

PROCESS BOOK

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PROJECT PROPOSAL

- **Basic Info**

- Project title: Student Statistics
- Name: Srija Adusumilli
- Email: srija.adusumilli@utah.edu
- UID: u1140248
- Link: <https://github.com/SrijaAdusumilli/Student-Statistics.git>

- **Background and Motivation**

Providing students with their academic statistics may give them the knowledge where they are lagging behind but there is no efficient way implemented until now. This made me choose this project for helping out students for providing their statistics and getting them to know the fields in which they need to improve. Also, a visualization of this kind helps the faculty and parents know the academic performance information and also the basic information of the students.

- **Project Objectives**

The primary objective for implementing this project is to provide students with the statistics in a more efficient and visualized way so that they can get a clear picture of their academics.

visualization is an effective tool to deliver information. Using this visualization, I am trying to project how different circumstances such as how many times the student checks the new announcements, how many times the student visits a course content, how many times the student checks the new announcements, how many times the student participate on discussion groups, how many times the student raises his/her hand on classroom, the number of absence days for each student effect their academic performance.

- **Data**

- Amrieh, E. A., Hamtini, T., & Aljarah, I. (2016). Mining Educational Data to Predict Student's academic Performance using Ensemble Methods. International Journal of Database Theory and Application, 9(8), 119-136.
- Amrieh, E. A., Hamtini, T., & Aljarah, I. (2015, November). Preprocessing and analyzing educational data set using X-API for improving student's performance. In Applied Electrical Engineering and Computing Technologies (AEECT), 2015 IEEE Jordan Conference on (pp. 1-5). IEEE.
- Link: <https://www.kaggle.com/aljarah/xAPI-Edu-Data/data>

- **Data Processing**

I am not expecting any data clean up. I am planning to use the data provided as it is without any data processing.

- **Visualization Design**

The overall design is presented in the form of a pie chart. But, in order to get a detailed picture of the information, we need to expand and show even the minute details of the attributes. So, the line charts and bar charts might help in clearly projecting the data.

- **Must-Have Features**

- The pie chart with concentric circles and each concentric circle represent a different attribute.
- Different shades of colors(saturation) for each circle representing each attribute.
- On a mouse click on these circles, a bar chart and line chart expands showing detailed info about the attributes.
- By hovering on the circles, a tooltip get displayed showing the basic info.

- **Optional Features**

- hue and saturation
- Shadows
- 3D effects

Due to the presence of these features new information will not be added but we get a more effective visualization.

- **Project Schedule**

By dividing the project to modules and assigning deadlines for each module might help me in completing the project in time.

