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CSE 564: Visualization(Spring 2023) as Basic Project CSE 522 Assignment 1 Report

About Dataset:

The dataset I used for this assignment consists of data pertaining to the requirements for a PC/Video game to function on Computer. The reason for using this dataset is because nowadays numerous high-end games are being developed and many remastered versions of older games are released. Hence this dataset contains information on what would be the optimal requirements(hardware specs) for smoothly running a particular game on a given system.
The dataset was obtained from Kaggle.
Link: https://www.kaggle.com/datasets/baraazaid/pc-video-game-requirements-v2
Number of columns in the actual dataset: 90
Number of records in the actual dataset: 10843
I've selected 1000 random records from the original dataset and 15 columns from the original dataset.
Column Names:

1. **Min_OS:** Required Operating System for the game to run
2. **Recom_OS:** Recommended Operating Operating System for the game
3. **Min_Direct_X:** Required Direct X setup version(important for running high-end games)
4. **Min_HDD_Space:** Required Hard Disk space since most games are nowadays have disk size >= 100GB
5. **Recom_CPU_Max_Temp:** Recommended CPU operating temperature to achieve optimal gaming performance(typically around 40 - 80 degree celsius)
6. **Recom_HDD_Space:** Recommended Hard Disk Space(useful for cost effectiveness)
7. **Min_CPU_Lithography:** Required CPU Lithography describes the distance between transistors embedded on the CPU (the lower the value(in nm), the better the CPU)
8. **Min_CPU_Physical_Cores:** Number of required cores in CPU(more cores means higher performance)
9. **Recom_CPU_CPU_Speed:** CPU performance speed(in GHz) crucial for running high end games
10. **Recom_CPU_Lithography:** Recommended CPU Lithography(usually lower than required)
11. **Min_GPU_Memory:** Required GPU VRAM memory(for achieving higher texture and frame processing)
12. **Min_GPU_Memory_Speed:** Required VRAM processing speed for faster processing of pixels, textures and frames
13. **Min_GPU_Pixel_Rate:** Required rate for processing a certain number of pixels per second
14. **Min_GPU_Texture_Rate:** Required texture rate(used for texture filtering) in GigaTexels/second
15. **'Min_GPU_Memory_Bandwidth:** Required GPU bandwidth(higher value implies faster transfer of processed components such as pixels, textures and frames) in Gb/s.

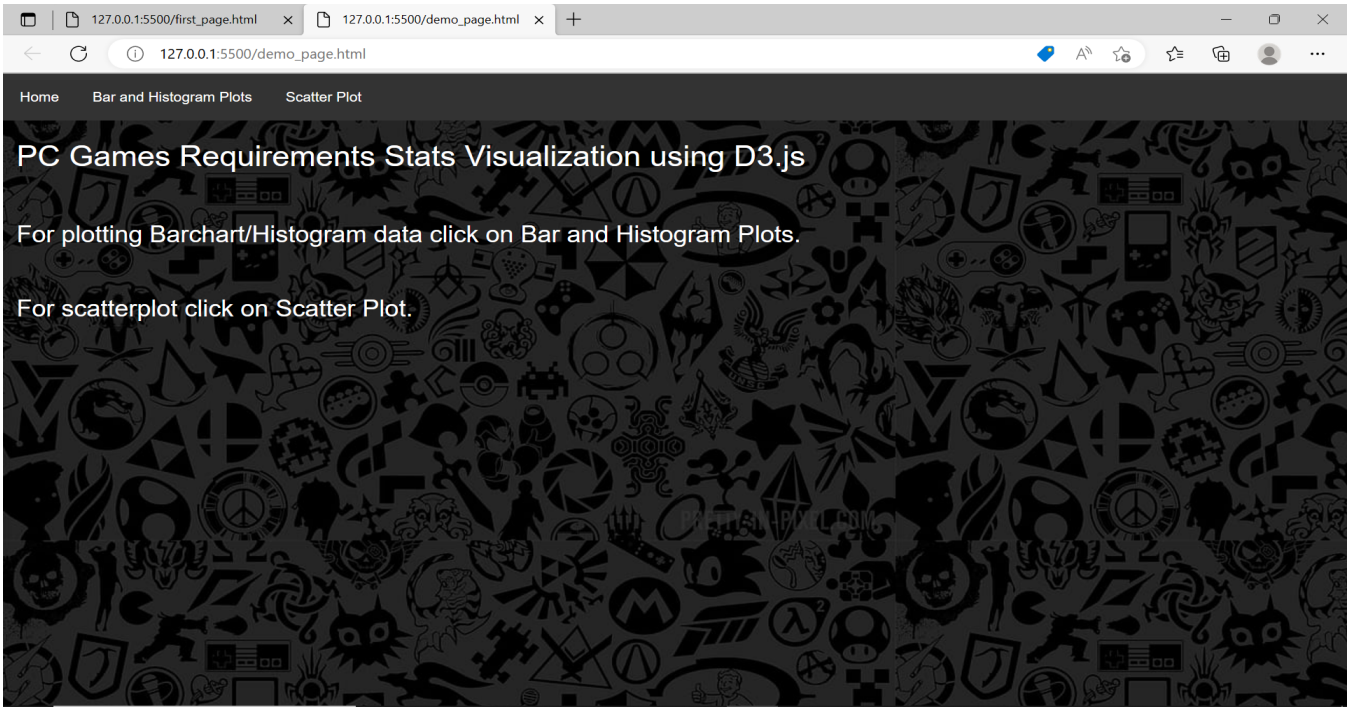
Tasks:

