Assignment 7, Part II

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```
## -- Attaching core tidyverse packages ---------------------- tidyverse 2.0.0 --
## v dplyr     1.1.4      v readr     2.1.5
## v forcats   1.0.0      v stringr   1.5.1
## v ggplot2   3.4.4      v tibble    3.2.1
## v lubridate 1.9.3      v tidyr     1.3.1
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

2. Vectors (10 pts)

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

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

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

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

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

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

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

```
## [1] "This ain't Texas (woo)," "ain't no hold 'em (hey)/"
```

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

```
## [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>
```