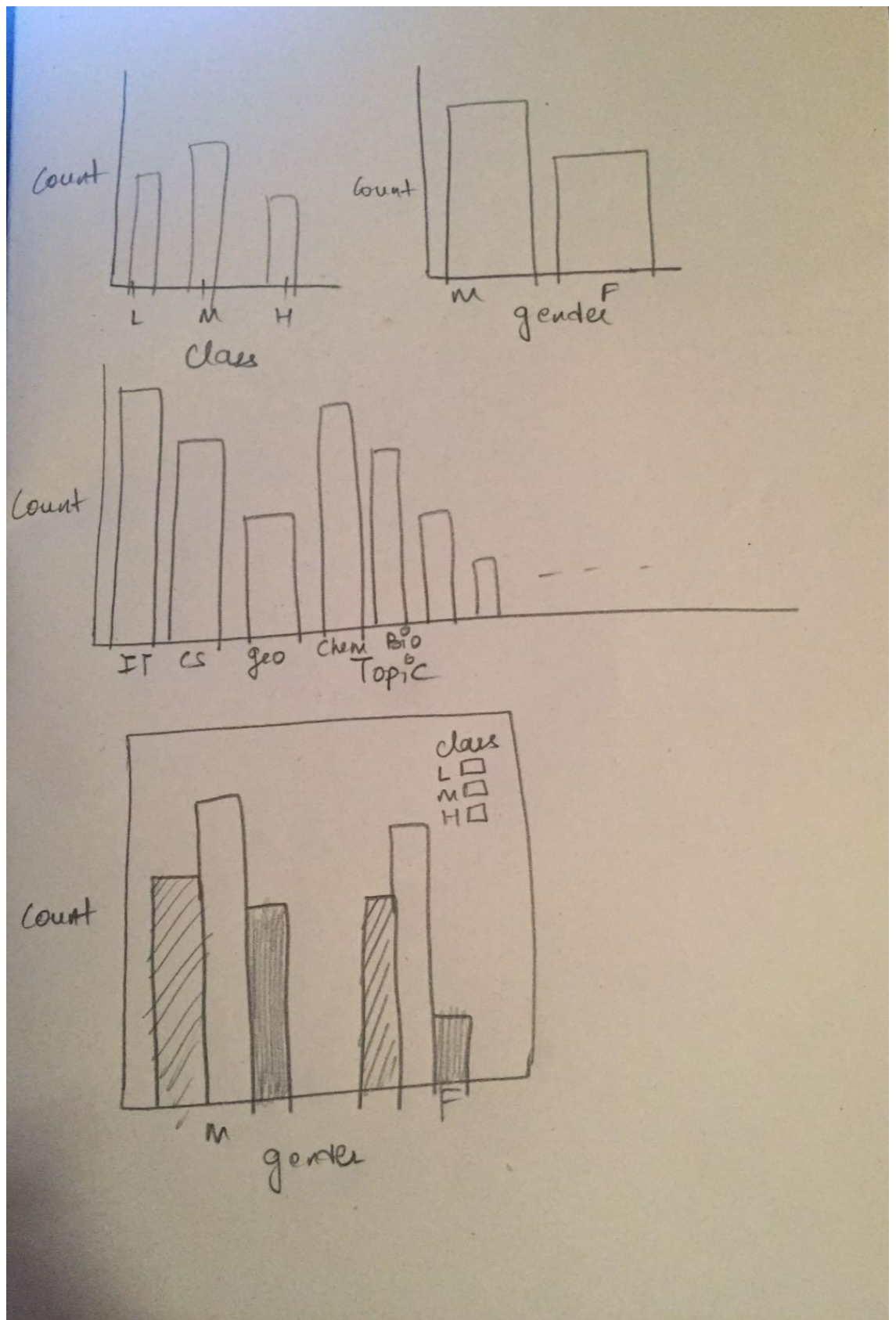
Modules	Deadlines
Module1	11/07/2017
Module2	11/14/2017
Module3	11/21/2017
Module4	11/28/2017

