DATA VISUALIZATION

Guru Puvati

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```
library(sjPlot)
library(gtsummary)
library(tidyr)
library(tidyverse)
library(ggplot2)
```

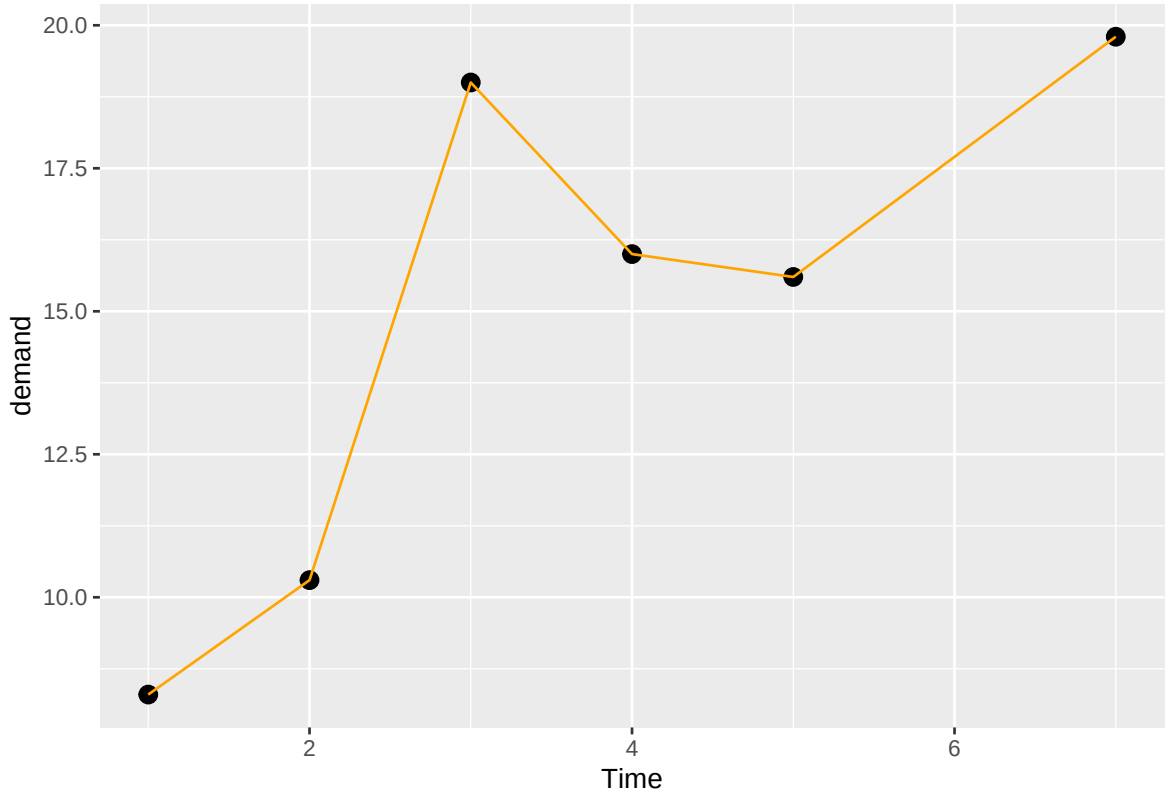
