## Working with Tableau

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### Tasks

- Find the Number of Cars manufactured by each Manufacturer.
- The relationship between the genre and popularity, find number of movies and directors involved in each genre.
- Relationship between income, purchase, and type of customers in a grocery store and also show data for male and female with different color.
- Find the protein and carbohydrate amount in each 1 cup of cereal,

### 1 Cars Data Visualization

For the below visualization I considered data from the file "a1-cars.csv". Below Data Visualization is a bar graph x-axis parameter is Manufacturer and y-axis parameter is Number of Cars. From the below visualization we can visualize number of cars sold by each manufacturer.

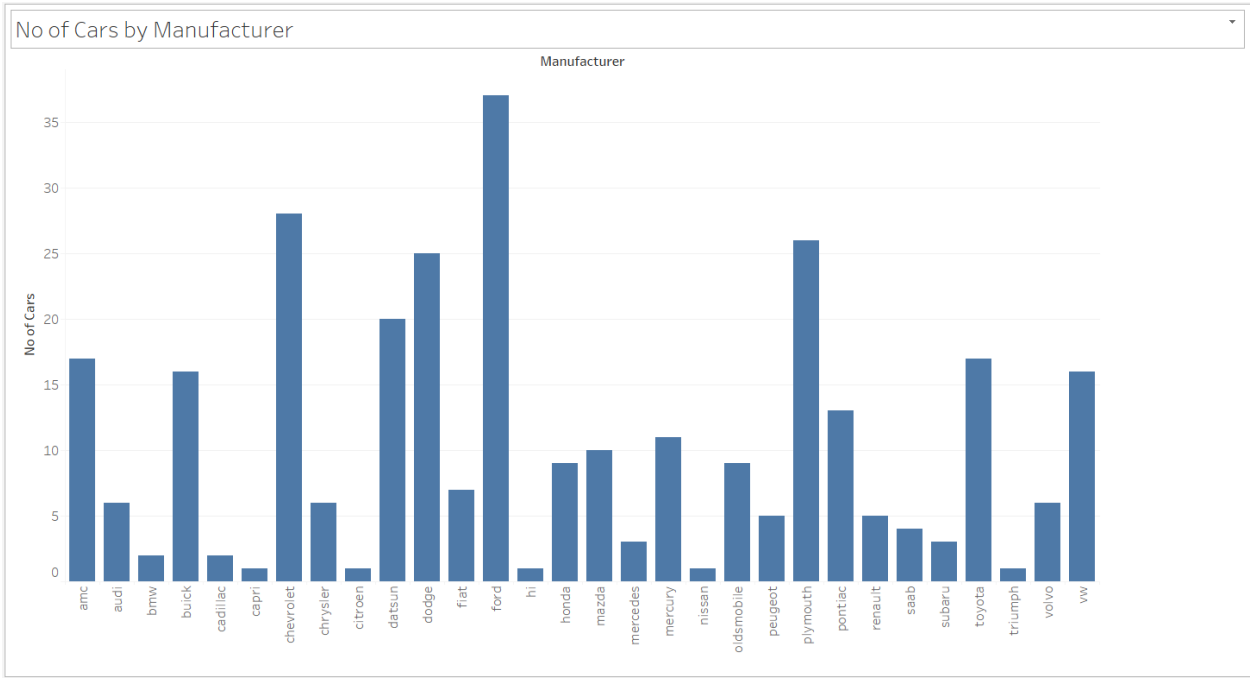



Figure 1: Number of cars manufactured by each manufacturer

In Tableau, I have created new calculated field "No of Cars" using COUNTD(Cars) formula. Then I have done group by with Manufacturer (Qualitative Value) using bar char. After this you can start comparing manufacturers, which you cannot do without visualization.

### 2 Films Data Visualization

For the below data visualization, I have taken the data from the "a1-film.csv". if you see the below data visualization, there are total 2 measures and 2 subjects.
Measures are No of Directors that is COUNTD(Directors), Popularity
Dimensions are Subject(Genre of film),Number of Films

The tooltip value on every bar in the graph represents number of directors that worked on this genre. On X-axis we get to know how many films are made in each genre and we get know the genre name by color, when you observe diligently each bar has different color and each color represents one genre for instance steel blue color represents action movie. In the below graph right side there is chart which show what color represents what genre. So, you do not have to remember which color means, you can simply look at that chart and come to conclusion. On the other hand, we have popularity on Y -axis which gives average popularity with respective to genre. From this we can understand couple of things like which genre has more popularity.