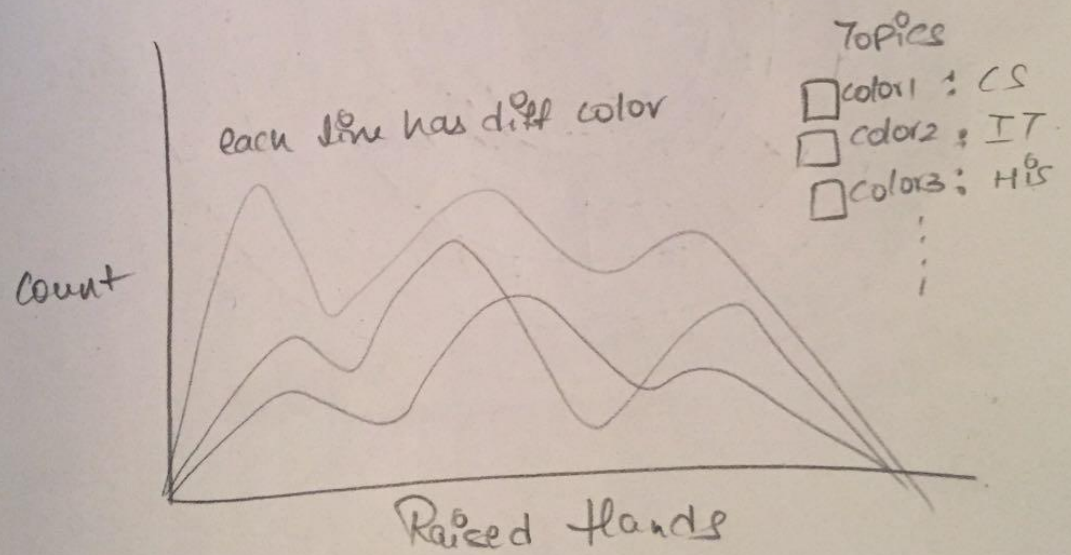
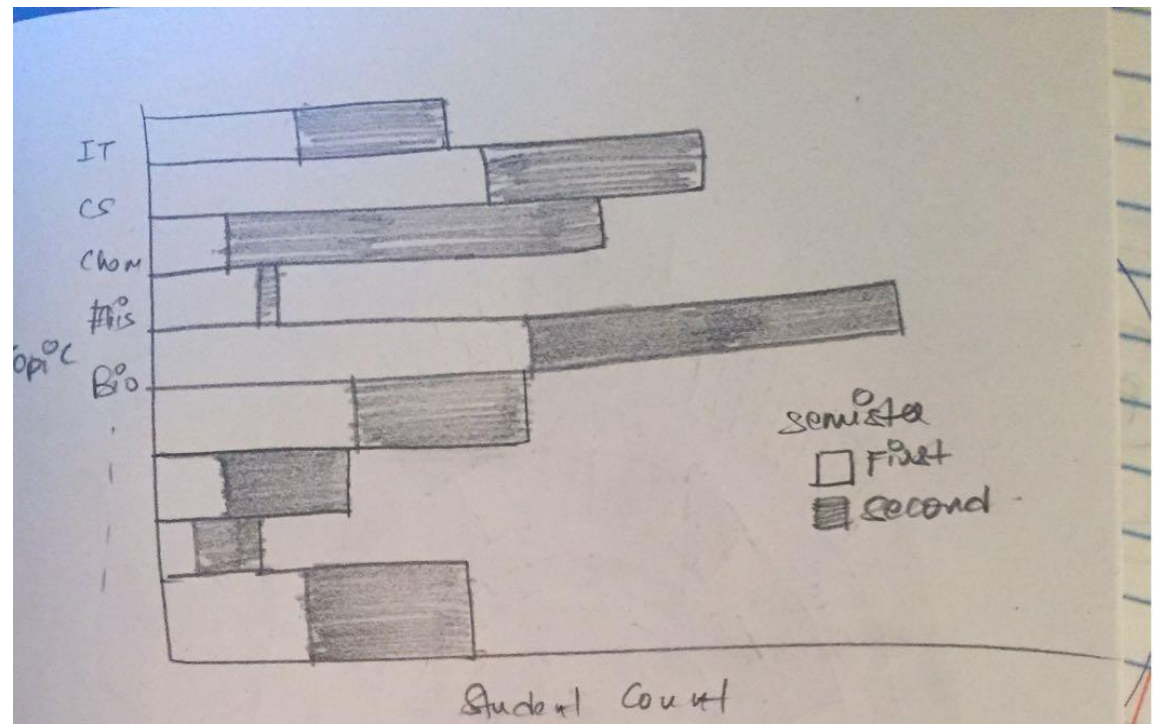
Module1: pie charts

