

8.3: 3D Plots

Learning Objectives

- Describe a 3D Plot
- Give an example of the value of a 3D plot

Just as two-dimensional scatter plots show the data in two dimensions, 3D plots show data in three dimensions. Figure 8.3.1 shows a 3D scatter plot of the fat, non-sugar carbohydrates, and calories from a variety of cereal types.

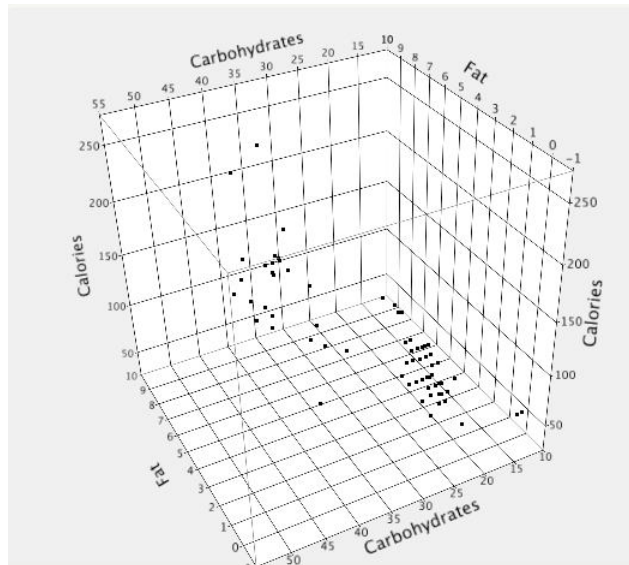


Figure 8.3.1: A 3D scatter plot showing fat, non-sugar carbohydrates, and calories from a variety of cereal types

Many statistical packages allow you to rotate the axes interactively to view the data from a different vantage point. Figure 8.3.2 is an example.

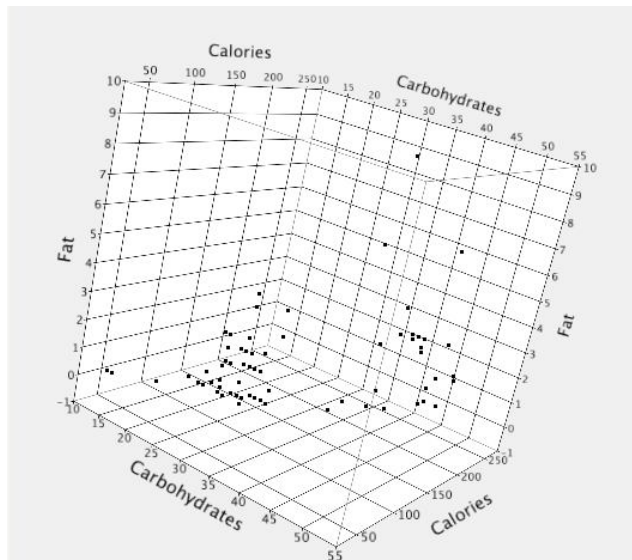


Figure 8.3.2: An alternative 3D scatter plot showing fat, non-sugar carbohydrates, and calories

A fourth dimension can be represented as long as it is represented as a nominal variable. Figure 8.3.3 represents the different manufacturers by using different colors.

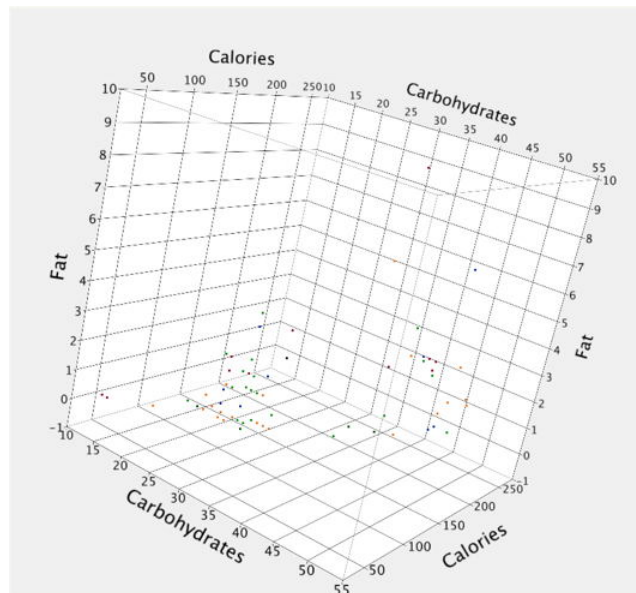


Figure 8.3.3: The different manufacturers are color coded

Interactively rotating 3D plots can sometimes reveal aspects of the data not otherwise apparent. Figure 8.3.4 shows data from a pseudo random number generator. Figure 8.3.4 does not show anything systematic and the random number generator appears to generate data with properties similar to those of true random numbers.

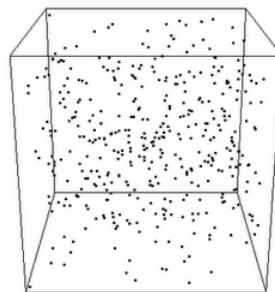


Figure 8.3.4: A 3D scatter plot showing 400 values of X , Y , and Z from a pseudo random number generator

Figure 8.3.5 shows a different perspective on these data. Clearly they were not generated by a random process.

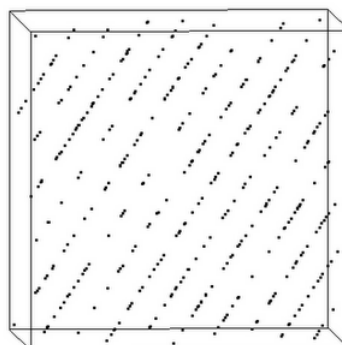


Figure 8.3.5: A different perspective on the 3D scatter plot showing 400 values of X , Y , and Z from a pseudo random number generator.

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