

Group 4: Urban Stream Syndrome

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A correlation matrix in R is a table showing correlation coefficients between many variables. Each cell in the table shows the correlation between two variables. The value is between -1 and 1:

+1: Perfect positive correlation

0: No correlation

-1: Perfect negative correlation

Hypotheses

Data Set

```
group4.csv <- "/home/mwl04747/RTricks/00_Project_Group_Demos/Group4_FakeData.csv"
prado = read.csv(group4.csv)
head(prado)
```

```
##  SONDE      Site.ID start.end      TIME Temp_deg_C pH_units ORP_mV SpCond_uS.cm
## 1    NA downstream   start 14:58:00    22.80   94310  132.7    554.6
## 2    NA downstream   end 15:00:00    22.73   94030  132.6    555.0
## 3    NA upstream     start 15:08:00    22.76   93650  132.5    552.8
## 4    NA upstream     end 15:10:00    22.74   93880  132.7    552.3
## 5    NA
## 6    NA
##  HDO_mg.l HDO_.Sat Turb_FNU Chl_ug.l Depth_m CablePower_V E..COLI...COLIFORM
## 1      7.99    95.5   0.16   0.14   0.00      0.01      NA
## 2      7.99    95.4   0.08   0.14   0.02      0.01      NA
## 3      8.28    98.9   1.36  -0.16   0.10      0.01      NA
## 4      8.28    98.9   0.98  -0.17   0.10      0.01      NA
## 5      NA      NA    NA    NA    NA      NA      NA
## 6      NA      NA    NA    NA    NA      NA      NA
##  EC.C.Sample.ID Dilution..sample.DI. Site.ID.1 Yellow...large.wells.
## 1      Down 1      1:10 downstream      48
## 2      Down 2      none downstream      48
## 3      Down 3      1:10 downstream      48
## 4      Down 4      none downstream      48
## 5      Up 1      1:10 upstream      48
## 6      Up 2      none upstream 47/47(1 unfilled)
##  Yellow...small.wells. Fluorescence..large.wells. Fluorescence..small.wells.
## 1      35      6      1
## 2      48      29      8
## 3      31      10      1
## 4      48      11      24
```

```
## 5          24          3          0
## 6          48          36          5
##   Total.Coliiform.MPN E.Coli.MPN          Notes NITRATES
## 1          549.3          7.4          NA
## 2          1001.2          54.5          NA
## 3          456.9          12.1          NA
## 4          1011.2          40.2          NA
## 5          328.8          3.1          NA
## 6          ***          69.7 1 large well unfilled          NA
##   NITRATES.Sample.ID Site.ID.2 Result..mg.L.NO3.. Notes.1
## 1          Up 1   upstream          6.04
## 2          Up 2   upstream          5.96
## 3          Up 3   upstream          5.86
## 4          Down 1 downstream          3.74
## 5          Down 2 downstream          3.98
## 6          Down 3 downstream          3.77
```

```
prado_clean = prado[,c(5:11)]
head(prado_clean)
```

```
##   Temp_deg_C pH_units ORP_mV SpCond_uS.cm HDO_mg.l HDO_.Sat Turb_FNU
## 1    22.80    94310  132.7      554.6      7.99    95.5     0.16
## 2    22.73    94030  132.6      555.0      7.99    95.4     0.08
## 3    22.76    93650  132.5      552.8      8.28    98.9     1.36
## 4    22.74    93880  132.7      552.3      8.28    98.9     0.98
## 5         NA         NA      NA         NA         NA         NA         NA
## 6         NA         NA      NA         NA         NA         NA         NA
```

```
res <- cor(prado_clean)
round(res, 2)
```

```
##           Temp_deg_C pH_units ORP_mV SpCond_uS.cm HDO_mg.l HDO_.Sat Turb_FNU
## Temp_deg_C          1      NA      NA          NA          NA          NA
## pH_units           NA          1      NA          NA          NA          NA
## ORP_mV             NA      NA          1          NA          NA          NA
## SpCond_uS.cm       NA      NA      NA          1          NA          NA
## HDO_mg.l           NA      NA      NA          NA          1          NA
## HDO_.Sat           NA      NA      NA          NA          NA          1
## Turb_FNU           NA      NA      NA          NA          NA          NA
```

Summary Stats

Hypothesis Tests

Plots