Class Exercise - R Foundation   Dr. Derek Ogle

Northland College, MTH107 Statistics   Fall 2014

Coarse woody debris (CWD) in lakes is important for aquatic systems as it provides refuge for young fish and invertebrates as well as providing areas for periphyton to grow. Coarse woody debris was studied in the north basin of Allequash Lake in northern Wisconsin. Among other things, the researchers recorded the diameter (cm) of CWD found in the lake littoral zone and a qualitative measure of the degree to which the location where the CWD was found was exposed to winds (low or medium). The data (sampled from information on the North Temperate Lakes Long Term Ecological Research website) they observed are shown below.

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diameter  21   15   18   23   18   17   19   17   15   22   16   20   16   17   18   15   16   24   24   23
exposure  med  med  med  low  med  low  med  med  med  med  med  med  low  med  med  med  med  low  med  med

diameter  18   17   19   17   17   15   17   18   19   31   25   15   17   34   16   18   19   15   16   15
exposure  med  med  med  med  med  med  med  med  low  med  med  med  low  low  med  med  med  low  med

diameter  20   23   34   20   17   20   15   34   18   24
exposure  med  med  low  med  med  med  med  med  med  med
```

Use this information to answer the following questions. Use R to answer all questions even though most questions can be answered by observing these simple data from the table above. You should have an R script saved in RStudio and a MSWord document formatted as directed in section 1.4 of the textbook when you are finished.

1. Enter the data into Excel, save as a tab-delimited text file, and read the data into R. [HINT: see Section 2.3.3 in the textbook.]

2. What is (just) the diameter measurement for the seventh individual?

3. What data was recorded for the seventeenth individual?

4. What data was recorded for the seventh, seventeenth, and twenty-seventh individuals?

5. Isolate the following subsets of data (show the structure or a view of the resultant data frame to verify your results).

   (a) Only CWD at low-exposure sites.
   (b) Only CWD where the diameter was greater than 20 cm.
   (c) Only CWD where the diameter was greater than 20 cm and was observed in low-exposure sites.
   (d) Only CWD where the diameter was between 20 and 30 cm.