**REFLECTION PAPER**

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**Data Visualization Tools and Techniques:**

Data Visualization course helped me to know how to create visualizations. I have heard about the visualization tools before, but I didn’t have any practical knowledge, or I don’t have any idea about the interface about these tools. But the course is designed in such a way that a person who has no idea about this topic can learn from scratch.

The first module has started with difference between truthful visualizations and misleading visualizations, and we also need to post our visualizations and need to explain why we are thinking those to are our first choice. During this exercise I had gone through different websites, and I read few blogs about truthful and misleading visualizations. But, after all that research I ended up posting misleading visualization as a truthful visualization. The research what I had done helped in realizing that I should be more careful while choosing the visualizations.

Later in the modules, I started working with Tableau and Tableau Prep builder. Tableau Prep builder is a tool which helps in cleaning the data. This cleaned data can be used as a data source for Tableau. Tableau is a data visualization tool. I came to understand the basic terminology like Measure which are the numeric values, Dimensions will give the details of the data, if we have multiple views in a single page, it is called Dashboard, page which has visualization is called worksheet and if we have more than one worksheet, we will call it as workbook and so on. This terminology will be same in every data visualization tool either it is Tableau or PowerBI.

We have many visualizations available like pie chart, bar chart, line chart, scatter plot and maps etc. To tell a story to the viewers we need to use these visualizations carefully so that they can understand easily. We also have drill down approach where we need to create a hierarchy. For example, we can create a drill down on Country name and makers of automobile and we can also get sales in quarterly, monthly, and yearly basis. I also learned about calculated fields where we can add simple commands to create new operations. We can also give relationships between two data sheets on the specific field which in common.

PowerBI is an alternative data visualization tool which is widely used in the corporate industry and has user friendly interface. The three main views in PowerBI are Report View, Data View, and Model View. There are many visualizations available like Tree Maps, Clustered Bars, Pie charts, R-Scripts, and Python Scripts etc. I can easily make calculations; edit data types and we can format data category for a column.

Tableau and PowerBI has many functionalities, visualizations, collection of data and presentation of business information which are in common, but the interface will be different. Once we learn one tool perfectly, it will be a matter of time to adapt to another tool. But tableau can handle large amount of data easily and quickly than PowerBI, but PowerBI is easy to use performs better when the data volume is limited. I like Tableau better than PowerBI as I am doing my project in Tableau itself and I like the interface better than PowerBI.

Other than these two I got a chance to work on Python and R for visualizations. Due to the course structure, I didn’t have a chance to work on these two much, but we were introduced to some of the main features. Mainly those two were used to analyze the data and then import that data to a data visualization tool, but we can create visualizations directly in Python and R.

In Python I did few exercises which include importing the data, reading, and printing the data frames. I learned to plot few visualizations using Python like scatter plot, line bar, column charts and histogram. Creating calculated fields and subplots is lengthy and time consuming where we can do easily in Tableau and PowerBI.

**Course Assessment:**

This course has different models of assessments like group discussions, project discussions, mini projects, weekly assessments, and a final project. Some of these assessments are new to me personally but I enjoyed this structure. I think introducing quizzes would add more assessments, but I think it wouldn’t make any difference.

I had enjoyed those group discussions very much. Going through all the discussions and comments what my fellow students made. They show how much effort he/she made in the background to post something and to comment on someone post firstly we should know what they are talking about, for that I used to research and go through all the relevant topics to confirm about that. I really enjoyed and learned a lot from those group discussions.

Coming to mini projects and weekly assessments, they gave me a firsthand experience on every tool which was discussed in class. For every week I used to work on all the visualizations which were taught in the class, it made my assessments easy and enjoyable. If we go through the class, we can perform good in those assessments.

Final project in this course is particularly important and it will hold a majority of the role in assessments. This final project helped me to recall all the topics which were covered from the starting of the course. I had given much flexibility in choosing the project topic from starting of the course. We can change the topic if we didn’t find the relevant dataset for our project. I had spent a particularly good amount of time for choosing the topic and searching for the datasets. I also had a chance to discuss my project with the other students and I can take suggestions from them, it felt so good in helping others. This final project will be a good add on for my resume.

Overall, the course assessment is surprisingly good, and I had a wonderful time while learning this course. Those group discussions, assessments and project are incredibly good. I didn’t feel bored or heavy while I am doing this course other than my final project. I really enjoyed these different assessments for diverse topics.

**Overall Course Design:**

The course structure is well organized. Many of the topics covered in this course are extremely useful in the corporate field. Personally, I loved working in tableau and PowerBI. These visualization tools can be used for integration, analysis and gathering of business information. They perform the data manipulation and data collection. In future I might be able to work in the jobs related to power BI which requires the skilled and professionals to collect the data.

The skills which I learned from this course will help me to present well in the job market. This course is well designed with all the topics which are needed to perform good in the interviews and the job market. I enjoyed my learning in Tableau and PowerBI other than doing visualizations in Python and R. According to my research Tableau is the most popular visualization tool, which is in demand right now, I thought adding one more module for that might been great. But we should know the basics of doing visualization using Python and R also it may be useful in the coming days.

One thing I should mention about the flexibility to access the modules. Topics which were discussed in the class lecture were kept as a video recording or a detailed transcript. I can read or watch those modules with out getting bored. It is more exciting for me; each module is divided into subtopics it helped me when I am doing my assessment and project. If I have any doubt I used to go through those modules and read briefly on, what should I do, it really helped and did my job easy. I am very thankful for such arduous work professor put on for this course.

Data Visualization is great course which will give an added advantage for my skillset and resume, I really enjoyed throughout the course with various of activities and assessments which will help me in the future.