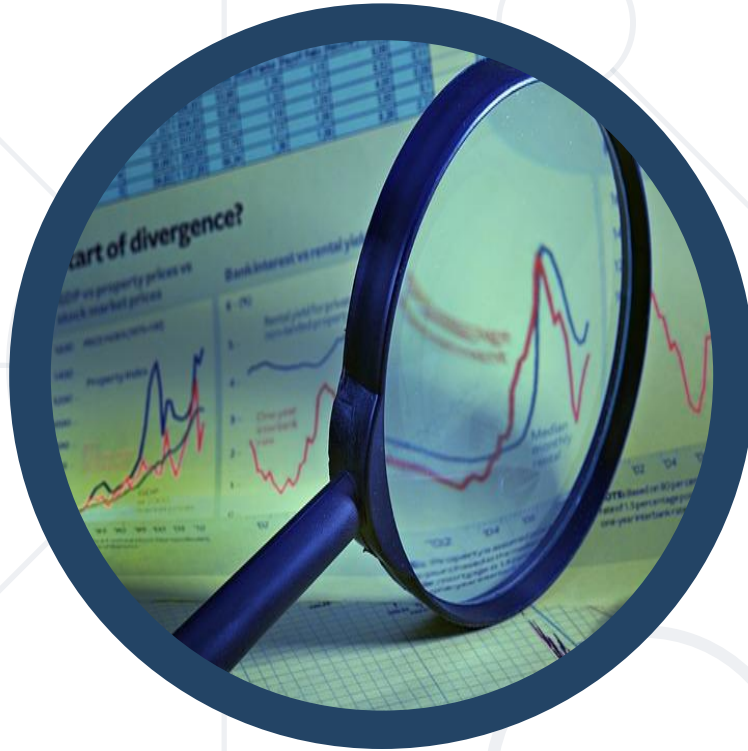
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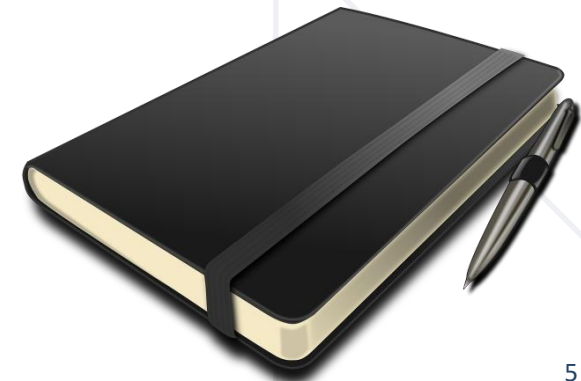
1. Data storytelling - overview and concepts
2. Identifying **story** in data
3. Storyline structure
4. Presenting with **Jupyter Notebook**





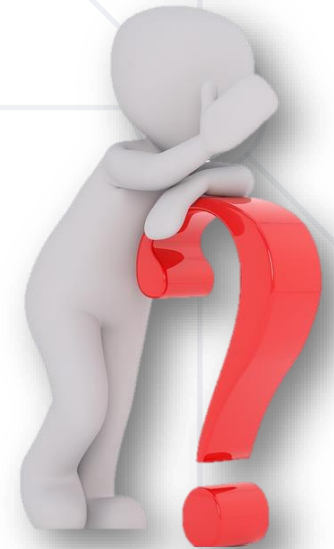
# Data storytelling - overview and concepts

- **Data storytelling** is the concept of building a compelling narrative based on complex data and analytics that help tell your story and influence and inform a particular audience
- We can infer several questions from this definition