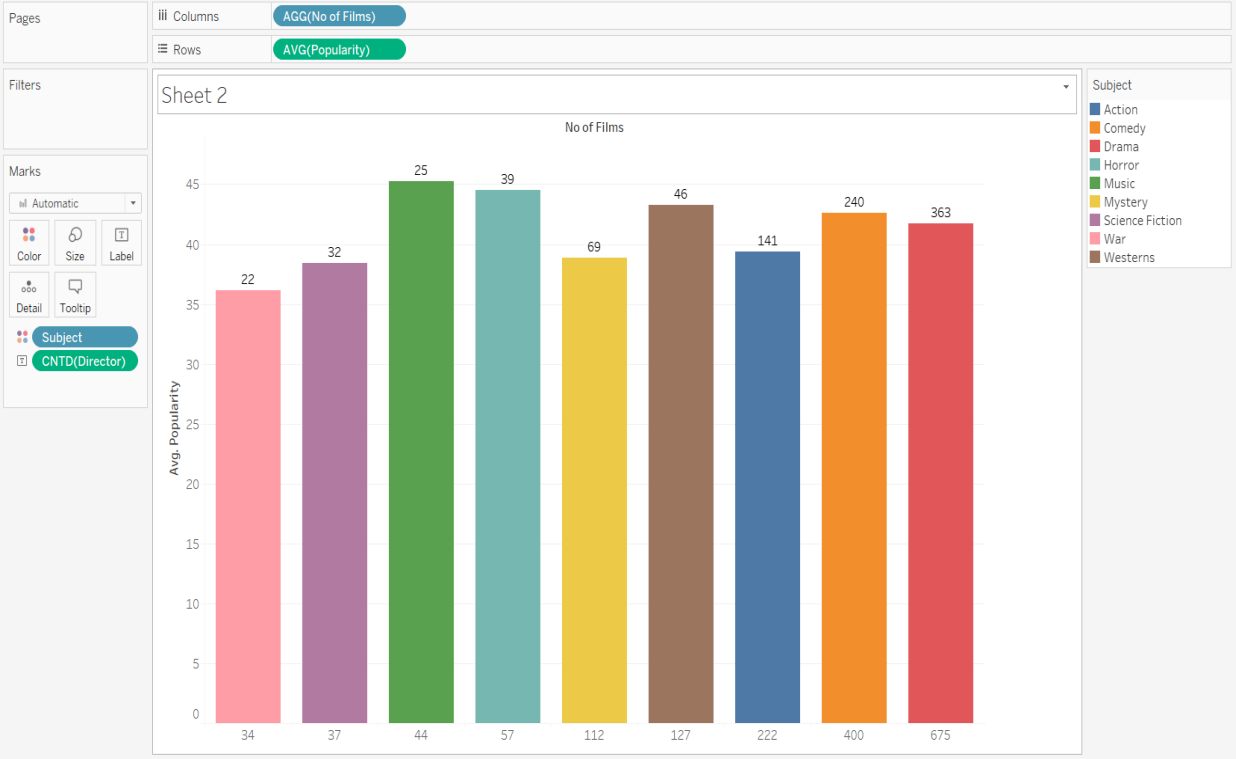



Figure 2 : Film Popularity and Genre relationship and also providing count of films and directors.

### 3 Grocery Store Survey

For the below data visualization, the data is from “a1-grocerystoresurvey.csv”. In this data is visualized in the form of scatter plot. There are 2 dimensions (Gender, Occupation) and 2 measures (Average Purchase amount and Average Income). Firstly, there are two scatter plots, one represents relationship between occupation and average income, other is in between occupation and average purchase. Gender is separated with color Blue and Orange. On X-axis if you observe there are list of occupations starts with Clerical and ends with Skilled. One of the feature I observed in the tableau is you can exclude data of male or female in the graph which is shown in the below figures.