Data Visualization

1. *Data*
2. mappings (aesthetics)
3. geometrics
4. *Statistics*
5. *Facet*
6. *Coordinates Space*
7. *Labels (ggtitle)*
8. *Theme*

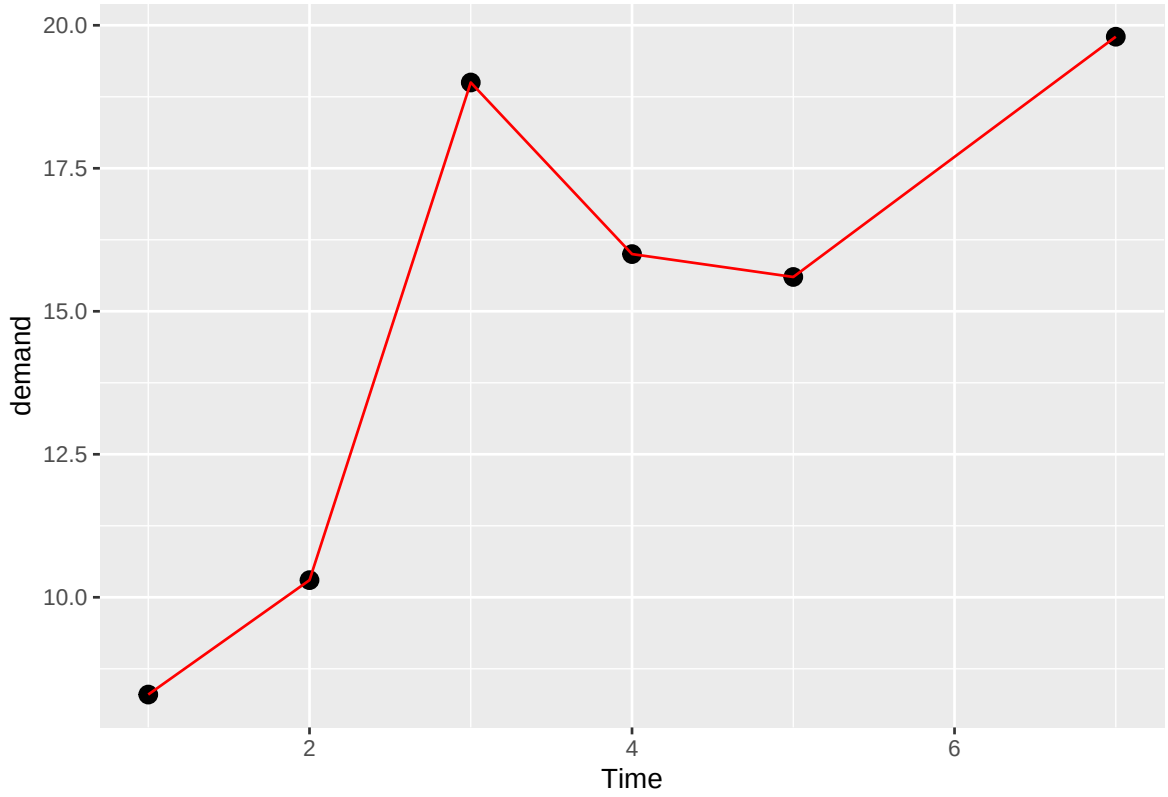
```
BOD
```

