Supplementary exercises 1.51 and 1.77 of IPS7e

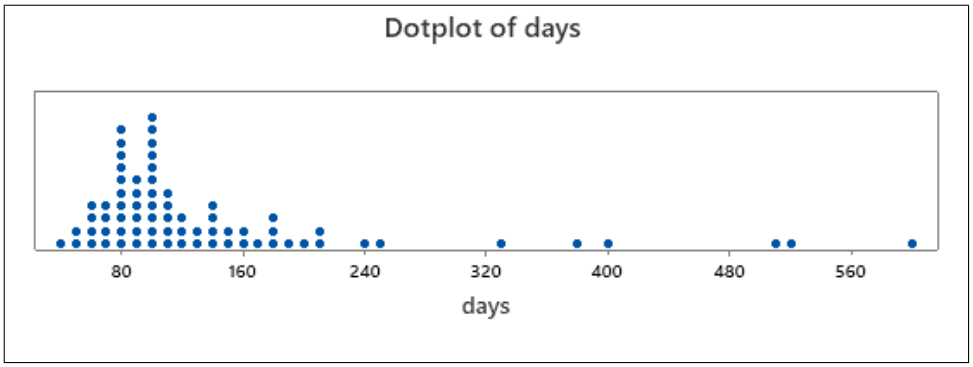
Exercise 1.51
We include several different graphical displays (as one would typically do in practice): a stemplot, a dotplot and a histogram (with the default binning).

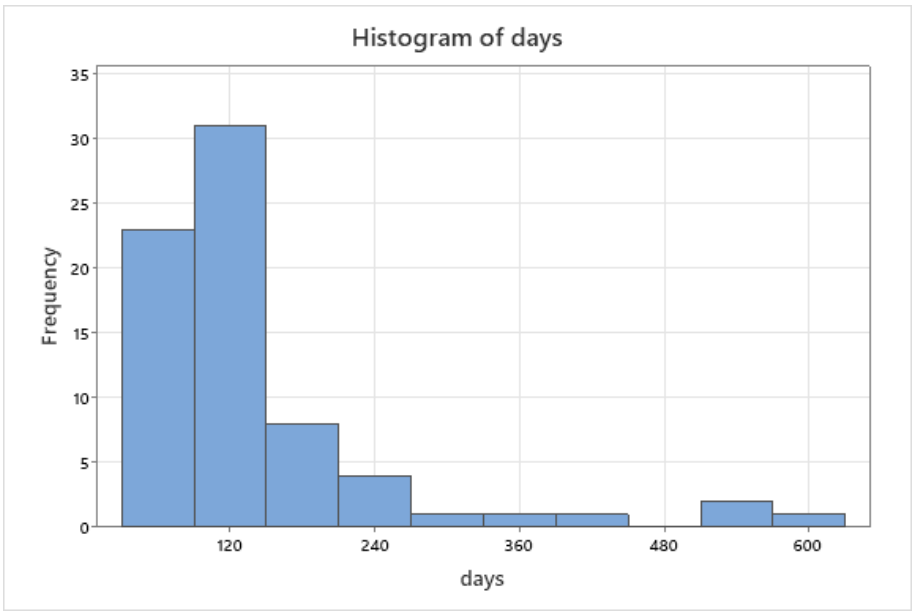
```
Stem-and-Leaf 'days'.
Dotplot 'days'.
Histogram 'days';
  Bar.
```

Stem-and-leaf of days N = 72

2	0 44
30	0 5555566777888888888889999999
(24)	1 000000000001112222333444
18	1 56777899
10	2 1144
6	2
6	3 2
5	3 8
4	4 0
3	4
3	5 12
1	5 9

Leaf Unit = 10



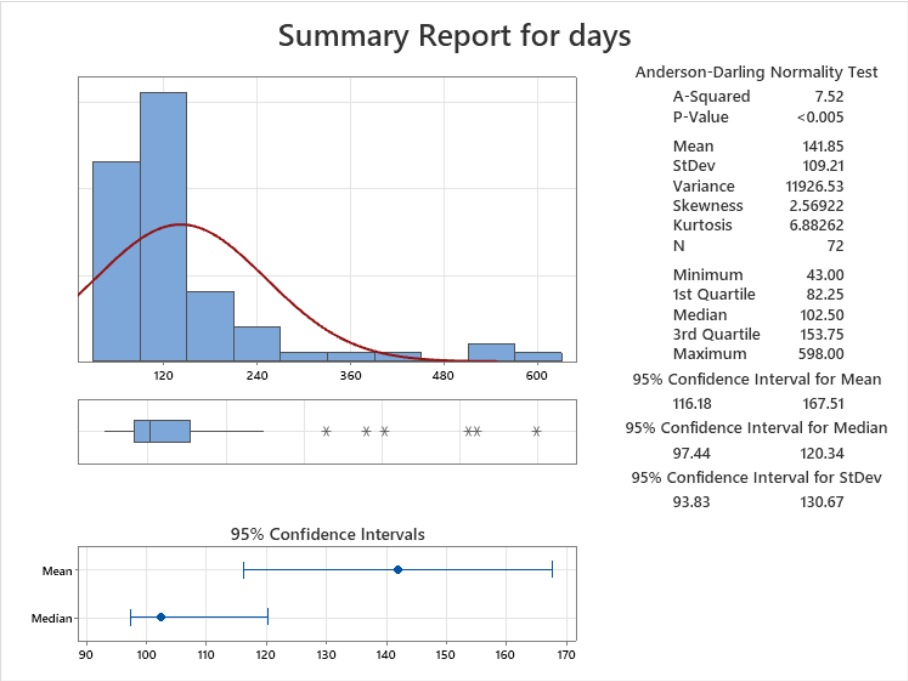


The distribution (shape) is clearly right-skewed. The center is roughly about 100. The spread is

considerable (range $43-598$). There are no obvious outliers because no single observation seems to be clearly different from the others, and nor do any group of observations seem clearly different from the others. Notice that the right-skewedness of the distribution means that some scattered large observations could be perfectly acceptable.

Exercise 1.77
For this solution, we include the "Summary Report" from the `Basic Statistics-Graphical Summary` menu) of descriptive statistics and graphs. It includes the histogram already seen as well as a boxplot displayed horizontally instead of vertically. The list of statistics includes the simple descriptive statistics of interest for now, as well as quite a few other statistics that we will discuss and become familiar with during the course.

```
GSummary 'days'.
```



The data are skewed to the right, so the five-number summary is more adequate to describe the data than the mean and the standard deviation; notice the big difference between mean and median!

Half the guinea pigs lived less than 102.5 days; typical lifetimes were 82 to 154 days. The longest-lived guinea pig died just short of 600 days, while one guinea pig lived only 43 days.

The boxplot indicates 6 points by asterisks, as suspected outliers. This is however due to the right-skewness of the distribution, and the plots give no reason to suspect that any of these observations are substantially different than the others (except that they are the largest ones, of course!).