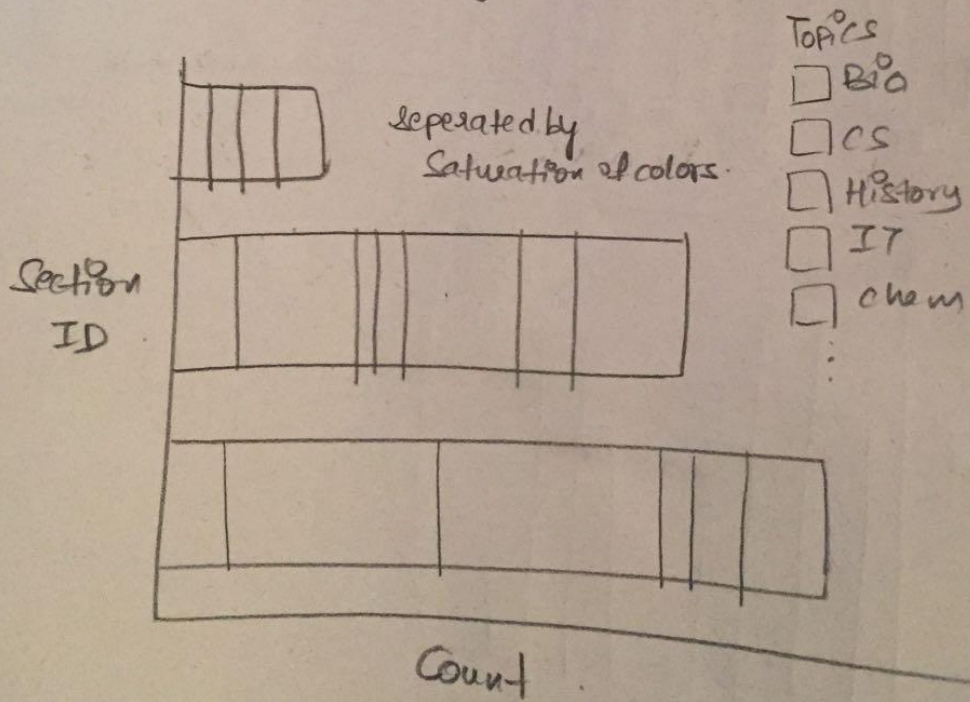
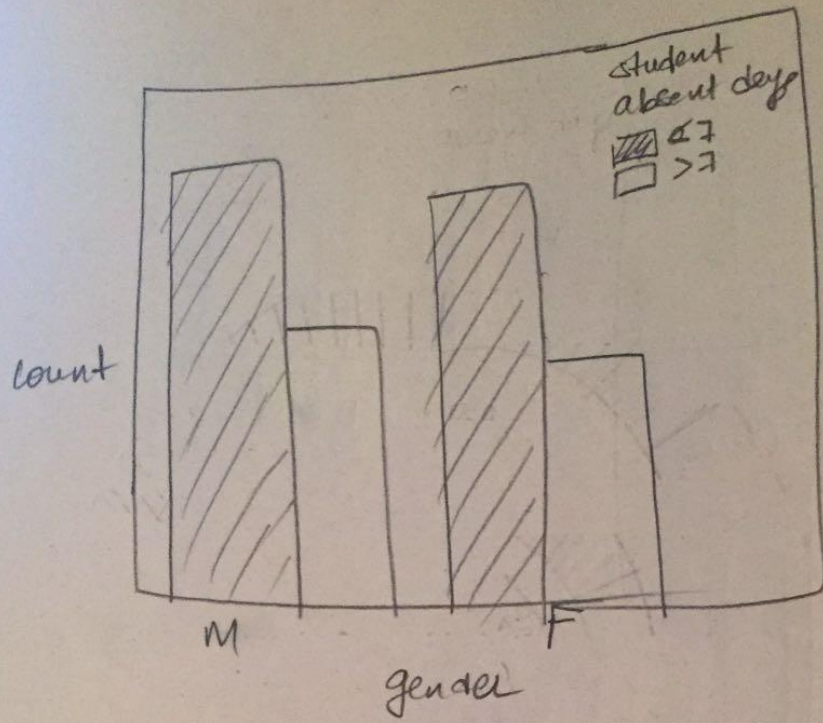
Module2: Bar charts

