- ***Basic Information:***
  - Title: GPU Shortages and Price Hike for The Last Few Years
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  - E-Mail: tlin41@dons.usfca.edu
  - repository: https://github.com/tlin41390/DataVizProject.git
  - Website: https://tlin41390.github.io/DataVizProject/

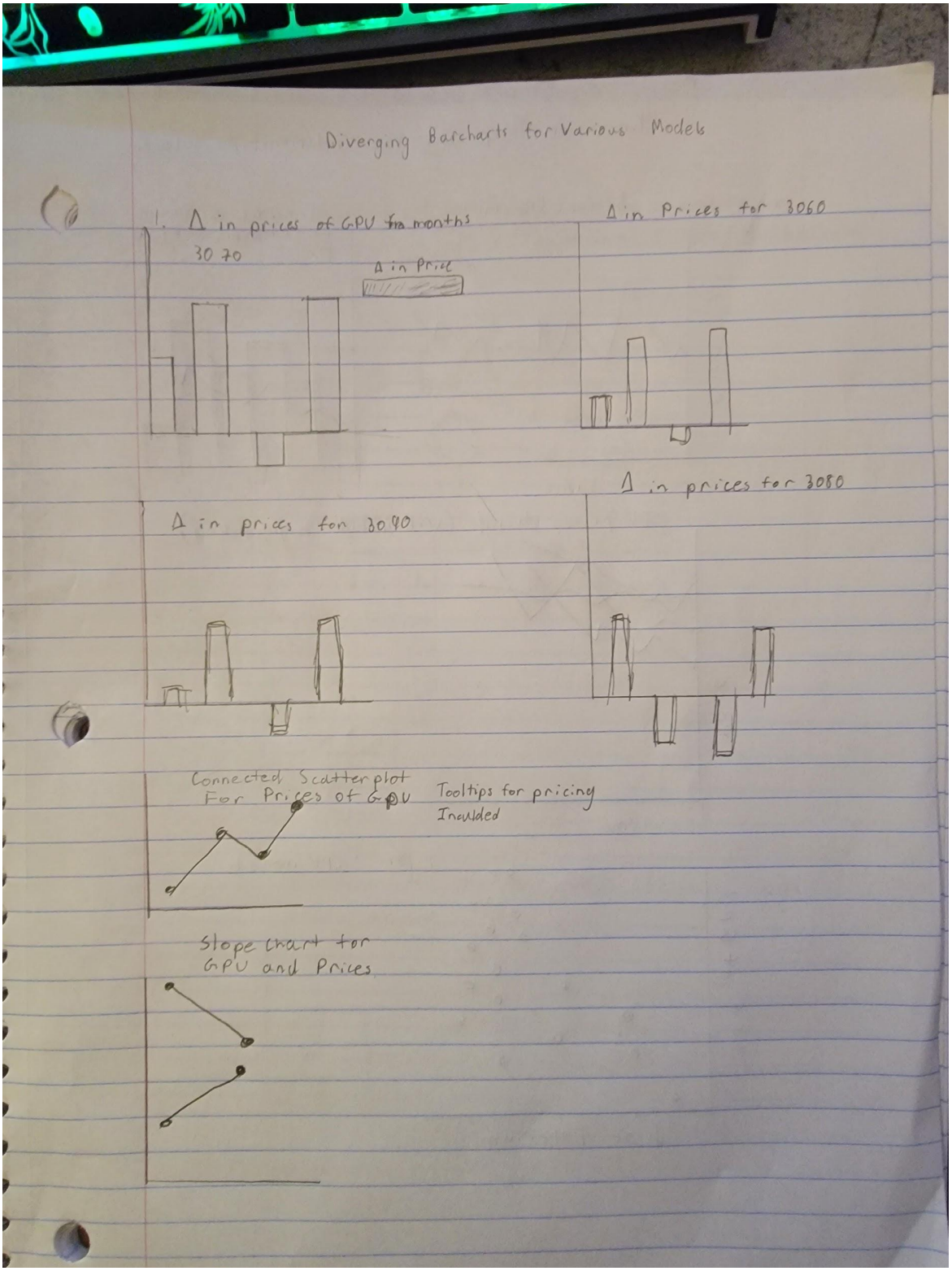
- ***Background and Motivation:***
  - I am in love with the idea of building computers and having the freedom to select the parts that best suit your needs. However, recently for the past few years it has become almost impossible to get your hands on a GPU at a reasonable price. People scalp the cards(sell at an absurd price) way over the MSRP(Manufacturer Suggested Retail Price). Because of this I would like to do more research on how the stock and price of GPUs have spiked as well as chart the price of Ethereum over the GPU price and stock.

