Assignment 7, Part II

Ellen Bledsoe

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2. Vectors (10 pts)

```
## [1] "2a:"
```

```
## [1] 23 24 40
```

```
## [1] "2b:"
```

```
## [1]  TRUE FALSE FALSE
```

```
## [1] "2c:"
```

```
## [1] 0 0 4
```

```
## [1] "2d:"
```

```
## [1] "(woo)" "(hey)" NA
```

3. Dugout Data (15 pts)

```
## Rows: 102 Columns: 16
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr  (8): Site_ID, Date, Soil Salinity, pH, Soil Zone, Location of nearest o...
## dbl  (7): latitude, longitude, Elevation.m, ion Concentration in groundwater...
## time (1): Time
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
## # A tibble: 102 x 16
##    Site_ID Date      Time   latitude longitude SoilSalinity pH          SoilZone
##    <chr>   <chr>     <time>    <dbl>     <dbl> <chr>        <chr>       <chr>
##  1 5       24-Aug-17 10:03      51.4     -103. moderate     alkaline    dark gr~
##  2 20      24-Jul-17 11:41      50.1     -102. very slight  unclassifi~ black
##  3 36      10-Aug-17 15:05      52.5     -105. very slight  alkaline    dark gr~
##  4 49      24-Jul-17 13:15      50.0     -102. slight       unclassifi~ black
##  5 51      24-Jul-17 16:19      50.0     -102. slight       unclassifi~ black
##  6 52      25-Jul-17 11:27      49.9     -102. slight       unclassifi~ black
```

```
##  7 65      11-Aug-17 11:50      52.6     -110. very slight  slightly a~ dark br~
##  8 68      8-Aug-17  09:30      50.6     -105. very slight  alkaline    brown
##  9 10A     24-Aug-17 12:25      51.8     -103. slight       alkaline    dark gr~
## 10 10B     24-Aug-17 13:14      51.8     -103. slight       alkaline    dark gr~
## # i 92 more rows
## # i 8 more variables: Elevation.m <dbl>,
## #   `Location of nearest observation well` <chr>,
## #   `ion Concentration in groundwater (mg/L)` <dbl>, MajorSalts <chr>,
## #   Anion <chr>, `2017 Well groundwater depth` <dbl>,
## #   `dugout elevation above groundwater` <dbl>, Surface_Sal.ppt <dbl>

## [1] "3a:"

## # A tibble: 85 x 16
##    Site_ID Date      Time   latitude longitude SoilSalinity pH          SoilZone
##    <chr>   <chr>     <time>    <dbl>     <dbl> <chr>        <chr>       <chr>
##  1 20      24-Jul-17 11:41      50.1     -102. very slight  unclassifi~ black
##  2 36      10-Aug-17 15:05      52.5     -105. very slight  alkaline    dark gr~
##  3 49      24-Jul-17 13:15      50.0     -102. slight       unclassifi~ black
##  4 51      24-Jul-17 16:19      50.0     -102. slight       unclassifi~ black
##  5 52      25-Jul-17 11:27      49.9     -102. slight       unclassifi~ black
##  6 65      11-Aug-17 11:50      52.6     -110. very slight  slightly a~ dark br~
##  7 68      8-Aug-17  09:30      50.6     -105. very slight  alkaline    brown
##  8 10A     24-Aug-17 12:25      51.8     -103. slight       alkaline    dark gr~
##  9 10B     24-Aug-17 13:14      51.8     -103. slight       alkaline    dark gr~
## 10 10C     24-Aug-17 10:30      51.8      103. very slight  alkaline    dark gr~
## # i 75 more rows
## # i 8 more variables: Elevation.m <dbl>,
## #   `Location of nearest observation