DATA VISUALIZATION PROJECT

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November 2023

BC2.04 – Data Visualization

Week 2 : Data Visualization – Adv.

- **Lecturer 1 : Visualization of network graphs**
  - **Day 1 :** Visualization of network graphs
    - PW (graphviz, python/networkx-matplotlib)
  - **Day 2 :** Visualisation of shortest paths and communities
    - PW (python/matplotlib-louvain)
- **Lecturer 2 : Clustering of non-numerical data**
  - **Day 3 :** Clusteriong of numerical and categorical data
    - PW (Tableau) :
  - **Day 4 :** Hierarchical clustering with Galactic
    - PW (python/galactic, Tableau)
  - **Day 5 :** Sequences clustering with Galactic
    - PW (python/galactic, matplotlib)
- **Day 6 :** Finalization and submission of PWs

Week 3 : Project

- **From Monday, dec 23 to Friday, dec 29**
    - Work on your project

- **Friday, january 8, 3p.m VN, 9a.m France**
    - Oral presentation of your project (10mn)
    - Moodle submission of your report + presentation

Evaluation

- **Week 1 & 2:**
  - 40% daily attendance + participation
  - 60% practical works (PWs)
- **Week 3:** project (by 2-students)
  - 50% report
  - 50% oral presentation (10mn)
- **Total:**
  - (week 1 + week 2 + week 3)/3

Project

- **<u>Objective:</u>** to produce at least 6 visualizations of the :

  Population_and_Demography_Dataset:

  - 3 visualizations with Tableau
  - 1 clustering+visualization with Tableau
  - 1 clustering with Galactic +visualization
  - 1 sequence clustering with Galactic + visualization

Project

□ *Population_and_Demography_Dataset:*

population-and-demography_births

population-and-demography_deaths

population-and-demography_deaths_female

population-and-demography_deaths_male

population-and-demography_density

population-and-demography_population_both

population-and-demography_population_female

population-and-demography_population_male

Project

- **<u>Per visualization:</u>**
  - Select, extract and **analyze** a (relevant) part of the *Population_and_Demography_Dataset*:
    - Per data, country/continent, year/period, ….
    - Option to add calculated data
    - Option to add additional data (a cluster for example)

  - Provide a precise and complete **presentation**
    - Description of the data
    - Description of the treatment
    - Description of the visualization

50% quality of analysis

50% quality of presentation

Project

□ **<u>Where are the clusters ?</u>**

 ◻ You can extract demographic data at a given date for (some) countries, and then group them to form clusters of countries

□ **<u>Where are the sequences ?</u>**

 ◻ You can segment some demographic data (for example low, medium, high)

 ◻ Then you can define a sequence for each country on a selected part of time with this segmentation

 ◻ Clusters of countries with a decline in demographics should emerge, caused by factors such as a war or a pandemic

Project

□ *Population_and_Demography_Dataset:*

population-and-demography_births

population-and-demography_deaths

population-and-demography_deaths_f

population-and-demography_deaths_ma

population-and-demography_density

population-and-demography_population

population-and-demography_population

population-and-demography_population_

Country name,Year,Births,
Births from mothers aged 15 to 19 years,
Births from mothers aged 20 to 24 years,
Births from mothers aged 25 to 29 years,
Births from mothers aged 30 to 34 years,
Births from mothers aged 35 to 39 years,
Births from mothers aged 40 to 44 years,
Births from mothers aged 45 to 49 years,
births__all__10_14__records,
births__all__50_54__records

Project

☐ *Population_and_Demography_Dataset:*

📊 population-and-demography_births

📊 population-and-demography_deaths

📊 population-and-demography_deaths_fema...

📊 population-and-demography_deaths_male

📊 population-and-demography_density

📊 population-and-demography_population_bot...

📊 population-and-demography_population_fer...

📊 population-and-demography_population_ma...

Country name,Year,Deaths,
Deaths of children under the age of 1,
Deaths of children under the age of 5,
Deaths aged 1 to 4 years,
Deaths aged 5 to 9 years,
Deaths aged 10 to 14 years,
Deaths aged 15 to 19 years,
Deaths aged 20 to 29 years,
Deaths aged 30 to 39 years,
Deaths aged 40 to 49 years,
Deaths aged 50 to 59 years,
Deaths aged 60 to 69 years,
Deaths aged 70 to 79 years,
Deaths aged 80 to 89 years,
Deaths aged 90 to 99

Project

☐ *Population_and_Demography_Dataset:*

📊 population-and-demography_births

📊 population-and-demography_deaths

📊 population-and-demography_deaths_female

📊 population-and-demography_deaths_male

📊 population-and-demography_density

📊 population-and-demography_population_both

📊 population-and-demography_population_female

📊 population-and-demography_population_male

> Country name,
> Year,
> Population density

Project

☐ *Population_and_Demogra*

population-and-demography_births

population-and-demography_deaths

population-and-demography_deaths_fe

population-and-demography_deaths_m

population-and-demography_density

population-and-demography_popul

population-and-demography_popula

population-and-demography_populati

Country name,Year,Population,
Population of children under the age of 1,
Population of children under the age of 5,
Population of children under the age of 15,
Population under the age of 25,
Population aged 15 to 64 years,
Population older than 15 years,
Population older than 18 years,
Population aged 1 to 4 years,
Population aged 5 to 9 years,
Population aged 10 to 14 years,
Population aged 15 to 19 years,
Population aged 20 to 29 years,
Population aged 30 to 39 years,
Population aged 40 to 49 years,
Population aged 50 to 59 years,
Population aged 60 to 69 years,
Population aged 70 to 79 years,
Population aged 80 to 89 years,
Population aged 90 to 99 years,
Population older than 100 years

Thanks for this week !