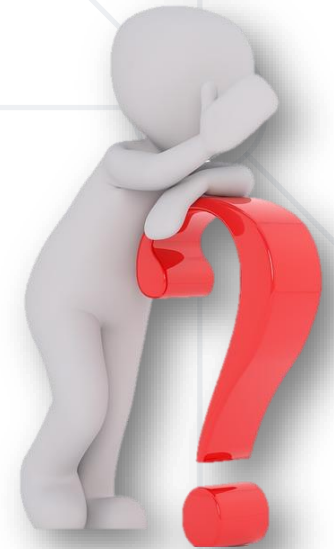
# Question № 1

- Who is in the **audience**?
- You have to know your public, their **interests**, **goals** and **intentions**
  - Examples:
    - students
    - lecturer
    - managers



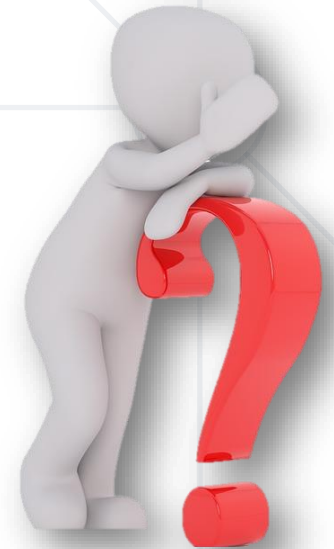
# Question № 2

- What is the **narrative**?
- What data do you have?
- What is the story you want to tell?
- Do you want a **long** or a **short story**?



# Question № 3

- What is your **purpose**?
- What influence you want to have on your public:
  - convince them
  - teach them
  - make them invest
  - entertain them





# The good story

- A good data story hinges on the ability to create an **engaging** and **informative** narrative
- This requires:
  - selecting the right data points
  - drawing correlations
  - weaving them into a coherent and captivating story



- What Africa will look like in 100 years
- Coronavirus timeline
- The Jews of Lebanon
- Labour day





**Identifying story in data**

- **Exploratory data analysis** an essential step in the data analysis process that involves **summarizing, visualizing, and understanding** the key characteristics and patterns within a dataset
- This is what we were doing up to now with **NumPy, Pandas and Matplotlib**
- The primary objectives of **EDA** are to gain insights into the data, identify any **potential anomalies** or **outliers**, and formulate hypotheses for further analysis

- **Key insights** refer to the crucial and valuable information or observations derived from data analysis
- These insights provide a deeper understanding of a subject, help make informed decisions, and often serve as a basis for further actions
- Examples:
  - **Market trends**
  - **Financial performance**
  - **Customer behavior**





# Storyline structure

- It is **important** how you **convey** your **story**. A general outline is usually this:
  - **Hook**
  - **Introduction**
  - **Tension**
  - **Climax**
  - **Resolution**



- This can be a surprising statistic, a thought-provoking question, or a **real-world** example that relates to the **data's relevance**
  - "Some say that **artificial intelligence** will soon replace many human jobs. But what if I told you that **AI** could also be the key to creating more opportunities for human workers? Let's explore this **paradigm** shift."





- "In the era of remote work, a recent study revealed that **employee productivity** has both **soared** and **plummeted**. We'll delve into the data behind this phenomenon and what it means for the future of work."



- "Did you know that over **70%** of adults in our country struggle with financial literacy? Today, we'll explore how this critical issue impacts our society and what we can do about it."
- "What if I told you that a small change in our daily habits could reduce our carbon footprint by **20%**? How can we make a meaningful impact on our environment with simple actions?"

- Set the stage by introducing the **problem**, **question**, or **context** that the data addresses. It is crucial to emphasize on the **gap** that your research is filling
  - **What is the problem?**
  - **What has been done up to now?**
  - **What is missing?**
  - **How are you going to contribute?**

# Build tension

- Create a sense of anticipation by highlighting **challenges**, **conflicts**, or **unresolved issues**
- It is a **powerful way** to keep your audience **engaged** and **eager** to discover the resolution



