Week 4 Assignment

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2. Portal Data Aggregation (10 pts)

```
## # A tibble: 49 x 2
##    species_id count
##    <chr>      <int>
##  1 AB           303
##  2 AH           437
##  3 AS             2
##  4 BA            46
##  5 CB            50
##  6 CM            13
##  7 CQ            16
##  8 CS             1
##  9 CT             1
## 10 CU             1
## # i 39 more rows
```

```
## `summarise()` has grouped output by 'species_id'. You can override using the
## `.groups` argument.
```

```
## # A tibble: 535 x 3
## # Groups:   species_id [49]
##    species_id  year count
##    <chr>      <dbl> <int>
##  1 AB          1980     5
##  2 AB          1981     7
##  3 AB          1982    34
##  4 AB          1983    41
##  5 AB          1984    12
##  6 AB          1985    14
##  7 AB          1986     5
##  8 AB          1987    35
##  9 AB          1988    39
## 10 AB          1989    31
## # i 525 more rows
```

```
## # A tibble: 26 x 2
##     year avg_mass
##    <dbl>    <dbl>
##  1  1977     42.7
##  2  1978     45
```

```
##  3  1979     45.9
##  4  1980     48.1
##  5  1981     49.1
##  6  1982     47.9
##  7  1983     47.2
##  8  1984     48.4
##  9  1985     48.0
## 10  1986     49.4
## # i 16 more rows
```

3. Shrub Volume Aggregation (10 pts)

```
## # A tibble: 3 x 3
##   experiment avg_height max_height
##        <dbl>      <dbl>      <dbl>
## 1          1       4.7         9.6
## 2          2       5.12        7.6
## 3          3       3.85        7.5
```

4. Portal Data Joins (15 pts)

```
## # A tibble: 34,786 x 12
##    record_id month   day  year plot_id species_id sex   hindfoot_length weight
##        <dbl> <dbl> <dbl> <dbl>   <dbl> <chr>      <chr>           <dbl>  <dbl>
##  1         1     7    16  1977       2 NL         M                  32     NA
##  2         2     7    16  1977       3 NL         M                  33     NA
##  3         3     7    16  1977       2 DM         F                  37     NA
##  4         4     7    16  1977       7 DM         M                  36     NA
##  5         5     7    16  1977       3 DM         M                  35     NA
##  6         6     7    16  1977       1 PF         M                  14     NA
##  7         7     7    16  1977       2 PE         F                  NA     NA
##  8         8     7    16  1977       1 DM         M                  37     NA
##  9         9     7    16  1977       1 DM         F                  34     NA
## 10        10     7    16  1977       6 PF         F                  20     NA
## # i 34,776 more rows
## # i 3 more variables: genus <chr>, species <chr>, taxa <chr>
```

```
## # A tibble: 34,786 x 13
##    record_id month   day  year plot_id species_id sex   hindfoot_length weight
##        <dbl> <dbl> <dbl> <dbl>   <dbl> <chr>      <chr>           <dbl>  <dbl>
##  1         1     7    16  1977       2 NL         M                  32     NA
##  2         2     7    16  1977       3 NL         M                  33     NA
##  3         3     7    16  1977       2 DM         F                  37     NA
##  4         4     7    16  1977       7 DM         M                  36     NA
##  5         5     7    16  1977       3 DM         M                  35     NA
##  6         6     7    16  1977       1 PF         M                  14     NA
##  7         7     7    16  1977       2 PE         F                  NA     NA
##  8         8     7    16  1977       1 DM         M                  37     NA
##  9         9     7    16  1977       1 DM         F                  34     NA
## 10        10     7    16  1977       6 PF         F                  20     NA
## # i 34,776 more rows
## # i 4 more variables: genus <chr>, species <chr>, taxa <chr>, plot_type <chr>
```

```
## # A tibble: 15,660 x 10
##    record_id month   day  year plot_id species_id sex   hindfoot_length weight
##        <dbl> <dbl> <dbl> <dbl>   <dbl> <chr>      <chr>           <dbl>  <dbl>
##  1         1     7    16  1977       2 NL         M                  32     NA
##  2         3     7    16  1977       2 DM         F                  37     NA
##  3         7     7    16  1977       2 PE         F                  NA     NA
##  4        14     7    16  1977       8 DM         <NA>               NA     NA
##  5        16     7    16  1977       4 DM         F                  36     NA
##  6        18     7    16  1977       2 PP         M                  22     NA
##  7        19     7    16  1977       4 PF         <NA>               NA     NA
##  8        20     7    17  1977      11 DS         F                  48     NA
##  9        21     7    17  1977      14 DM         F                  34     NA
## 10        28     7    17  1977      11 DM         M                  38     NA
## # i 15,650 more rows
## # i 1 more variable: plot_type <chr>
```