```
##   Time demand
## 1    1    8.3
## 2    2   10.3
## 3    3   19.0
## 4    4   16.0
## 5    5   15.6
## 6    7   19.8
```

```
ggplot(data = BOD,
       mapping = aes(x=Time,
                     y=demand)) +
 geom_point(size=3)+
 geom_line(color='orange')
```




```
ggplot( BOD,  aes(Time,demand )) +
              geom_point(size=3)+
              geom_line(color='red')
```




```
nrow(CO2)#NO.Rows
```

LET'S TRY USING DIFFERENT DATASETS (CO2)

```
## [1] 84
```

```
head(CO2)
```

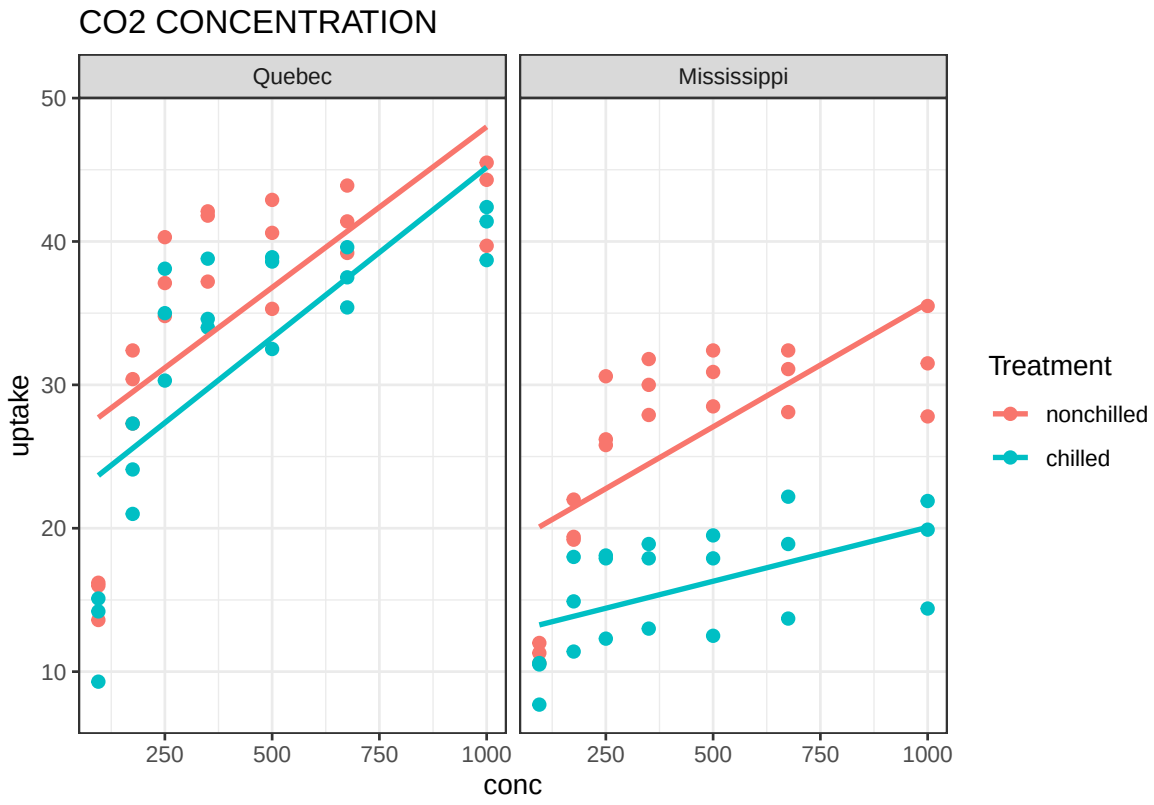
```
## Grouped Data: uptake ~ conc | Plant
##   Plant   Type  Treatment conc uptake
## 1   Qn1 Quebec nonchilled   95   16.0
## 2   Qn1 Quebec nonchilled  175   30.4
## 3   Qn1 Quebec nonchilled  250   34.8
## 4   Qn1 Quebec nonchilled  350   37.2
## 5   Qn1 Quebec nonchilled  500   35.3
## 6   Qn1 Quebec nonchilled  675   39.2
```

