2.42 The associate dean of a business school was looking for ways to improve the quality of the applicants to its MBA program. In particular, she wanted to know whether the undergraduate degree of applicants differed among her school and the three nearby universities with MBA programs. She sampled 100 applicants of her program and an equal number from each of the other universities. She recorded their undergraduate degrees (1 = BA, 2 = BEng, 3 = BBA, 4 = other) as well as the university (codes 1, 2, 3, and 4). Use a tabular technique to determine whether the undergraduate degree and the university each person applied to appear to be related.

2.43 Is there brand loyalty among car owners in their purchases of gasoline? To help answer the question, a random sample of car owners was asked to record the brand of gasoline in their last two purchases (1 = Exxon, 2 = Amoco, 3 = Texaco, 4 = Other). Use a tabular technique to formulate your answer.

2.44 The costs of smoking for individuals, companies for whom they work, and society in general is in the many billions of dollars. In an effort to reduce smoking, various government and non-government organizations have undertaken information campaigns about the dangers of smoking. Most of these have been directed at young people. This raises the question: Are you more likely to smoke if your parents smoke? To shed light on the issue, a sample of 20- to 40-year-old people were asked whether they smoked and whether their parents smoked. The results are stored in the following way:

Column 1: 1 = do not smoke, 2 = smoke
Column 2: 1 = neither parent smoked, 2 = father smoked, 3 = mother smoked, 4 = both parents smoked

Use a tabular technique to produce the information you need.

2.45 In 2007, 3,882,000 men and 3,196,000 women were unemployed at some time during the year (Source: U.S. Bureau of Labor Statistics). A statistics practitioner wanted to investigate the reasons for unemployment and whether the reasons differed by gender. A random sample of people 16 years of age and older was drawn. The reasons given for their status are:

1. Lost job
2. Left job
3. Reentrants
4. New entrants

Determine whether there are differences between unemployed men and women in terms of the reasons for unemployment. (Source: Adapted from Statistical Abstract of the United States, 2009, Table 604.)

2.46 In 2004, the total number of prescriptions sold in the United States was 3,274,000,000 (Source: National Association of Drug Store Chains). The sales manager of a chain of drugstores wanted to determine whether changes were made in the way the prescriptions were filled. A survey of prescriptions was undertaken in 1995, 2000, and 2007. The year and type of prescription were recorded using the codes below. Determine whether there are differences between the years. (Source: Adapted from the Statistical Abstract of the United States, 2009, Table 151.)

1. Traditional chain store
2. Independent drugstore
3. Mass merchant
4. Supermarket
5. Mail order

2.47 Refer to Exercise 2.33. Also recorded was the gender of the respondents. Use a graphical technique to determine whether the choice of light beers differs between genders.