- ***Project Objectives:***
  - Find out the most popular GPUS in terms of units sold.
  - Find out How the prices have hiked from scalpers relative to the retail price of GPUs.
  - Find the correlation between crypto prices, specifically Etherium and how change in Ethereum prices change the GPU prices.
  - Find the distribution for time in which GPUs are available till they get sold out.

- ***Data:***
  - Scrape data from GPU tracking sites to get the instock/out of stock information to get the times of the GPU.
  - Scrape using Python Libraries(BeautifulSoup4) and Pandas to store the data regarding the average price of the scalped GPUs and the different models relative to the MSRP of these units.

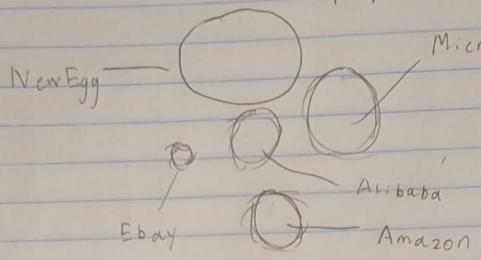
- ***Data Processing:***
  - I expect to do some substantial cleaning of the dataset once I scraped the data from the various sites by filtering out information that I do not need if there happens to be a column or a group of data that I scraped.

- ***Visualization Design***

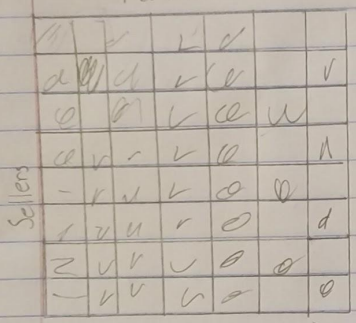


Units sold for different online marketplaces

Proportional Symbol / BubbleChart

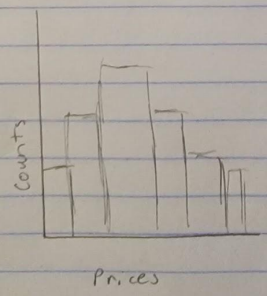


Heat Map



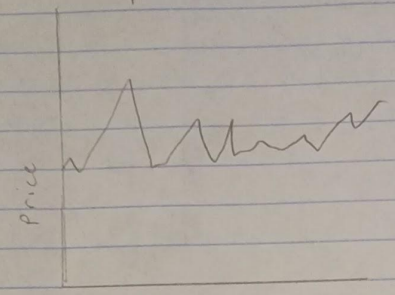
Color: Units Sold

Histogram for how many GPUs lie in a range for prices online

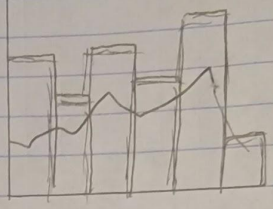


linecharts comparing the relationship between

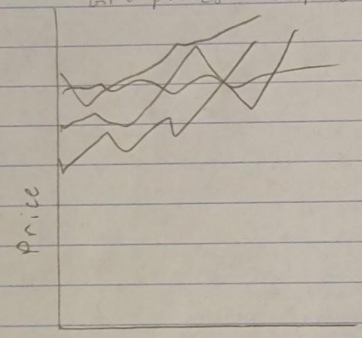
$ for Etherium



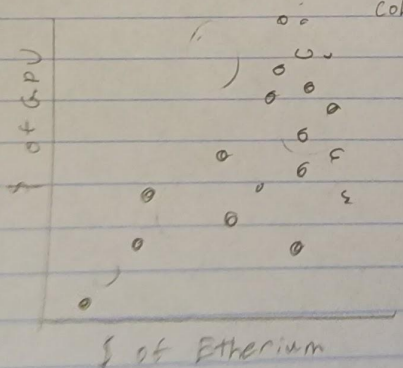
Column + Line timeline ~~for Etherium and GPU~~ Prices



