

Math 263, Section 5: Excel Assignment 3

Probability

You must do the computer work for this assignment yourself, although you may certainly talk to other people. Answers which appear to be copied will be treated as an integrity violation.

In October 2009, the results of a study on the nutrition and marketing of childrens cereal was presented in Washington DC. The data used the study, Cereal f.a.c.t.s. Food Advertising to Children and Teens Score, is in the file CerealMarketing.xlsx. (From www.cerealfacts.org .)

In the page called Marketing, look at the headings in each column to see what kind of data is given.

You will calculate probabilities from this file. You can either count by hand or use Excel; both ways are fine.

If you want to learn the Excel commands, here are some instructions: To Sort the data, look under the Data menu. You need to select the whole block of data before sorting. To use the Filter Command, also look under the Data menu. There is a page with the Filter command added in so you can see how it works. To count with Excel, use the COUNTIF command, which is demonstrated in the page called CountIf. This command takes an input like this: = COUNTIF(range from which you want to count, what you want to count in quotes).

Questions to answer:

1. How many cereals are listed in this file?
2. How many cereals in this file are made by General Mills? By Kellogg? By Post?
3. How many cereals are heavily advertized in one of the three categories?
4. How many cereals have a Nutrition score of 50 or less? Of 40 or less?
5. If a random cereal is selected from this list, what is the probability that:
 - (a) The cereal is healthy? (Defined as having a nutritional score greater than 62.)
 - (b) The cereal is heavily marketed to children in at least one of the three categories.
 - (c) The cereal is heavily marketed to children in at least one of the three categories given that it has a Nutrition score of 50 or less.
 - (d) The cereal is heavily marketed to children in at least one of the three categories given that it has a Nutrition score of 40 or less.
6. Explain in non-technical language what comparing your answers to part (e) parts (ii), (iii) and (iv) tells you about cereal marketing. (**One sentence.**)
7. Find the probability that a randomly selected cereal is
 - (a) Heavily advertized in at least one of the three categories given that it is made by Kellogg.
 - (b) Made by Kellogg given that it is heavily advertized in at least one of the three categories.
8. Do you expect the answers to part 7, parts (a) and (b), to be the same? Explain in non-technical language why you would expect them to be the same, or not to be the same. (**One sentence.**)

Note: You do not need to hand in your Excel sheet with the answers to your questions.