

Construction of Frequency distribution:

1.18 The following scores represent the final examination grades for an elementary statistics course:

23	60	79	32	57	74	52	70	82
36	80	77	81	95	41	65	92	85
55	76	52	10	64	75	78	25	80
98	81	67	41	71	83	54	64	72
88	62	74	43	60	78	89	76	84
48	84	90	15	79	34	67	17	82
69	74	63	80	85	61			

- i) Construct a grouped frequency distribution including Relative Frequency (RF), Percentage Frequency (PF), Cumulative Frequency (CF)
- ii) Calculate Average score. Also measure the variability
- iii) Construct the Relative frequency Histogram and comment on the distribution shape.

Question 2:

Clarkson University surveyed alumni to learn more about what they think of Clarkson. One part of the survey asked respondents to indicate whether their overall experience at Clarkson fell short of expectations, met expectations, or surpassed expectations. The results showed that 4% of the respondents did not provide a response, 26% said that their experience fell short of expectations, and 65% of the respondents said that their experience met expectations.

- a. If we chose an alumnus at random, what is the probability that the alumnus would say their experience surpassed expectations?
- b. If we chose an alumnus at random, what is the probability that the alumnus would say their experience met or surpassed expectations?

Question 3:

The automobile industry sold 657,000 vehicles in the United States during January 2009 (*The Wall Street Journal*, February 4, 2009). This volume was down 37% from January 2008 as economic conditions continued to decline. The Big Three U.S. automakers—General Motors, Ford, and Chrysler—sold 280,500 vehicles, down 48% from January 2008. A summary of sales by automobile manufacturer and type of vehicle sold is shown in the following table. Data are in thousands of vehicles. The non-U.S. manufacturers are led by Toyota, Honda, and Nissan. The category Light Truck includes pickup, minivan, SUV, and crossover models.

Manufacturer	Type of Vehicle	
	Car	Light Truck
	U.S.	Non-U.S.
	87.4	193.1
	228.5	148.0

- Develop a joint probability table for these data and use the table to answer the remaining questions.
- What are the marginal probabilities? What do they tell you about the probabilities associated with the manufacturer and the type of vehicle sold?
- If a vehicle was manufactured by one of the U.S. automakers, what is the probability that the vehicle was a car? What is the probability it was a light truck?
- If a vehicle was not manufactured by one of the U.S. automakers, what is the probability that the vehicle was a car? What is the probability it was a light truck?
- If the vehicle was a light truck, what is the probability that it was manufactured by one of the U.S. automakers?
- What does the probability information tell you about sales?

Question 4:

A survey showed that 8% of Internet users age 18 and older report keeping a blog. Referring to the 18–29 age group as young adults, the survey showed that for bloggers 54% are young adults and for nonbloggers 24% are young adults (Pew Internet & American Life Project, July 19, 2006).

- Develop a joint probability table for these data with two rows (bloggers vs. non-bloggers) and two columns (young adults vs. older adults).
- What is the probability that an Internet user is a young adult?
- What is the probability that an Internet user keeps a blog and is a young adult?
- Suppose that in a follow-up phone survey we contact someone who is 24 years old. What is the probability that this person keeps a blog?