GPU prices trend (will include highlighting)



colors : GPU models



- ***Must-Have Features:***
  - A Ordered Proportional Symbol that will visualize the popularity of GPUs by measuring how many units are sold among different GPUs. (Meets Objective 1)
  - A dot plot that shows the price change for GPUs in Ebay on a monthly basis(Meets Objective 2)
  - A histogram/stripchart that will show the distribution for times it takes for GPUs to sell out for AMD and Nvidia GPUs.(Meets Objective 3)
  - A line chart with accents that show the Crypto prices over the past 6 months and compare that to the GPU with different chipsets for both AMD and NVIDIA.(Meets Objective 4)
- ***Optional Features:***
  - The dotplot that would include the most bought GPUs.(It is nice to know which ones are the most purchased but there seems to be more visualizations that takes precedence over this one)

- ***Project Schedule:***
  - *March 14-21:*
    - Gather As much dataset in regards to price changes and stocks/out of stock data for GPUs.
  - *March 21-March 25(**Revised Proposal Due March 23**):*
    - Process and Clean the dataset so that it can be easily used for my visualizations
  - *March 25-April1:*
    - Work on the dotplot for change in prices for GPUs
    - Work on the Histogram/StripChart for the distribution of times in GPUs.
    - Work on the Ordered Proportional Symbol Visualization to represent the popular GPUs based on units sold.

        - Visualize the influence of the price of Ethereum over the price of different GPUs
    - *April 1-April 6(**Alpha Release Due April 6**):*
        - Wrap up/finish the basic charts
        - Fix any bugs or improve the quality of visualizations
    - *April 6-April 13:*
        - Put the visualizations on the website and give a brief description of findings.
        - Incorporate Tooltips and Interactions to add more liveliness and depth to visualizations.
    - *April 13 - April 20 (**Beta Release Due April 20**):*
        - Create slides and add visualizations
        - Practice Visualization
        - Create the user manual and report
    - *May 9 (**Presentation Due May 20**)*
    - *May 9-16*
        - Work on the report for the project
        - Finalize Everything post presentation then turn it in for the grade :)
- *Related Work*
    - https://www.tomshardware.com/news/gpu-pricing-index by Jarred Walton
    - https://www.zoolert.com/computers/videocards/ by anonymous
    - Wilke, Claus O. *Fundamentals of data visualization: a primer on making informative and compelling figures*. O'Reilly Media, 2019.
    - Murray, Scott. *Interactive data visualization for the web: an introduction to designing with D3*. " O'Reilly Media, Inc.", 2017.
    - https://d3-graph-gallery.com/graph/network_basic.html by Yan Holtz
    - https://gijn.org/2019/01/11/document-of-the-day-visual-vocabulary/ by GIJN Staff

Alpha Release

- An overview of your project
  - My project is about the current state of the GPU market. This involves visualizing the most bought GPUs for AMD and Nvidia, as well as creating a model on the times it takes for GPUs to sell out on various platforms, and comparing the price change and seeing the correlation with Ethereum.
- Features from your proposal that have been completed
  - The features that have been completed so far are measuring the popularity of GPUs within months for different chipset. I used a heatmap to measure both AMD and Nvidia GPU models.
  - I have completed part of the line chart for the correlation between Ethereum and GPUs. However, depending on time and the future, I might switch to a different visualization, or create different grids comparing different GPUs as it seems like putting everything into one line might be ineffective and ugly.
- Upcoming immediate milestones
  - The upcoming immediate milestones: I have achieved is having some visualizations that I can work with and potentially turn into something interactive for the user
  - I have accomplished telling a story on how popularity of a GPU is measured.
- Roadblocks (if any) that you are running into
  - The roadblocks I am running into right now is figuring out where to go in the future for creating visualizations.
  - Figuring out how to make the line chart more complex and easier to interpret
  - Figuring out if something can be done better in terms of sharing a story.

    - For The ViolinPlot making it in v7. I can only do it in v4 right now.

- Visualizations
    - HeatMap
    - Violin Plot
    - LineChart