Problem of the Week
## Problem B and Solution
Buckets of Golf Balls

Problem

Golfers will practice their golf game at a driving range. At a driving range, they hit practice balls by the bucket.

Annie works at a local driving range. Over a period of two weeks, she records the number of buckets of balls that she hands out each day. The table below displays her data.

Day	Week 1	Week 2
Monday	11	14
Tuesday	25	32
Wednesday	27	34
Thursday	34	37
Friday	44	50
Saturday	57	70
Sunday	52	63

Percentage of Weekly Total Buckets
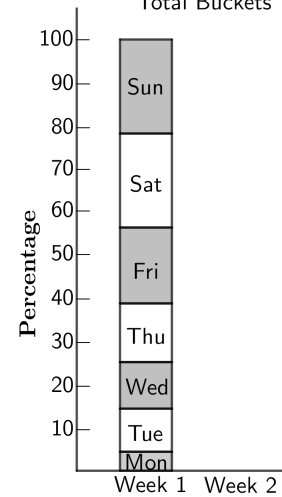
(a) A *stacked bar graph* is given for Week 1, showing the percentage of each day's buckets relative to the total (250 buckets) for that week. For example, on Monday Annie gives out 11 buckets, which is $\frac{11}{250} = 4.4\%$ of the total; on Tuesday she gives out 25 buckets, which is $\frac{25}{250} = 10.0\%$ of the total.

Verify that the remaining blocks of the graph accurately portray the given data for Week 1 by calculating the remaining daily percentages.

(b) Calculate the daily percentages for Week 2, and create a similar stacked bar graph for Week 2. Round percentages to one decimal place.

(c) By examining the bar graphs, what conclusions could you draw about the number of buckets given out each day?

Solution

(a) The remaining days' percentages are:

Wednesday: $\frac{27}{250} = 10.8\%$

Thursday: $\frac{34}{250} = 13.6\%$

Friday: $\frac{44}{250} = 17.6\%$

Saturday: $\frac{57}{250} = 22.8\%$

Sunday: $\frac{52}{250} = 20.8\%$

Note: We can find each percentage by rewriting the fraction as an equivalent fraction with a denominator of 100. We will look at the data for Wednesday and show two ways to do this.

(i) We will get the denominator to be 1000 by multiplying numerator and denominator by 4. Then, we divide each by 10 to get a fraction with a denominator of 100.

$$\frac{27}{250} = \frac{108}{1000} = \frac{10.8}{100} = 10.8\%$$

(ii) Since $250 \div 100 = 2.5$, we can divide both numerator and denominator by 2.5 to get $\frac{10.8}{100} = 10.8\%$.

The heights of the remaining blocks of the graph do portray the given data for Week 1.

(b) During Week 2, Annie handed out a total of 300 buckets. The daily percentages and completed bar graph are below.

Monday: $\frac{14}{300} \approx 4.7\%$

Tuesday: $\frac{32}{300} \approx 10.7\%$

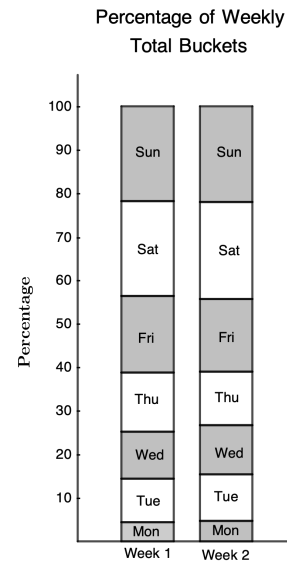Wednesday: $\frac{34}{300} \approx 11.3\%$

Thursday: $\frac{37}{300} \approx 12.3\%$

Friday: $\frac{50}{300} \approx 16.7\%$

Saturday: $\frac{70}{300} \approx 23.3\%$

Sunday: $\frac{63}{300} = 21.0\%$

Percentage of Weekly Total Buckets

(c) The tallest rectangular boxes are for Saturday and Sunday. Therefore, we can say that the most buckets are given out on either Saturday or Sunday. The data in the table shows that it is in fact on Saturday when the most buckets are given out.

The shortest rectangular box is for Monday. Therefore, we can say that the fewest number of buckets are given out on Monday. This is verified by the table.