Front page dashboard:

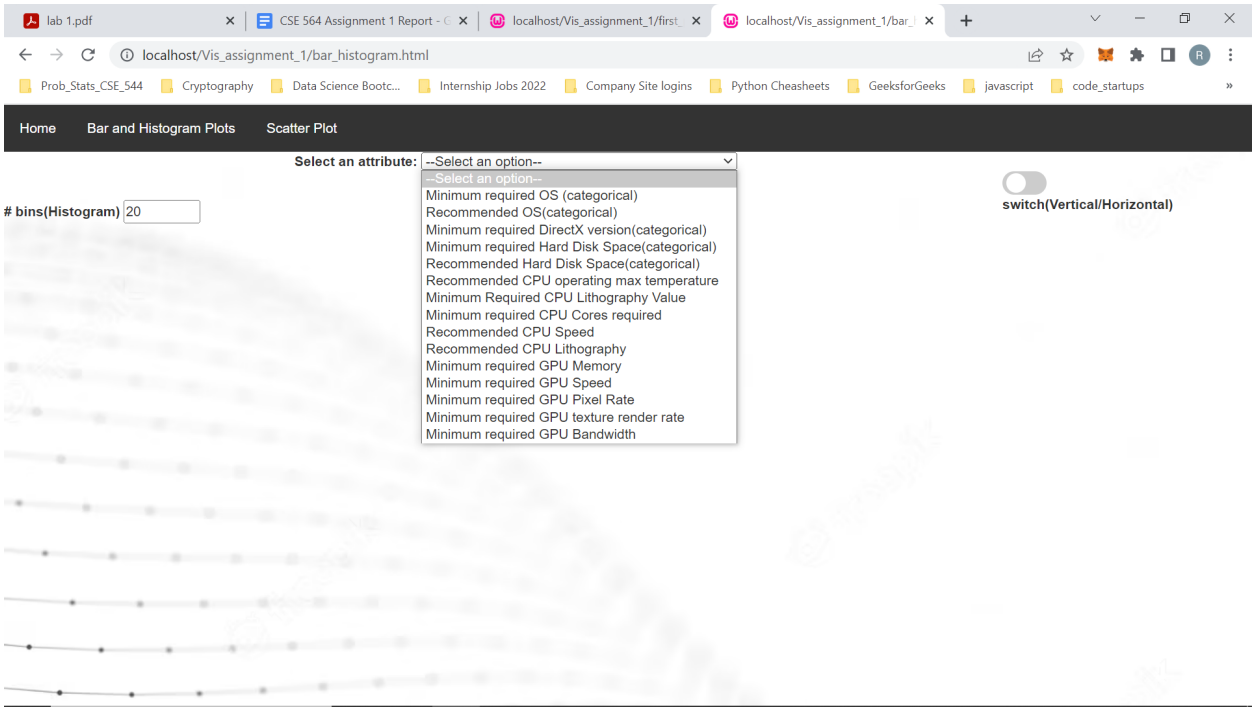
The image below shows the front page of the visual interface. This is done using bootstrap

Menu Page:

The image below shows the menu page which gets loaded on clicking the “Dashboard” button in the previous page. This page tells the user on which links the respective plots can be viewed.