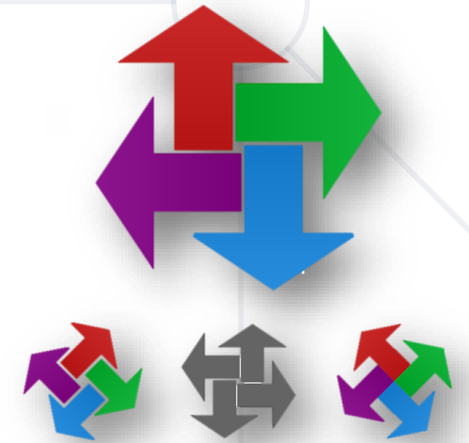
- "Our **sales data** reveals an intriguing contradiction: while our **marketing efforts** have been **highly successful** in attracting new customers, our **customer retention** rates have dropped. We'll delve into this paradox and find the underlying causes."
- "The data suggests that our **financial stability** could be threatened by the **current economic uncertainty**. We must take **proactive steps** to mitigate these **risks** and **safeguard** our company's future."

- In the **climax** of your story, you present the most significant **findings** or **turning points** in the data, which can be the "aha" moments
- You present your **solution** to the problem



- "After months of **analysis**, we've discovered a **game-changing** insight in our sales data. It turns out that a **specific demographic group**, previously untapped, has enormous potential as a customer base. This revelation could reshape our entire marketing strategy."
- "The data has pinpointed the root causes of our **production delays**, and the **findings** are both surprising and actionable."

- The **resolution** is the part of the narrative where you provide **conclusions, insights, and often actionable recommendations** based on the **data analysis**





- "After analyzing the data, we identified the **key factors** contributing to our supply **chain bottleneck**. By implementing a revised **logistics strategy** and **investing in automation**, we have successfully resolved this issue."
- "In anticipation of upcoming obstacles, we've implemented **contingency plans** and **secured additional resources** to overcome the challenges. We're well-prepared for the quarter ahead."



# Presenting with Jupyter Notebook

- It is important to make your text **readable** and **appealing**
- The **JN** interface provides you with different special symbols that you can use to format your text
- A great benefit of **Jupyter Notebook** is that it allows you to combine both code (e.g. **Python**) and **Markdown** in one document, so that you can easily document your **workflows**



- **Markdown** is a human readable syntax (also referred to as a markup language) for **formatting text documents**. Markdown can be used to produce nicely formatted documents including **PDFs** and **web pages**
- You can make **headings**, **bold** and **italicize words**, create bulleted **lists**, add **links**, format **mathematical symbols** and make **tables**

## ■ Headings

**# Heading One**

**## Heading Two**

**### Heading Three**

**#### Heading Four**



## ■ Lists:

- \* This is a bullet list
- \* This is a bullet list
- \* This is a bullet list

1. And you can also create ordered lists
2. by using numbers
3. and listing new items in the lists
4. on their own lines



## ■ Bold and italic

\*These are italicized words, not a bullet list\*

\*\*These are bold words, not a bullet list\*\*

\* \*\*This is a bullet item with bold words\*\*

\* \*This is a bullet item with italicized words\*

- Hyperlinks

```
[blue_text](url_here)
```

```
[click here](https://softuni.bg/)
```





