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| Life Quality Analysis |  |
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|  | Sep.-Dec. 2023Data Visualization Course |
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### Abstract

### Introduction

#### Research Questions

#### The Main Target

#### Desired Outcome

### Data Sources

- Smart

https://www.kaggle.com/datasets/magdamonteiro/smart-cities-index-datasets/

- Criminality

https://ec.europa.eu/eurostat/databrowser/view/ilc\_mddw06/default/table?lang=en

https://ec.europa.eu/eurostat/databrowser/view/crim\_off\_cat/default/table?lang=en

- Population

https://ec.europa.eu/eurostat/databrowser/view/tps00001/default/table?lang=en

### Data Pre-Processing

Descrivete tutti I cambiamenti dal csv originale fino a quelli usati per i singoli csv usati in flourish

#### Smart – Criminality

To analyze the relationship between crime rates and smart city development, we merged two datasets and eliminated unnecessary columns. Additionally, we added a new column indicating whether each city is part of Europe. To simplify the analysis, we calculated the average values for cities within the same countries, considering capitals or the biggest cities. Using this data, we created a graph where the x-axis represents the crime index, the y-axis represents the Smart City Index, and each data point is differentiated by countries and Europe parts distinction (color). By dividing the graph into four quadrants, patterns within the data can be more easily identified. This comprehensive analysis provides insights into the correlation between crime rates and smart city development across different cities, countries, and regions, enhancing our understanding of these important factors in urban environments.

#### Criminality – Population

#### Smart – Population

#### Smart City Index

In the data processing protocol, a meticulous approach was taken to enhance the dataset for our Smart City Bubble Chart. First, we eliminated superfluous columns, streamlining the data for clarity and efficiency. To provide a geographical context, a new column, "Part of Europe," was introduced, enabling insightful categorization based on the region to which a city belongs.

To ensure a representative portrayal, we performed average index calculations, emphasizing capitals or significant cities within each country. This strategic aggregation provides a more nuanced depiction of national Smart City performance.

The resulting dynamic bubble chart is tailored for an immersive exploration experience. Categorized by country, the size of each bubble corresponds to the Smart Index values, allowing users to intuitively grasp the relative standings. Furthermore, the chart is equipped with interactive filters, enabling users to focus on specific European regions or delve into cities with particular Smart Index characteristics.

This user-centric approach empowers stakeholders to uncover nuanced insights, fostering a deeper understanding of Smart City development trends across Europe. The combination of regional segmentation and customizable Smart Index filters ensures a comprehensive and engaging exploration of our dataset.

### Data Visualizations

Cambiate I titoli e scrivete giu le vostre cose, controllate che i link siano corretti

Per ogni grafico descrivere:

* Design
* Development
* Findings

#### Bubble generic

<https://app.flourish.studio/visualisation/16133786/>

Uncover the Smart City Indices of European cities effortlessly with our interactive bubble chart. Each bubble represents a city, and you can use the mouse to group them by region or select specific indices for a personalized view.

The resulting dynamic bubble chart is tailored for an immersive exploration experience. Categorized by country, the size of each bubble corresponds to the Smart Index values, allowing users to intuitively grasp the relative standings. Furthermore, the chart is equipped with interactive filters, enabling users to focus on specific European regions or delve into cities with particular Smart Index characteristics.

This user-centric approach empowers stakeholders to uncover nuanced insights, fostering a deeper understanding of Smart City development trends across Europe. The combination of regional segmentation and customizable Smart Index filters ensures a comprehensive and engaging exploration of our dataset.

#### Top 10 smart

https://public.flourish.studio/visualisation/16024537/

#### Population smart

https://public.flourish.studio/visualisation/16201907/

#### Crime variance and population

https://public.flourish.studio/visualisation/16193316/

#### Population crime variance grid

https://public.flourish.studio/visualisation/16193249/

#### Crime smart index scatter

<https://app.flourish.studio/visualisation/16392222/>

Using the preprocessed data, we created a graph where the x-axis represents the crime index, the y-axis represents the Smart City Index, and each data point is differentiated by countries and Europe parts distinction (color). By dividing the graph into four quadrants, patterns within the data can be more easily identified. This comprehensive analysis provides insights into the correlation between crime rates and smart city development across different cities, countries, and regions, enhancing our understanding of these important factors in urban environments.

### Interface Design

We decided to use a [free Bootstrap 5 template](https://bootstrapmade.com/knight-simple-one-page-bootstrap-template/) to create a smart and clean one-page website report quickly.

We took the existing sections and edited them to make it look good for our purpose, adding more sections and editing the style to fit the charts.

Then we edited the descriptions and checked that the page worked well with the embedded flourish charts.

### Future use