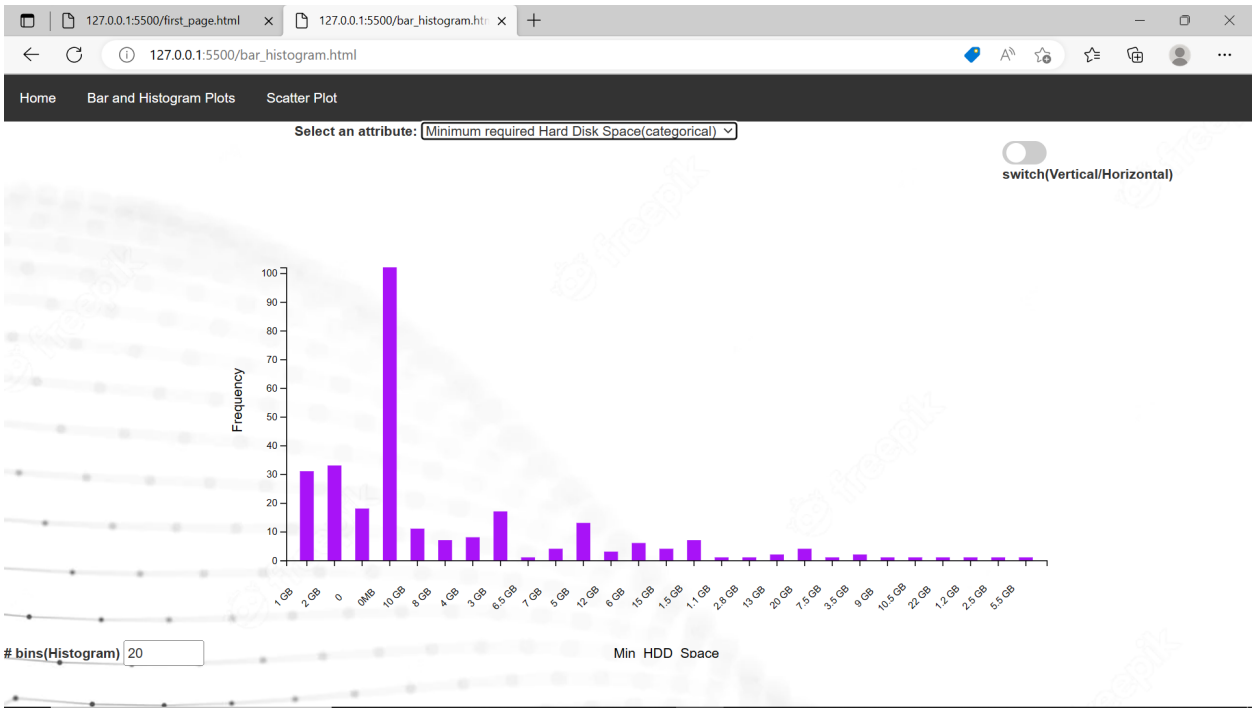


1. Dropdown menu for selecting values:



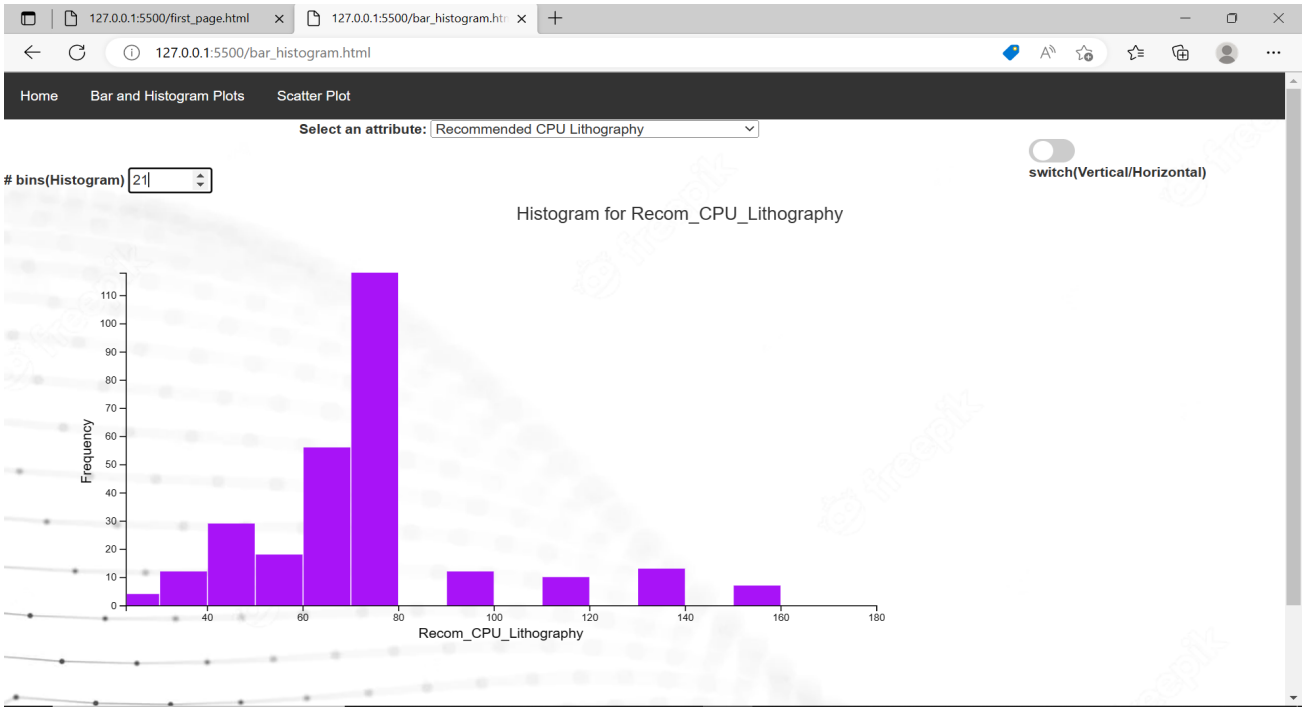
The screenshot above shows that on selecting the link “Bar and Histogram Plots” or “Scatter Plot”, the webpage containing the dropdown menu implemented for the visual interface is