

that market group. This activity includes collecting data on clients' actual sales and on the customers who make the purchases, with the goal of determining whether there is a distinct profile of the typical customer for a particular product or service. If a distinct profile emerges, efforts are made to match that profile to advertising outlets known to reflect the particular profile, thus targeting advertising directly to high-potential customers.

CardioGood Fitness sells three different lines of treadmills. The TM195 is an entry-level treadmill. It is as dependable as other models offered by CardioGood Fitness, but with fewer programs and features. It is suitable for individuals who thrive on minimal programming and the desire for simplicity to initiate their walk or hike. The TM195 sells for \$1,500.

The middle-line TM498 adds to the features of the entry-level model two user programs and up to 15% elevation upgrade. The TM498 is suitable for individuals who are walkers at a transitional stage from walking to running or midlevel runners. The TM498 sells for \$1,750.

The top-of-the-line TM798 is structurally larger and heavier and has more features than the other models. Its unique features include a bright blue backlit LCD console, quick speed and incline keys, a wireless heart rate monitor with a telemetric chest strap, remote speed and incline controls, and an anatomical figure that specifies which muscles are minimally and maximally activated. This model features a nonfolding platform base that is designed to handle rigorous, frequent running; the TM798 is therefore appealing to someone who is a power walker or a runner. The selling price is \$2,500.

As a first step, the market research team at AdRight is assigned the task of identifying the profile of the typical customer for each treadmill product offered by CardioGood Fitness. The market research team decides to investigate whether there are differences across the product lines with respect to customer characteristics. The team decides to collect data on individuals who purchased a treadmill at a CardioGood Fitness retail store during the prior three months.

The team decides to use both business transactional data and the results of a personal profile survey that every purchaser completes as their sources of data. The team identifies the following customer variables to study: product purchased—TM195, TM498, or TM798; gender; age, in years; education, in years; relationship status, single or partnered; annual household income (\$); mean number of times the customer plans to use the treadmill each week; mean number of miles the customer expects to walk/run each week; and self-rated fitness on a 1-to-5 scale, where 1 is poor shape and 5 is excellent shape. For this set of variables:

1. Which variables in the survey are categorical?
2. Which variables in the survey are numerical?
3. Which variables are discrete numerical variables?

Clear Mountain State Student Survey

The Student News Service at Clear Mountain State University (CMSU) has decided to gather data about the undergraduate students who attend CMSU. They create and distribute a survey

of 14 questions and receive responses from 111 undergraduates (stored in [StudentSurvey](#)).

Download (see Appendix C) and review the survey document **CMUndergradSurvey.pdf**. For each question asked in the survey, determine whether the variable is categorical or numerical. If you determine that the variable is numerical, identify whether it is discrete or continuous.

Learning with the Digital Cases

Identifying and preventing misuses of statistics is an important responsibility for all managers. The Digital Cases allow you to practice the skills necessary for this important task.

Each chapter's Digital Case tests your understanding of how to apply an important statistical concept taught in the chapter. As in many business situations, not all of the information you encounter will be relevant to your task, and you may occasionally discover conflicting information that you have to resolve in order to complete the case.

To assist your learning, each Digital Case begins with a learning objective and a summary of the problem or issue at hand. Each case directs you to the information necessary to reach your own conclusions and to answer the case questions. Many cases, such as the sample case worked out next, extend a chapter's Using Statistics scenario. You can download digital case files which are PDF format documents that may contain extended features as interactivity or data file attachments. Open these files with a current version of Adobe Reader, as other PDF programs may not support the extended features. (For more information, see Appendix C.)

To illustrate learning with a Digital Case, open the Digital Case file **WhitneyWireless.pdf** that contains summary information about the Whitney Wireless business. Apparently, from the claim on the title page, this business is celebrating its "best sales year ever."

Review the **Who We Are**, **What We Do**, and **What We Plan to Do** sections on the second page. Do these sections contain any useful information? What *questions* does this passage raise? Did you notice that while many facts are presented, no data that would support the claim of "best sales year ever" are presented? And were those mobile "mobilemobiles" used solely for promotion? Or did they generate any sales? Do you think that a talk-with-your-mouth-full event, however novel, would be a success?

Continue to the third page and the **Our Best Sales Year Ever!** section. How would you support such a claim? With a table of numbers? Remarks attributed to a knowledgeable source? Whitney Wireless has used a chart to present "two years ago" and "latest twelve months" sales data by category. Are there any problems with what the company has done? *Absolutely!*

Take a moment to identify and reflect on those problems. Then turn to pages 4 through 6 that present an annotated version of the first three pages and discusses some of the problems with this document.

In subsequent Digital Cases, you will be asked to provide this type of analysis, using the open-ended case questions as your guide. Not all the cases are as straightforward as this example, and some cases include perfectly appropriate applications of statistical methods. And none have annotated answers!