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Relational Databases and Web Applications

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Data Visualization of Employment Statistics

In this project, I was allowed to take the skills I have developed over the semester and apply them to create a dynamic visualization of employment statistics from the US Department of Labor Statistics. I was able to refer to the notes I have taken over the semester as well as the course materials to create an application that is fully functional with no apparent bugs. To access the project users can go either to my personal GitHub page (URL: <https://manavr12.github.io/>) or the project page (URL: <https://manavr12.github.io/employmentstatistics.html>). During the process of creating the application, there were moments when I had difficulty trying to get the code to fulfill the project’s requirements, however, in those cases, I would either go back to my notes or ask questions during lecture to Professor Ordille so that I can better understand how to solve the problem at hand.

Creating the code for the HTML and CSS portion of the project was straightforward and I was able to troubleshoot any problems I had by just simply referring to the course textbook. Most problems I did encounter revolved around the JavaScript portion of the code. A recurring problem that I seemed to have when working on JavaScript was getting the code to display the various chart elements of the application. I struggled the most with understanding the for loop portion of the code and so I had to spend some time going back through the course textbook and understanding how I can implement a for loop into my code. After going through the textbook, I was still unsure how to properly implement a for loop and so I revisited the recorded lectures to see how Professor Ordille explains for loops. After getting over the hurdle of understanding how for loops work, I was able to correctly implement the for-loops and make my code much more efficient as a result. After this, I did have some issues with getting the chart to show up, however, I had realized that I had not declared some of the variables and was able to fix the issue after realizing my mistake.

In terms of the project, I thoroughly enjoyed the data that we were working with and found the project to be very interesting. It was especially interesting to me to see how various sectors of the economy were affected by the COVID-19 pandemic and if those sectors had recovered to pre-pandemic levels. However, an enhancement I would recommend for the project is to include more requirements on the type of analysis that we can do for the data. We primarily focused on a line graph and so perhaps including other types of data visualization tools such as a pie chart or bar chart could be useful when analyzing the data. Another enhancement I would recommend is to add more requirements in regard to the HTML and CSS so that we can make the application have more content. Besides the more aesthetic elements that can be included in the application from HTML and CSS, I think it would make for an interesting project if we had our analysis on the various trends we see in the different sectors of the economy. Perhaps, every time a user clicked on a specific industry, below the chart, there could be a section that had our analysis and interpretation of the data to better help the user understand the macro factors that are likely affecting the trendline.

In terms of other data sets that would be interesting to visualize from the Department of Labor Statistics would be the CPI number and Employer costs for employee compensation. The CPI number would be especially interesting as the CPI number tends to be a strong indicator of inflation and with the recent surge in inflation, as the economy is opening, I think it would be interesting to see which basket of goods/services have seen the biggest surge in prices. Perhaps using a vertical bar chart as seen in chart.js would be a good way to visualize data so that we can see which sectors of the economy have the strongest inflationary pressures. Employer costs for employee compensation could provide for some interesting data visualization because the data can be parsed in many ways. For instance, separating the data by different industries, occupations, regions/geography to see the costs taken on by employers for paying their workforce. A multitude of data visualization techniques can be used for this type of data set, but a pie chart could be most useful to visualize the data. Especially in current times where there is a labor shortage and many employees are leaving their roles, it can provide for some interesting data analysis to see what industries are doing in terms of compensation to retain their employees. All in all, this application is a tool that allows users to gain a dynamic visualization of employment and have a data driven approach when analyzing different sectors of the economy.