displayed, whereas the switch is only available for the bar chart.

2. Bar Chart for categorical variable:



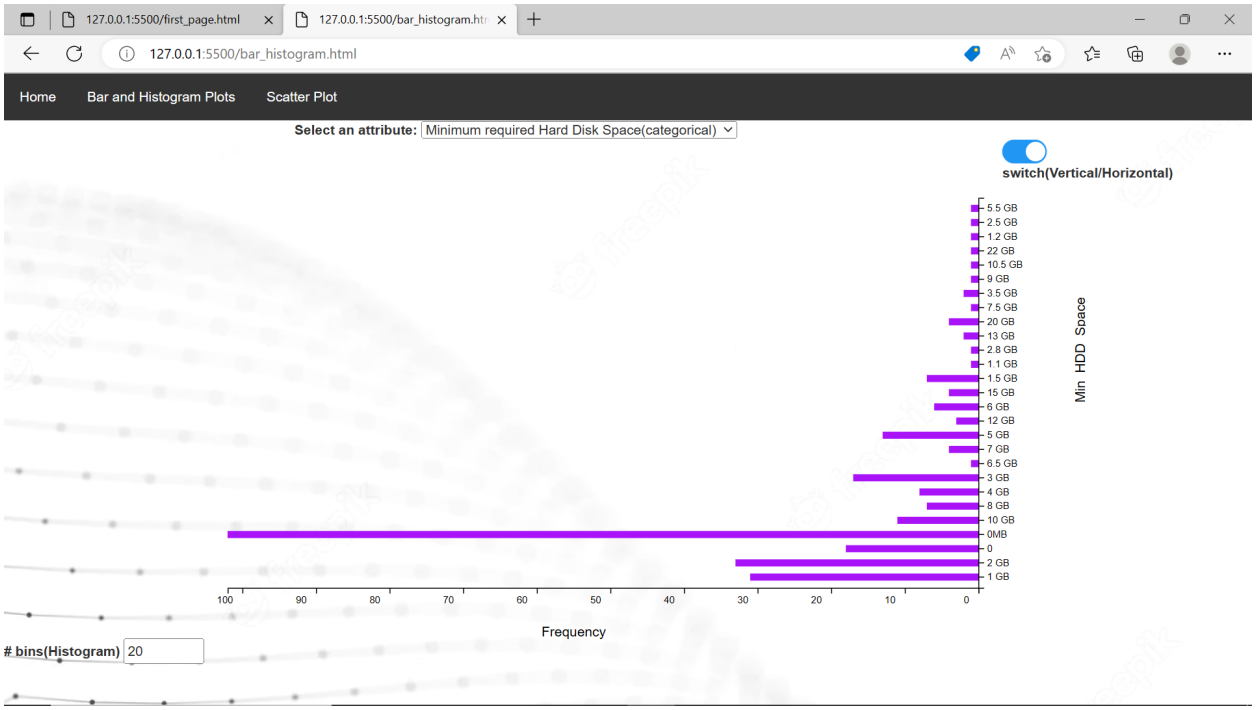
The image above shows a bar plot for categorical variables. On selecting the required variable from the dropdown menu, the bar chart is updated with an animation effect.