From the graph we can conclude many things such as how much a type of customer is earning and spending on a grocery store, we can draw conclusions that how women and men are spending money in the

grocery store and compare there incomes with respective to their occupations. For this I am calculating average purchase amount and average income using AVG function in the matlab.

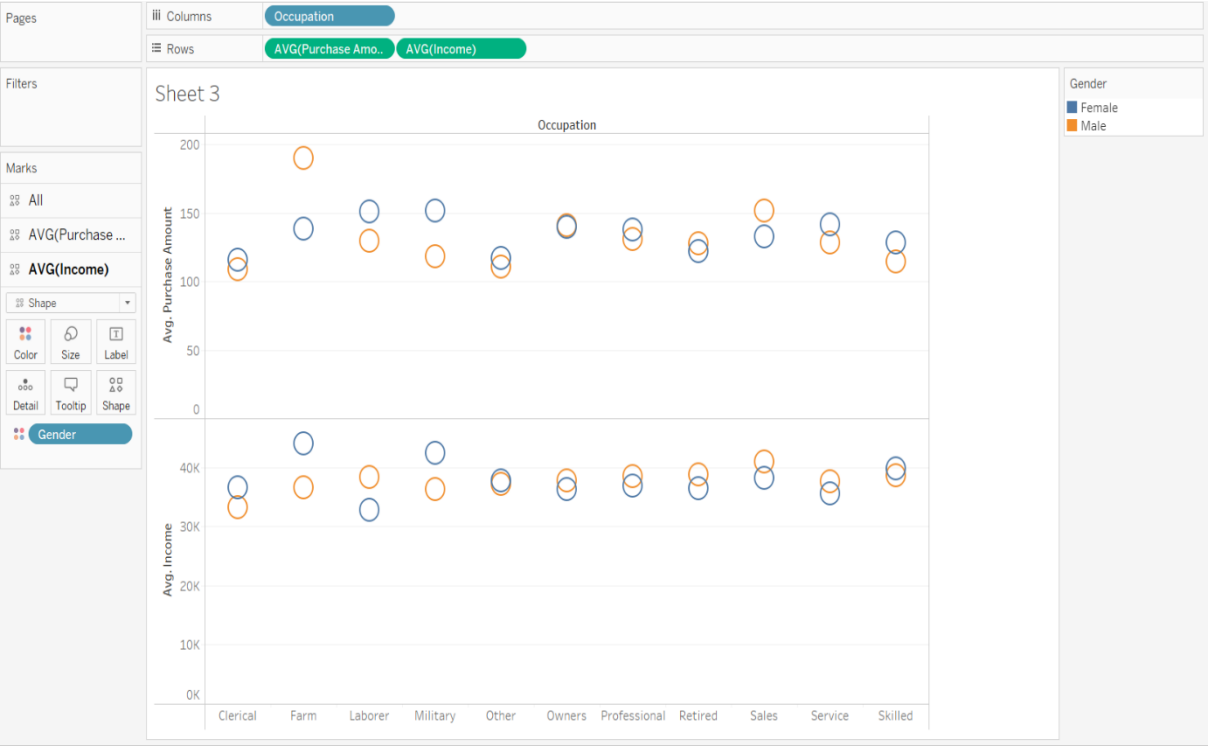
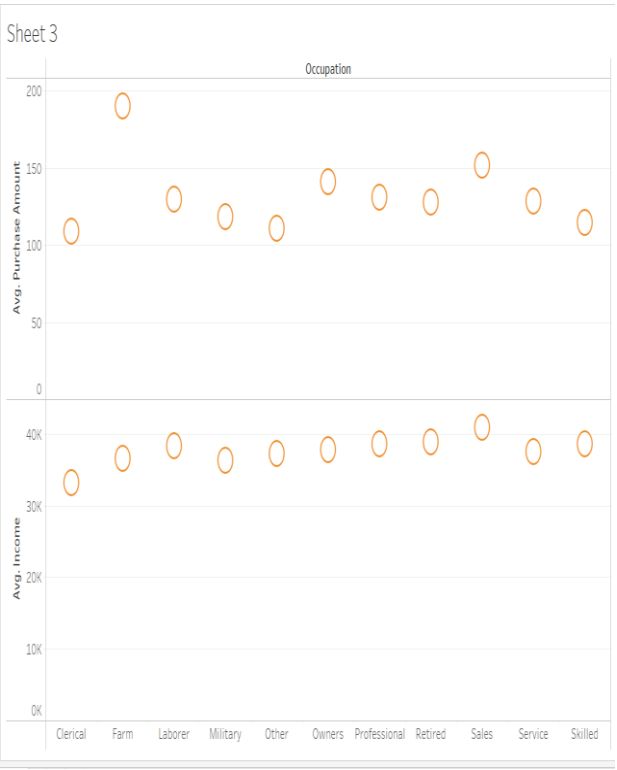