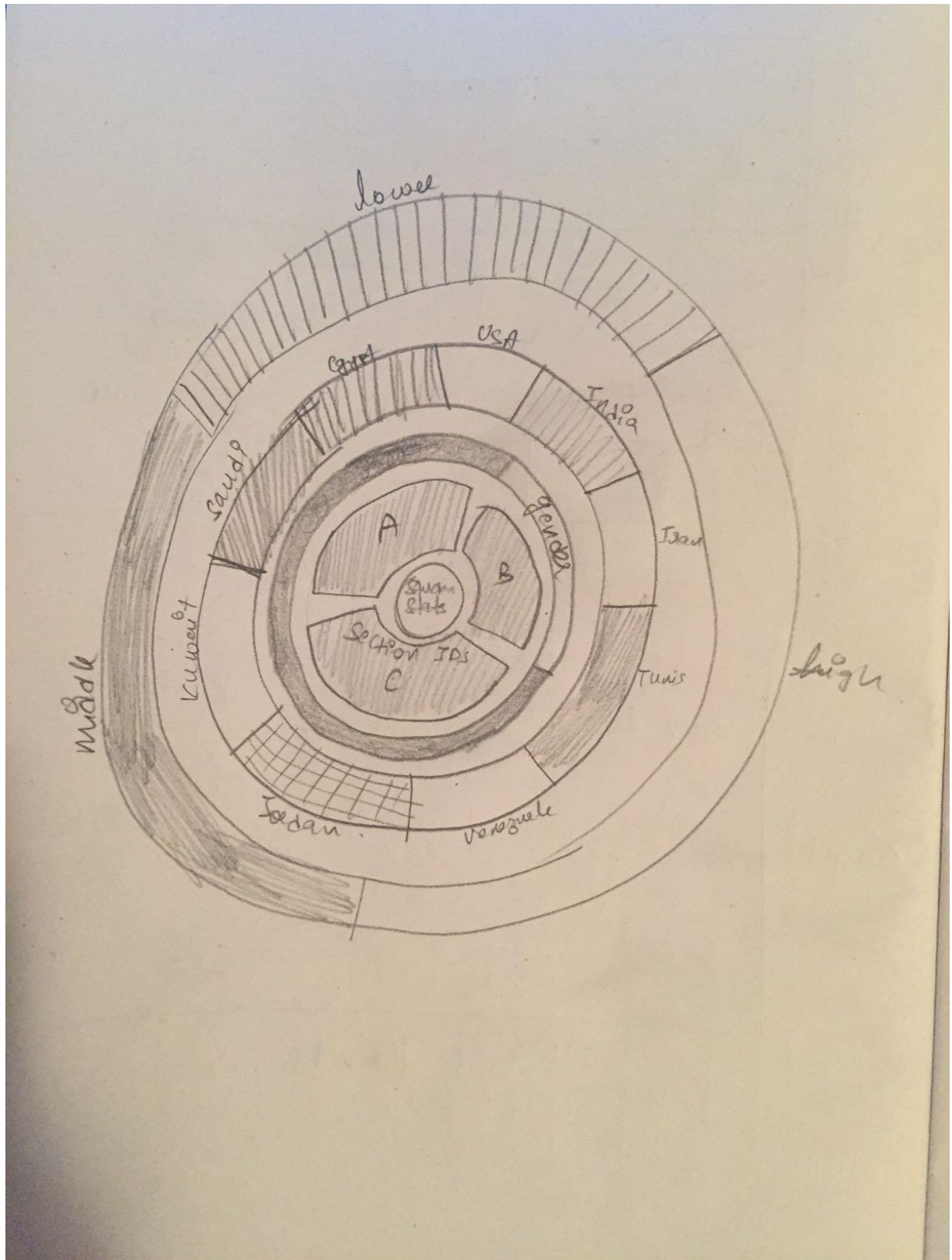
Module3: Line charts and integration of Data

Module4: debugging and testing









Peer Feedback

General Questions Feedback:

- The objectives of the project are interesting to the target audience i.e., in the case of my project, the students, the faculty and parents.
- The scope of the project is kind of appropriate, i.e., the features, deliverables and interactions. But, involves many modules.
- The optional and must have features splitting is good but the animation should have been in the must have feature.
- The visualization is indeed creative because, the sundial is a new concept so far and it would take much time to implement it.
- The visualization is totally suitable for the given dataset. It can handle larger but similar datatypes.
- The project plan is detailed enough. The path to the final project is clear. The sundial module will take more time when compared to others.
- The story of the whole project is interestingly told.

Visual Encoding:

- The visualization follows majority of the principles discussed in the class and used in the home works.
- The primary visual encoding is the sundial and all the interactions in the project webpage are related to this sundial. It matches to the important aspect of the data taken.
- The new concept of visualization used here in the project is the sundial. But, the data representation in the sundial will be difficult to analyze.
- The color should be sensibly used and in the sundial.
- I have been suggested to use the most impactful attributes first i.e., the most important attributes of the data should be represented in the inner circles and less important data should be represented in the outer circles.

Interaction and Animation:

- The interaction is meaningful, and the suggestion is to implement the interaction of bar charts on double click of the mouse.
- There are no multiple views needed for this visualization. The visualization of the data is meaningful with one view itself.
- The visualization will be more attractive if the animation is planned on the axis of bar charts and line charts.