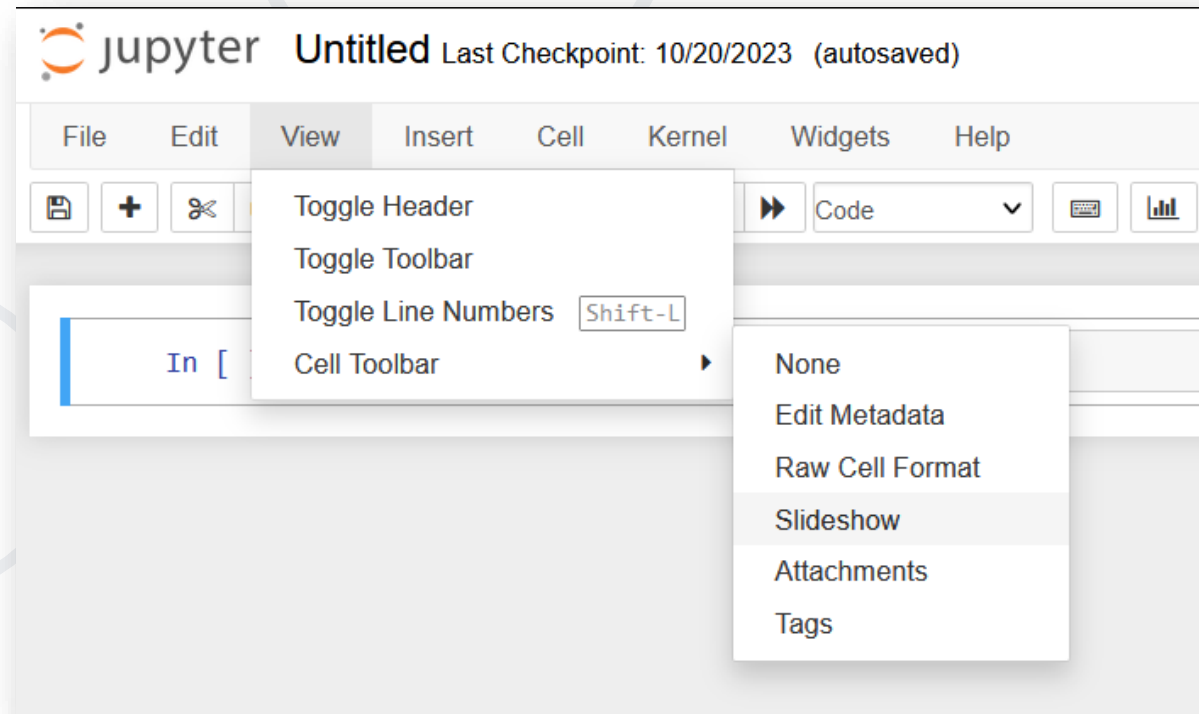
- You can embed media by **dragging** and **dropping** it into a Markdown cell
- You can use **local files** by passing the path to the file
- It is important to remember that the image path needs to be a subpath of the **notebook**
- You can't pass the image from a **different drive**
- You can use an image from the **directory** that is in the **same directory** as the notebook

```
![alternative text](path-to-image)
```

- **Rise** is an extension that allows you to create and present interactive and live slideshows directly from your Jupyter Notebook
- You can easily install Rise as any other library

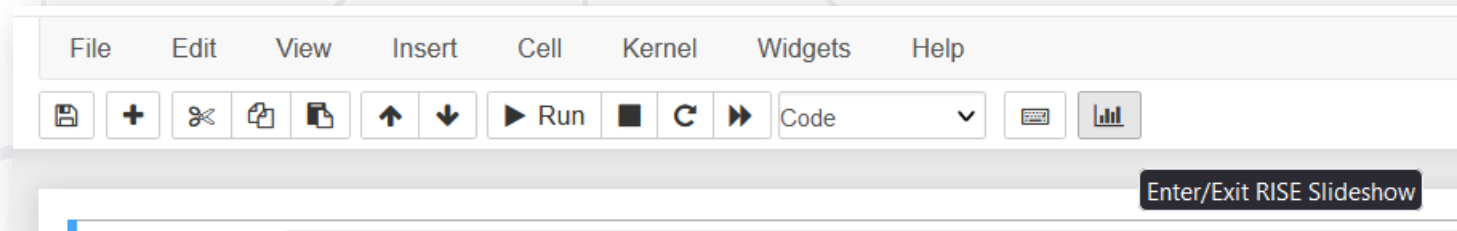
```
!pip install rise  
!conda install -c conda-forge rise
```

- Once **RISE** is installed, open a **Jupyter Notebook**
- Under **View** -> **Cell Toolbar**, there will be a new **Slideshow** option