Figure 3.1 : Visulising the income and purchase of type of customer in a grocery store.



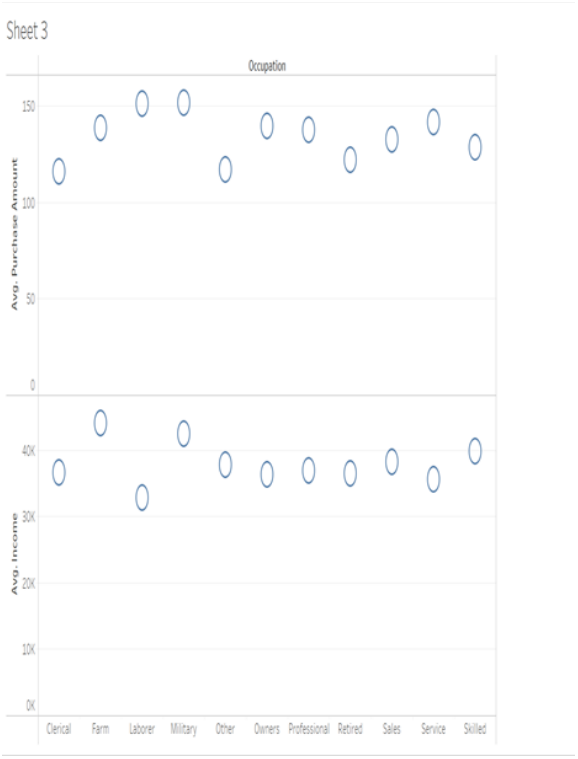



Figure 3.2(Left) ,3.3(Right) Show two different scatterplots for male (3.2) and female (3.3) customer.

**4 Cereals**

For the below data visualization data is taken from the "a1-cereals.csv". I have taken attributes carbohydrates, proteins, and cups. I want to get carbs and proteins amount in one cup of cereal. But the value of cup is not constant in the given data. To solve this problem I have created two created calculated fields Carbs in 1 Cup and Proteins in 1 Cup (Figure 4.1,4.2). The logical statements for these two fields is