well` <chr>,
## #   `ion Concentration in groundwater (mg/L)` <dbl>, MajorSalts <chr>,
## #   Anion <chr>, `2017 Well groundwater depth` <dbl>,
## #   `dugout elevation above groundwater` <dbl>, Surface_Sal.ppt <dbl>

## [1] "3b:"

## # A tibble: 94 x 16
##    Site_ID Date      Time   latitude longitude SoilSalinity pH          SoilZone
##    <chr>   <chr>     <time>    <dbl>     <dbl> <chr>        <chr>       <chr>
##  1 10A     24-Aug-17 12:25      51.8     -103. slight       alkaline    dark gr~
##  2 10B     24-Aug-17 13:14      51.8     -103. slight       alkaline    dark gr~
##  3 10C     24-Aug-17 10:30      51.8      103. very slight  alkaline    dark gr~
##  4 10D     24-Aug-17 11:39      51.8     -103. very slight  alkaline    dark gr~
##  5 14A     12-Jul-17 10:15      51.0     -105. very slight  alkaline    brown
##  6 14B     12-Jul-17 12:50      51.0     -105. very slight  alkaline    black
##  7 15A     3-Aug-17  11:41      49.6     -102. slight       neutral to~ dark gr~
##  8 15B     3-Aug-17  14:15      49.5     -102. slight       neutral to~ dark gr~
##  9 22B     8-Aug-17  12:28      51.1      106. very slight  alkaline    brown
## 10 24A     14-Aug-17 14:15      49.9     -110. slight       neutral to~ brown
## # i 84 more rows
## # i 8 more variables: Elevation.m <dbl>,
## #   `Location of nearest observation well` <chr>,
## #   `ion Concentration in groundwater (mg/L)` <dbl>, MajorSalts <chr>,
## #   Anion <chr>, `2017 Well groundwater depth` <dbl>,
## #   `dugout elevation above groundwater` <dbl>, Surface_Sal.ppt <dbl>
```

```
## [1] "3c:"
```

```
## # A tibble: 102 x 16
##    Site_ID Date      Time   latitude longitude SoilSalinity pH          SoilZone
##    <chr>   <chr>     <time>    <dbl>     <dbl> <chr>        <chr>       <chr>
##  1 5       24-Aug-17 10:03      51.4     -103. moderate     alkaline    dark gr~
##  2 20      24-Jul-17 11:41      50.1     -102. very slight  unclassifi~ black
##  3 36      10-Aug-17 15:05      52.5     -105. very slight  alkaline    dark gr~
##  4 49      24-Jul-17 13:15      50.0     -102. slight       unclassifi~ black
##  5 51      24-Jul-17 16:19      50.0     -102. slight       unclassifi~ black
##  6 52      25-Jul-17 11:27      49.9     -102. slight       unclassifi~ black
##  7 65      11-Aug-17 11:50      52.6     -110. very slight  slightly a~ dark br~
##  8 68      8-Aug-17  09:30      50.6     -105. very slight  alkaline    brown
##  9 10A     24-Aug-17 12:25      51.8     -103. slight       alkaline    dark gr~
## 10 10B     24-Aug-17 13:14      51.8     -103. slight       alkaline    dark gr~
## # i 92 more rows
## # i 8 more variables: Elevation.m <dbl>,
## #   `Location of nearest observation well` <chr>,
## #   `ion Concentration in groundwater (mg/L)` <dbl>, MajorSalts <chr>,
## #   Anion <chr>, `2017 Well groundwater depth` <dbl>,
## #   `dugout elevation above groundwater` <dbl>, Surface_Sal.ppt <dbl>
```

4. Santa Cruz Rodents (20 pts)

```
## Rows: 51 Columns: 15
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr  (10): Site, Trap ID, Species, Status (R/N), Sex, Tail length, Hair samp...
