**CSCE 5320 – SCIENTIFIC DATA VISUALIZATION**

**THE WORLDWIDE LANDSCAPE OF DATA SCIENCE: DEMAND & DEMOGRAPHICS**

**GitHub link:** [**https://github.com/ks-tharun-14/Scientific-Data-Visualization.git**](https://github.com/ks-tharun-14/Scientific-Data-Visualization.git)

**Team Members:**

THARUN KURAVADI SATHISH BABU – 11659825

THARUN RAMULA – 11706360

KEERTHI REDDY PAPAIAHGARI – 11772193

LAKSHMI DEEPIKA PAGADALA – 11696381

**Introduction:**

Data scientists are in high demand due to the growing recognition of data analysis by businesses across the globe. The population size of a nation and the salary paid to data science experts are examined in this study project. We want to know how population demographics affect the demand for and salary structures for data scientists worldwide by examining easily accessible data on the world population and data science wages.

**Motivation:**

Data science is expanding at an exponential rate. Companies in a variety of sectors have realized the benefits of data analysis, which has led to a vibrant global market for employment for data scientists. This research explores the relationship between the population size of a nation and the salary that data science specialists are offered. Our goal is to get insight into how global population demographics affect the demand for data science skills and salary structures by examining this relationship.

**Significance:**

The goal of this project is to provide a clearer understanding of the worldwide data science landscape. We can offer useful insights to companies looking to hire data scientists, policymakers influencing the future of the data science workforce, and aspirant data scientists by examining the relationship between population size and data science demand and compensation. Furthermore, a deeper comprehension of the worldwide information about data science market will be promoted by the project's creative approach that makes use of cutting-edge data visualization tools (D3.js) to present these patterns in a visually appealing manner.

**Objective:**

Examining the relationship between the population size of all the countries and number of data scientists employed in each country. We will achieve this by combining the datasets of population and data science salaries. Investigating the variations in data science salaries across the different countries with their population. This objective can be achieved by creating the interactive visualizations usingD3.js to explore the corelations. Exploring the local trends in the demand in data science field and salary structures of different data science jobs, and identifying the possible causes that are influencing these variations. It helps to gain a in-depth knowledge of how global population demographics is affecting data science demand and salary structure.

**Features:**

**Data Sources:**

These datasets are being used from the open-source platform ‘kaggle’. The datasets using in the project are ‘World Population by Country’ and ‘Data Science Salaries’. These datasets describe the information about the population of the different countries in the year 2023 and the second dataset describes information about the salaries in data science field across the world.

**Data Analysis and Visualization Tools:**

We are using python with panda’s module to clean and manipulate the data. Mainly for visualizations, we use D3.js for creating the interactive features. We can use tools like Tableau and PowerBI is used for recognizing the correlations between the two different datasets.

**Interactive Features:**

To create the interactive visualizations, we mainly use D3.js. The scatter plots will help us to explore the correlations between the population size in different countries and the data science job offerings, interactive globe maps with colored or sized markers that show the average salary in data science for each country. Through these interactive elements, users will be able to visually explore the data and obtain more in-depth understanding.

**References:**

<https://www.prb.org/resources/human-population/>

<https://researchfdi.com/resources/articles/the-effects-of-globalization-on-economic-development/>

<https://www.kaggle.com/datasets/rajkumarpandey02/2023-world-population-by-country>

<https://www.kaggle.com/datasets/sazidthe1/data-science-salaries>