```
names(CO2)
```

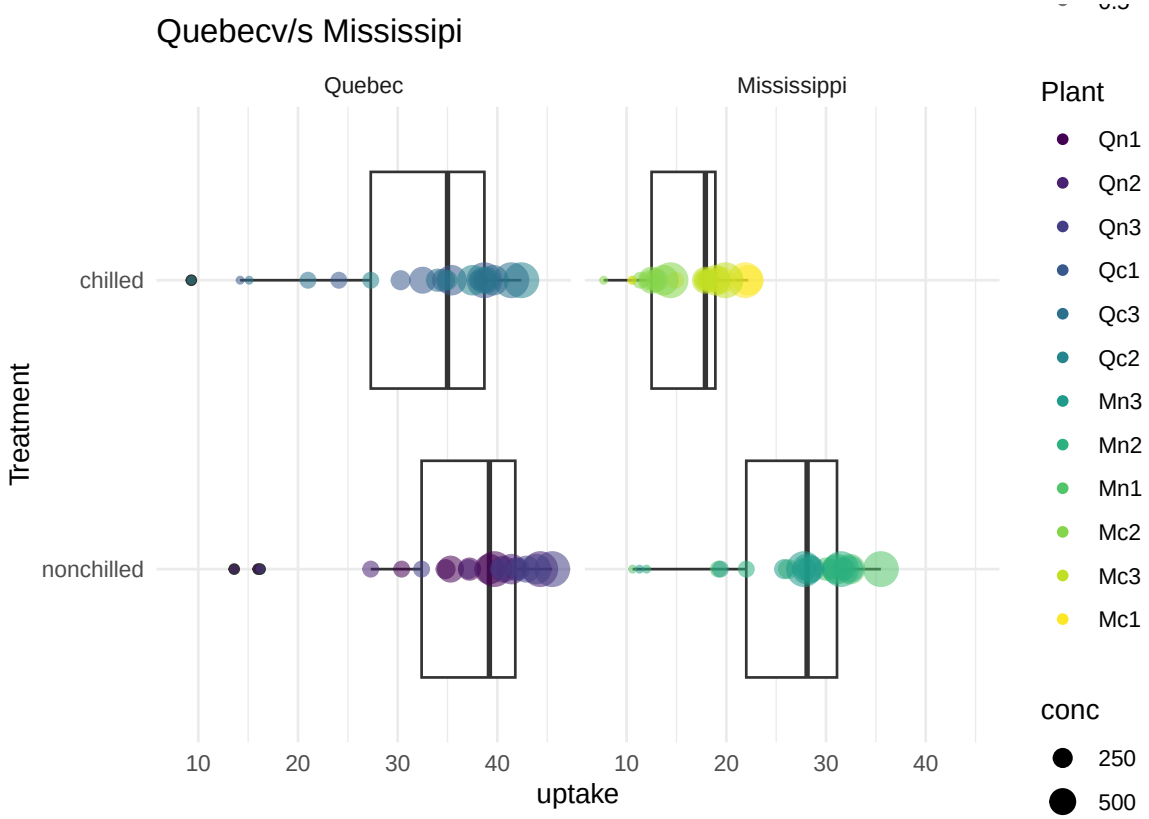
```
## [1] "Plant"     "Type"      "Treatment" "conc"      "uptake"
```

```
CO2 %>%
    ggplot(aes(conc, uptake,
               colour=Treatment)) +
    geom_point(alpha=1, size=2) +
    geom_smooth(method = 'lm', se=FALSE)+
    facet_wrap(~Type) +
    ggtitle("CO2 CONCENTRATION")+
 #same as labs(Title="CO2 CONCENTRATION")
```

```
    theme_bw()
```




```
CO2 %>%
       ggplot(aes(Treatment, uptake)) +
       geom_boxplot() +
       geom_point(aes(colour=Plant,
                      alpha=0.5,
                      size=conc)) +
 facet_wrap(~Type)+
 coord_flip()+
 theme_minimal()+
 labs(title = "Quebecv/s Mississipi")
```




```
head(mpg)
```

LETS TRY OUT WITH ANOTHER DATASETS(mpg)

```
## # A tibble: 6 x 11
##   manufacturer model displ  year   cyl trans      drv     cty   hwy fl    class
##   <chr>        <chr> <dbl> <int> <int> <chr>      <chr> <int> <int> <chr> <chr>
## 1 audi         a4      1.8  1999     4 auto(l5)   f        18    29 p     compa~
## 2 audi         a4      1.8  1999     4 manual(m5) f        21    29 p     compa~
## 3 audi         a4      2    2008     4 manual(m6) f        20    31 p     compa~
## 4 audi         a4      2    2008     4 auto(av)   f        21    30 p     compa~
## 5 audi         a4      2.8  1999     6 auto(l5)   f        16    26 p     compa~
## 6 audi         a4      2.8  1999     6 manual(m5) f        18    26 p     compa~
```

```
mpg %>%
 filter(cty<25) %>%
 ggplot(aes(displ, cty)) +
        geom_point(aes(colour=drv,
                       size=trans),
                   alpha=0.5) +
     geom_smooth(method=lm) +
      facet_wrap(~year, nrow = 1) +
      labs(x="Engine Size",
           y="mpg in the cty",
           title = "fuel efficiency") +
        theme_minimal()
```


fuel efficiency
1999
2008
mpg in the cty
20
15
10
2
3
4
5
6
7
Engine Size
drv
4
f
r
trans
auto(av)
auto(l3)
auto(l4)
auto(l5)
auto(l6)
auto(s4)
auto(s5)
auto(s6)
manual(m5)
manual(m6)