## dbl   (4): Total Weight, Bag weight, Animal Weight, Hind foot length
## date  (1): Date
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
## [1] "Read in data:"
```

```
## [1] "4a:"
```

```
## # A tibble: 2 x 15
##   Date       Site  `Trap ID` Species `Status (R/N)` Sex   `Total Weight`
##   <date>     <chr> <chr>     <chr>   <chr>          <chr>          <dbl>
## 1 2022-11-14 <NA>  4J        SIOC?   N              <NA>              NA
## 2 2022-11-18 <NA>  D6        DIME?   N              F                 44
## # i 8 more variables: `Bag weight` <dbl>, `Animal Weight` <dbl>,
## #   `Hind foot length` <dbl>, TailLength <chr>, HairSample <chr>,
## #   Position <chr>, Handler <chr>, Notes <chr>
```

```
## [1] "4b:"
```

```
## # A tibble: 51 x 15
##    Date       Site     `Trap ID` Species `Status (R/N)` Sex   `Total Weight`
##    <date>     <chr>    <chr>     <chr>   <chr>          <chr>          <dbl>
```

```
##  1 2022-11-14 Heritage 4C        SIOC    N              F                134
##  2 2022-11-14 <NA>     4D        SIOC    N              M                136
##  3 2022-11-14 <NA>     4I        SIOC    N              <NA>              90
##  4 2022-11-14 <NA>     2H        REME    N              M                 38
##  5 2022-11-14 <NA>     4J        SIOC?   N              <NA>              NA
##  6 2022-11-14 <NA>     2F        REME    N              F                 22
##  7 2022-11-15 <NA>     4C        SIOC    R              <NA>              NA
##  8 2022-11-15 <NA>     4H        SIOC    N              F                 95
##  9 2022-11-15 <NA>     1H        REME    N              <NA>              26
## 10 2022-11-15 <NA>     1B        REME    N              F                 35
## # i 41 more rows
## # i 8 more variables: 'Bag weight' <dbl>, 'Animal Weight' <dbl>,
## #   'Hind foot length' <dbl>, TailLength <chr>, HairSample <chr>,
## #   Position <chr>, Handler <chr>, Notes <chr>

## [1] "4c"

## # A tibble: 51 x 15
##    Date       Site     'Trap ID' Species 'Status (R/N)' Sex   'Total Weight'
##    <date>     <chr>    <chr>     <chr>   <chr>          <chr>           <dbl>
##  1 2022-11-14 Heritage 4C        SIOC    N              F                 134
##  2 2022-11-14 <NA>     4D        SIOC    N              M                 136
##  3 2022-11-14 <NA>     4I        SIOC    N              <NA>               90
##  4 2022-11-14 <NA>     2H        REME    N              M                  38
##  5 2022-11-14 <NA>     4J        SIOC    N              <NA>               NA
##  6 2022-11-14 <NA>     2F        REME    N              F                  22
##  7 2022-11-15 <NA>     4C        SIOC    R              <NA>               NA
##  8 2022-11-15 <NA>     4H        SIOC    N              F                  95
##  9 2022-11-15 <NA>     1H        REME    N              <NA>               26
## 10 2022-11-15 <NA>     1B        REME    N              F                  35
## # i 41 more rows
## # i 8 more variables: 'Bag weight' <dbl>, 'Animal Weight' <dbl>,
## #   'Hind foot length' <dbl>, TailLength <chr>, HairSample <chr>,
## #   Position <chr>, Handler <chr>, Notes <chr>

## [1] "4d:"

## # A tibble: 51 x 15
##    Date       Site     'Trap ID' Species 'Status (R/N)' Sex   'Total Weight'
##    <date>     <chr>    <chr>     <chr>   <chr>          <chr>           <dbl>
##  1 2022-11-14 Heritage 4C        SIOC    N              F                 134
##  2 2022-11-14 <NA>     4D        SIOC    N              M                 136
##  3 2022-11-14 <NA>     4I        SIOC    N              <NA>               90
##  4 2022-11-14 <NA>     2H        REME    N              M                  38
##  5 2022-11-14 <NA>     4J        SIOC    N              <NA>               NA
##  6 2022-11-14 <NA>     2F        REME    N              F                  22
##  7 2022-11-15 <NA>     4C        SIOC    R              <NA>               NA
##  8 2022-11-15 <NA>     4H        SIOC    N              F                  95
##  9 2022-11-15 <NA>     1H        REME    N              <NA>               26
## 10 2022-11-15 <NA>     1B        REME    N              F                  35
## # i 41 more rows
## # i 8 more variables: 'Bag weight' <dbl>, 'Animal Weight' <dbl>,
## #   'Hind foot length' <dbl>, TailLength <chr>, HairSample <chr>,
## #   Position <chr>, Handler <chr>, Notes <chr>
```