CSCE 5320 Project Description

**Inflation at a Global Level**

by

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**Chapter 1: Prices going up:-**

Inflation affects everyone no matter which country you live in. Whether it's the rent you pay or the gas you put in your car or the groceries you buy. Prices of goods and services are directly related in one way or another to inflation. But what causes inflation? Global events tend to cause a cascading effect as well as how your national government runs the country through its bills. An example would be the supply of oil through Europe from Russia or the export of grain from Ukraine were hit due to the war that caused global inflation in prices globally but more so in certain countries. So each country has its own way of handling how its resources are managed in terms of imports and exports as well as economic bills being passed to determine the rate at which prices rise or fall. So far we know who is affected by inflation (everyone), how it affects people (rising price of goods and services) and why (managing a nation's resources in terms of a nation's growth). This data represents the current condition based on the various economic sections which provides those in the government bodies or economic power to understand and make necessary decisions through bills or motions to navigate a country's economy. When provided with data from multiple years we start to notice trends and patterns and better set contingency plans or divert resources to avoid disasters. But merely looking at bug numbers and large portions of tabular data isnt as intuitive as visualizations. Hence, we decided to build an interactive dashboard with visualizations to better ingest the data and analyze the overall pattern to find meaning in the numbers.

**CHAPTER2: Let's look at the data:-**

When we think of leveraging data to capture the information that is generated in millions of bits every second, one thing that quickly comes to our mind is sampling and collecting. Based on our interest, we can decide on how frequently we want to sample the data. The data which is of interest to us in the context of this project is about Inflation on a global level. Inflation being an entity which sits on top of the gross domestic product, naturally needs to be sampled at a lower frequency than GDP. Sampling yearly can be one such suitable frequency to record the inflation. Also, another aspect of sampling that needs to be considered when it comes to terms like Gross Domestic Product and Inflation rate is the geography that we want to limit it to. In this case, the geographic limit is the entire globe. The data has been sampled for all the countries throughout the globe. Inflation, a result of the economic decline of the country, can provide valuable insights to government bodies. The data has been collected over the timeline of 52 years starting from 1970 through 2022. Moreover, the dataset contains countries and various sectors affecting inflation rate, hence it is possible to drill down to a country’s cause of inflation. To answer the question about how? Let's take an example of The Great Depression event of 2009. This event impacted the world economy and central banks went broke due to their massive corporate debts. This consequently increased the inflation rate in major parts of the world and this can be observed from the dashboard that’s been created.

Who: Economists and Data Scientists

What: Inflation rate increase across domains

Where: Data collected from all countries

Why: To keep track and cover trends

When: 1970 to 2022

How: Data collected for official sources from government

**Chapter 3: See the trends:-**

Our dashboard design is mainly aiming to help economists as well as normal people to understand the trends in the data. While we do not have in-depth domain knowledge in economics, the intuitive use of the world map with the choropleth gives an overview of the average inflation rates through the use of channels on country shapes. The pie charts help show parts of whole contextual visualizations of more fine grain data of inflation rates of the different economic sectors of a selected country along with bubble plots for year based country visualization, a bar plot for a more accurate rendition of the pie plots and a line plot covering the time frame for showing trends. But choropleths and line plots are already used effectively for plots. Our aim is to provide a more intuitive interactive experience for visualizing plots and navigation while keeping it as simple as possible on the front end. By making it a browser dashboard anyone with an internet browser should be able to open and view the plots on the data to gain useful insight for both exploratory as well as analytical purposes. The addition of animations along with the interactivity and the ability to save and download your plots provide further benefits. Finally as mentioned these plots provide valuable insight on trends of global inflation as well as the countries affected year over year allowing governments and officials to make necessary decisions as well as informing the general consumer of the sectors being hit the hardest and in which region on a global scale.

Who: The general public and officials will be looking at this dashboard

What: Choropleth, pie, bar, line and spiral plots

Where: Online web portal so any device that can use a browser

Why: To identify trends in the inflation rates on a global scale for discovery and analysis

When: Anytime the server is accessible

How: With a stable internet connection the person logs into the browser to view the plots