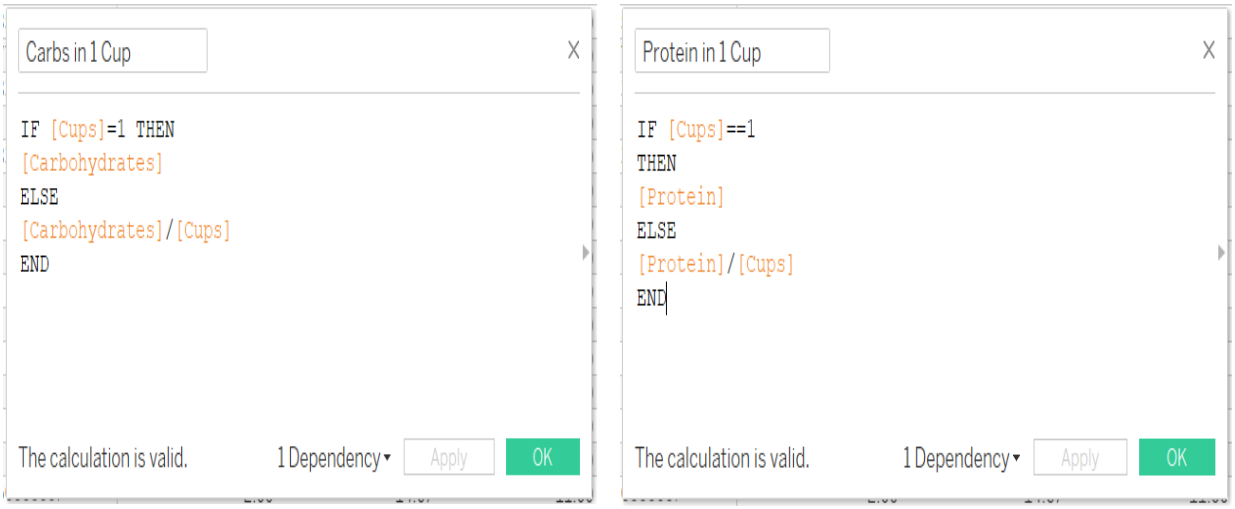



Figure 4.1(left),4.2(right) : show the logical statement for the two calculated fields.

Sheet 6

| Cereal | Protein in 1 Cup | Protein | Carbs in 1 Cup | Carbohydrates | Cups |
|---|---|---|---|---|---|
| All-Bran with Extra .. | 8 | 4.00 | 16.00 | 8.00 | 0.50 |
| Almond Delight | 2.666666667 | 2.00 | 18.67 | 14.00 | 0.75 |
| Apple Cinnamon Che.. | 2.666666667 | 2.00 | 14.00 | 10.50 | 0.75 |
| Apple Jacks | 2 | 2.00 | 11.00 | 11.00 | 1.00 |
| Basic 4 | 4 | 3.00 | 24.00 | 18.00 | 0.75 |
| Bran Chex | 2.985074627 | 2.00 | 22.39 | 15.00 | 0.67 |
| Bran Flakes | 4.477611940 | 3.00 | 19.40 | 13.00 | 0.67 |
| Cap'n'Crunch | 1.333333333 | 1.00 | 16.00 | 12.00 | 0.75 |
| Cheerios | 4.8 | 6.00 | 13.60 | 17.00 | 1.25 |
| Cinnamon Toast Cru.. | 1.333333333 | 1.00 | 17.33 | 13.00 | 0.75 |
| Clusters | 6 | 3.00 | 26.00 | 13.00 | 0.50 |
| Cocoa Puffs | 1 | 1.00 | 12.00 | 12.00 | 1.00 |
| Corn Chex | 2 | 2.00 | 22.00 | 22.00 | 1.00 |
| Corn Flakes | 2 | 2.00 | 21.00 | 21.00 | 1.00 |
| Corn Pops | 1 | 1.00 | 13.00 | 13.00 | 1.00 |
| Count Chocula | 1 | 1.00 | 12.00 | 12.00 | 1.00 |
| Cracklin' Oat Bran | 6 | 3.00 | 20.00 | 10.00 | 0.50 |
| Cream of Wheat (Qu.. | 3 | 3.00 | 21.00 | 21.00 | 1.00 |
| Crispix | 2 | 2.00 | 21.00 | 21.00 | 1.00 |
| Crispy Wheat & Rais.. | 2.666666667 | 2.00 | 14.67 | 11.00 | 0.75 |
| Double Chex | 2.666666667 | 2.00 | 24.00 | 18.00 | 0.75 |
| Froot Loops | 2 | 2.00 | 11.00 | 11.00 | 1.00 |
| Frosted Flakes | 1.333333333 | 1.00 | 18.67 | 14.00 | 0.75 |
| Frosted Mini-Wheats | 3.75 | 3.00 | 17.50 | 14.00 | 0.80 |
| Fruit & Fibre Dates, .. | 4.477611940 | 3.00 | 17.91 | 12.00 | 0.67 |
| Fruitful Bran | 4.477611940 | 3.00 | 20.90 | 14.00 | 0.67 |
| Fruity Pebbles | 1.333333333 | 1.00 | 17.33 | 13.00 | 0.75 |
| Golden Crisp | 2.272727273 | 2.00 | 12.50 | 11.00 | 0.88 |
| Golden Grahams | 1.333333333 | 1.00 | 20.00 | 15.00 | 0.75 |
| Grape Nuts Flakes | 3.409090909 | 3.00 | 17.05 | 15.00 | 0.88 |
| Grape-Nuts | 12 | 3.00 | 68.00 | 17.00 | 0.25 |
| Great Grains Pecan | 9.090909091 | 3.00 | 39.39 | 13.00 | 0.33 |
| Honey Graham Ohs | 1 | 1.00 | 12.00 | 12.00 | 1.00 |

Figure 4.3 : Proteins and Carbohydrate amount in each cereal along with calculated fields.