- Enabling the Slideshow view will add the option to set a slide type to each notebook cell:
  - **Slide** → makes the cell a slide
  - **Subslide** → new slide, but bellow, not to the right
  - **Fragment** → makes the cell part of the current slide
  - **Note** → appear only in speaker view
  - **Skip** → ignores the cell

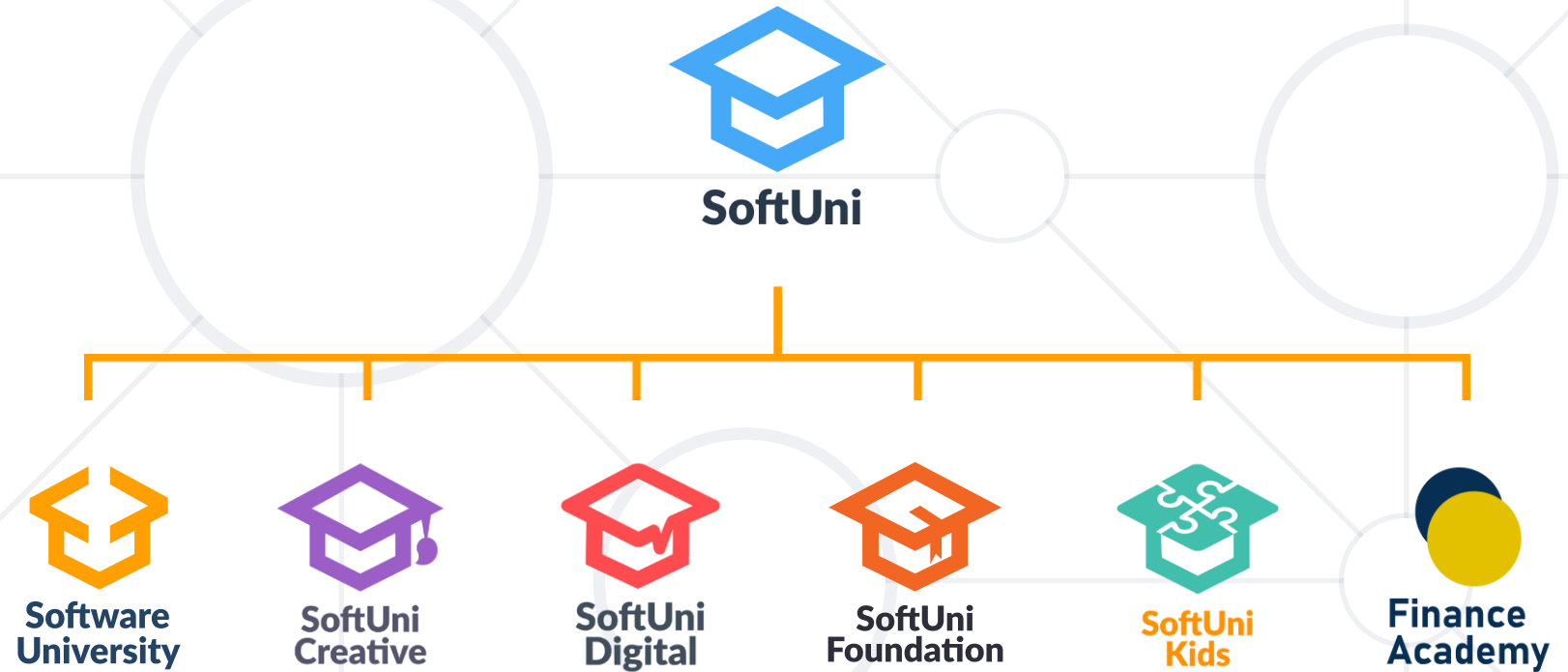
- You can then enter **in presentation mode** and tell your captivating **story**



- Make sure you know the **audience**
- Be clear of what your **goal** is
- **Hook, intro, tension, climax, resolution**
- Format your **text** properly
- Use **Rise** as presentation tool



# Questions?



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