Assignment #3

Instructor: Ross Maciejewski

1 Assignment 3 Guidelines

You will create two 2D plots of the breakfast cereal data set. The first 2D plot is a scatter plot of your choosing, where the points are the cereal name and the axes are the two axes that you think are most important in the data. Justify why you chose those axes, specifically in terms of different statistical analyses that you have performed on individual variables. You should write about the analyses you performed in making your choice of the two axes. Use only the quantitative data for analysis (specify which columns you used – don't use ones that are categories).

Your second scatter plot will again have the points be the cereal name. The two axes here will be the first two principal components of the data (using only the quantitative values). You must run PCA (using Matlab, R, etc.) on the data and then plot the data. Summarize what the axes are, what this projection tells you about the data and how this relates to your original plot.

Maximum of 1 page description per plot, and spelling and grammar will also be considered. You must also state what the first two principal components are (give an exact formula for the axes).

You may use any tool available to you to create these graphics (Matlab, excel, etc.). Your report should note what tools you used to develop your analysis.

2 Deadline

- **February 17th (3PM)**

3 Grading

Grading will look at graphics, spelling, grammar and overall content of the summaries.

- No late homework will be accepted
- All homework should be submitted through blackboard

4 Data Description

Breakfast cereal variables:
cereal name [name]
manufacturer (e.g., Kellogg's) [mfr]
type (cold/hot) [type]
calories (number) [calories]
protein(g) [protein]
fat(g) [fat]
sodium(mg) [sodium]
dietary fiber(g) [fiber]
complex carbohydrates(g) [carbo]
sugars(g) [sugars]
display shelf (1, 2, or 3, counting from the floor) [shelf]
potassium(mg) [potass]
vitamins & minerals (0, 25, or 100, respectively indicating 'none added'; 'enriched, often to 25% FDA recommended'; '100% of FDA recommended') [vitamins]
weight (in ounces) of one serving (serving size) [weight]
cups per serving [cups]