From these two fields we will get the proteins and carbs amount in 1 cup of cereal.

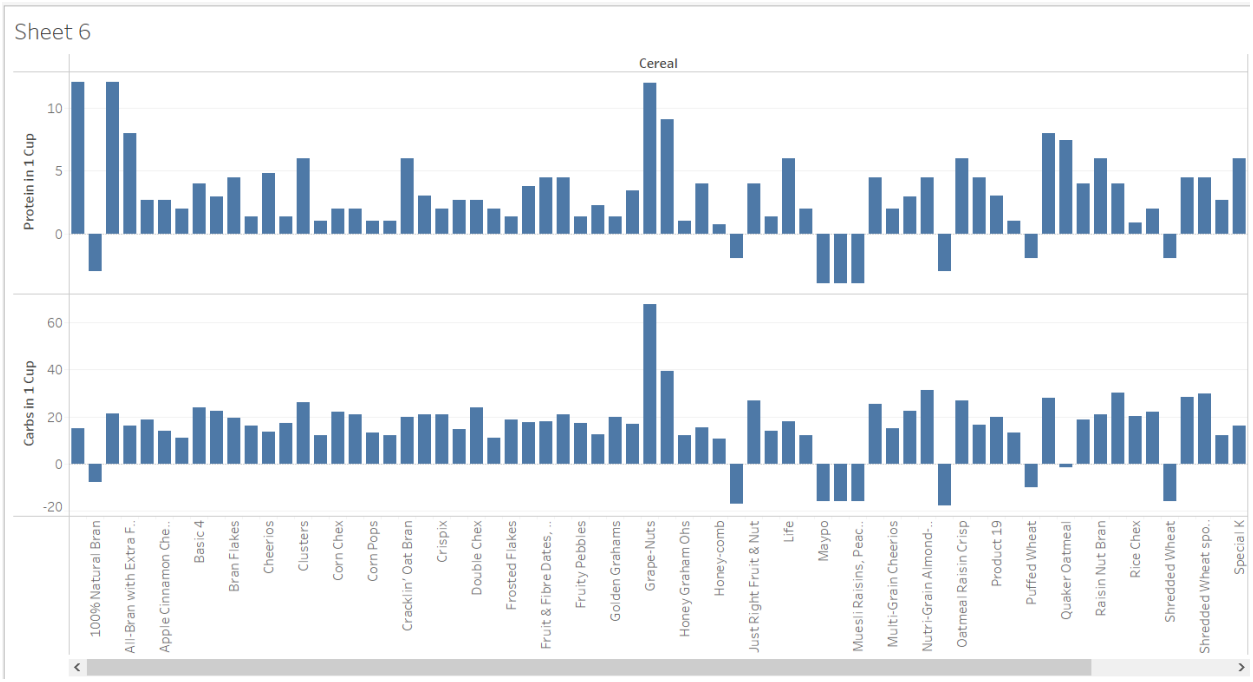



Figure 4.4 : The above visualization shows the amount of carbs and proteins in 1 cup of each cereal.

**Critiques of Tableau**

I liked most of the features of the tableau like data loading through different sources like database and files. However, I would like to suggest couple of things that would be helpful for the user if they exist.

- If the logical statements are updated in such a way that where we can define two columns in one calculated variable.

  IF [Cups]=1 THEN
  [Carbohydrates] , [Proteins]
  ELSE
  [Carbohydrates]/[Cups] , [Proteins]/[Cups]
  END

  If we can write logic statement in the above format, then the calculated field can be applied for both proteins and carbs.
- I was not able have two calculated fields in different color at the same time, If I can give protein and carbohydrates in two different colors, I can show visualization in one bar graph.
- There are rows and column fields on top of every worksheet. If there is an option to remove field with backspace button it would be easy to delete than using mouse.