5. Portal Data dplyr Review (20 pts)

```
## # A tibble: 19,344 x 5
##     year genus       species  weight plot_type
##    <dbl> <chr>       <chr>     <dbl> <chr>
##  1  1977 Dipodomys   merriami     40 Long-term Krat Exclosure
##  2  1977 Dipodomys   merriami     29 Control
##  3  1977 Dipodomys   merriami     46 Control
##  4  1977 Dipodomys   ordii        52 Control
##  5  1977 Perognathus flavus        8 Control
##  6  1977 Onychomys   sp.          22 Long-term Krat Exclosure
##  7  1977 Perognathus flavus        7 Control
##  8  1977 Dipodomys   merriami     22 Control
##  9  1977 Perognathus flavus        8 Control
## 10  1977 Dipodomys   merriami     41 Control
## # i 19,334 more rows
```

6. Shrub Volumn Bind (10 pts)

```
## # A tibble: 15 x 7
##     site experiment length width height respiratory_rate average_temp_C
##    <dbl>      <dbl>  <dbl> <dbl>  <dbl>            <dbl>          <dbl>
##  1     1          1    2.2   1.3    9.6              2.2           15.1
##  2     1          2    2.1   2.2    7.6              4             20.2
##  3     1          3    2.7   1.5    2.2              6.1           24.7
##  4     2          1    3     4.5    1.5              2.3           15.2
##  5     2          2    3.1   3.1    4                4.1           22
##  6     2          3    2.5   2.8    3                6.2           25.1
##  7     3          1    1.9   1.8    4.5              1.8           14.2
##  8     3          2    1.1   0.5    2.3              3.5           19
##  9     3          3    3.5   2      7.5              5.7           23.6
## 10     4          1    2.9   2.7    3.2              1.9           14.9
## 11     4          2    4.5   4.8    6.5              3.5           20.3
## 12     4          3    1.2   1.8    2.7              5.8           24.1
## 13     5          1    2.6   0.8   NA                2             19.2
## 14     5          2    1.8  NA      5.2              4.7           22.7
## 15     5          3    3.1   2.2   NA                6.2           25
```

7. Shrub Volume Join (10 pts)

```
## # A tibble: 15 x 6
##     site experiment length width height manipulation
##    <dbl>      <dbl>  <dbl> <dbl>  <dbl> <chr>
##  1     1          1    2.2   1.3    9.6 control
##  2     1          2    2.1   2.2    7.6 burn
##  3     1          3    2.7   1.5    2.2 rainout
##  4     2          1    3     4.5    1.5 control
##  5     2          2    3.1   3.1    4   burn
##  6     2          3    2.5   2.8    3   rainout
##  7     3          1    1.9   1.8    4.5 control
##  8     3          2    1.1   0.5    2.3 burn
##  9     3          3    3.5   2      7.5 rainout
## 10     4          1    2.9   2.7    3.2 control
## 11     4          2    4.5   4.8    6.5 burn
## 12     4          3    1.2   1.8    2.7 rainout
## 13     5          1    2.6   0.8   NA   control
## 14     5          2    1.8  NA      5.2 burn
## 15     5          3    3.1   2.2   NA   rainout
```

```
## # A tibble: 12 x 9
##     site experiment length width height manipulation latitude longitude
##    <dbl>      <dbl>  <dbl> <dbl>  <dbl> <chr>           <dbl>     <dbl>
##  1     1          1    2.2   1.3    9.6 control          29.6     -82.3
##  2     1          2    2.1   2.2    7.6 burn             29.6     -82.3
##  3     1          3    2.7   1.5    2.2 rainout          29.6     -82.3
##  4     2          1    3     4.5    1.5 control          29.3     -82.4
##  5     2          2    3.1   3.1    4   burn             29.3     -82.4
##  6     2          3    2.5   2.8    3   rainout          29.3     -82.4
##  7     3          1    1.9   1.8    4.5 control          29.8     -82.2
##  8     3          2    1.1   0.5    2.3 burn             29.8     -82.2
##  9     3          3    3.5   2      7.5 rainout          29.8     -82.2
## 10     4          1    2.9   2.7    3.2 control          30.0     -82.6
## 11     4          2    4.5   4.8    6.5 burn             30.0     -82.6
## 12     4          3    1.2   1.8    2.7 rainout          30.0     -82.6
## # i 1 more variable: elevation <dbl>
```

8. Extracting vectors from data frames (10 pts)

```
##  [1] 29.65 29.65 29.65 29.26 29.26 29.26 29.80 29.80 29.80 29.99 29.99 29.99
```

```
##  [1] "control" "burn"    "rainout" "control" "burn"    "rainout" "control"
##  [8] "burn"    "rainout" "control" "burn"    "rainout"
```

```
## [1] 2.416667
```

9. Building data frames from vectors (10 pts)

```
##        genus      species length width height
## 1  Cercidium microphyllum    2.2   1.3    9.6
## 2  Cercidium microphyllum    2.1   2.2    7.6
```

```
## 3  Cercidium microphyllum    2.7   1.5    2.2
## 4  Cercidium microphyllum    3.0   4.5    1.5
## 5  Cercidium microphyllum    3.1   3.1    4.0
## 6  Cercidium microphyllum    2.5    NA    3.0
## 7  Cercidium microphyllum    1.9   1.8    4.5
## 8  Cercidium microphyllum    1.1   0.5    2.3
## 9  Cercidium microphyllum    3.5   2.0    7.5
## 10 Cercidium microphyllum    2.9   2.7    3.2
```