3. Histogram for numeric variable:



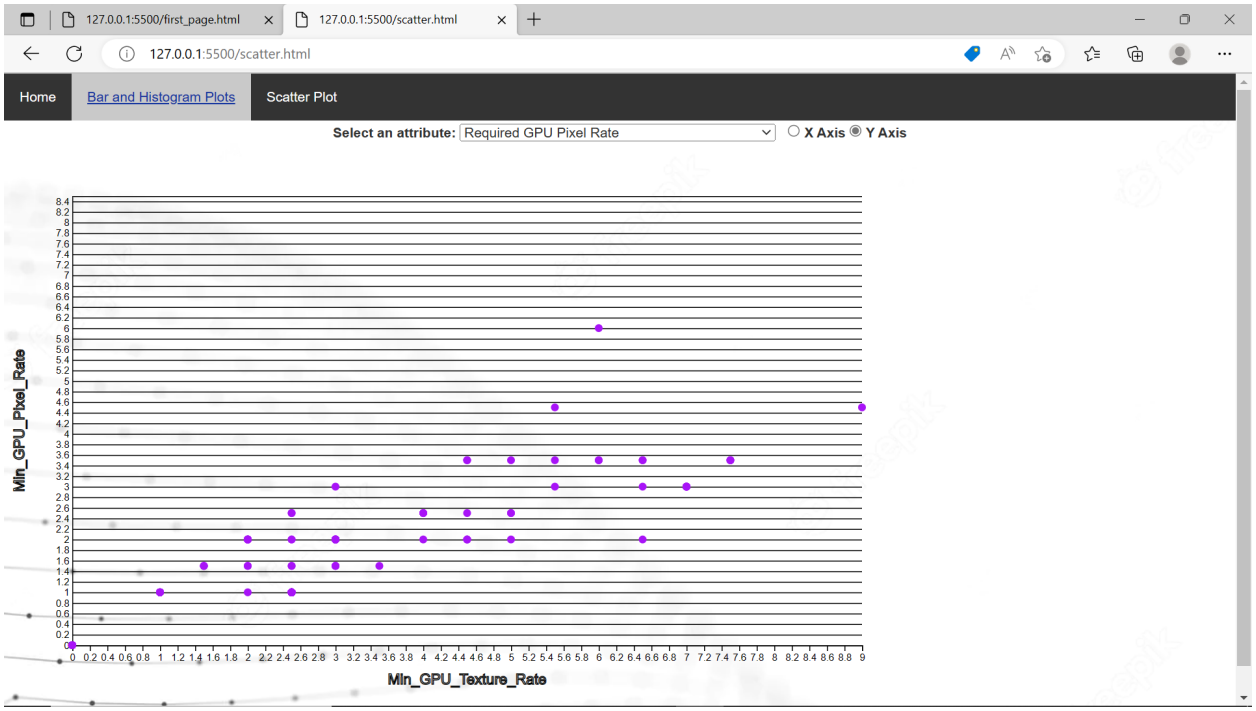
The image above shows a histogram when a numeric variable is selected from the dropdown Menu. Here the user can also adjust the required number of bins.

4. Toggle button to switch between horizontal or vertical chart:



The image above shows the toggled representation of the original bar chart on enabling the switch.

5. Scatter plot of 2 selected variables(using radio button to select axis for variables):



The image above shows the scatterplot between 2 selected variables from the dropdown menu. First the variable is selected from the dropdown, then the appropriate radio button for the respective axis is selected.