

## Asgmnt 2: Creating Anscombe's Quartet of Visualizations

### A. Timestamp

```
1 ---
2 title: "Asgmnt2"
3 author: "Student"
4 date: '2022-09-11'
5 output: html_document
```

### B. Installing Anscombe dataset and Summary

```
12 {r setup, include =FALSE}
13 library(datasets)
14 data<-anscombe
15 summary(data)
16 ^```
```

```
> library(datasets)
> data<-anscombe
> summary(data)
```

x1		x2		x3	
Min.	: 4.0	Min.	: 4.0	Min.	: 4.0
1st Qu.:	6.5	1st Qu.:	6.5	1st Qu.:	6.5
Median :	9.0	Median :	9.0	Median :	9.0
Mean :	9.0	Mean :	9.0	Mean :	9.0
3rd Qu.:	11.5	3rd Qu.:	11.5	3rd Qu.:	11.5
Max.	:14.0	Max.	:14.0	Max.	:14.0

x4		y1		y2	
Min.	: 8	Min.	: 4.260	Min.	:3.100
1st Qu.:	8	1st Qu.:	6.315	1st Qu.:	6.695
Median :	8	Median :	7.580	Median :	8.140
Mean :	9	Mean :	7.501	Mean :	7.501
3rd Qu.:	8	3rd Qu.:	8.570	3rd Qu.:	8.950
Max.	:19	Max.	:10.840	Max.	:9.260

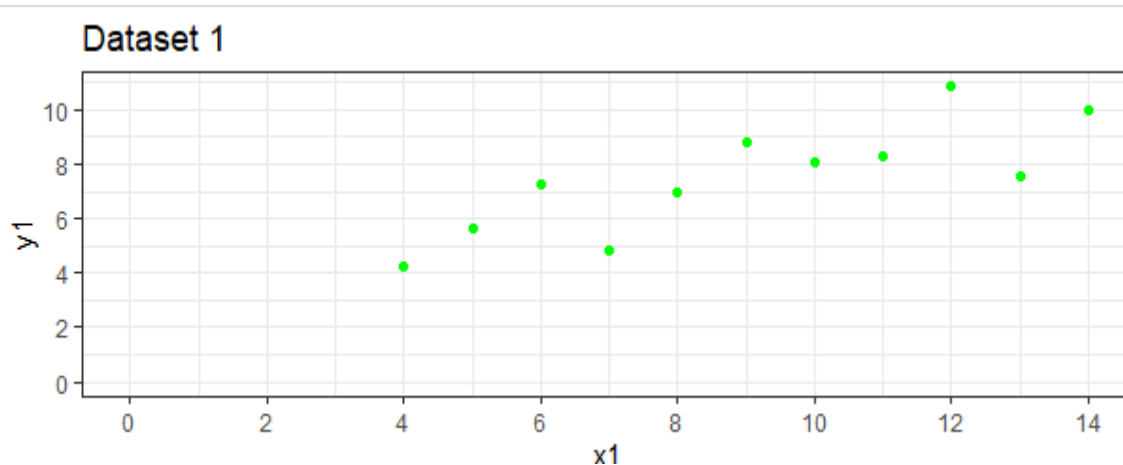
y3		y4	
Min.	: 5.39	Min.	: 5.250
1st Qu.:	6.25	1st Qu.:	6.170
Median :	7.11	Median :	7.040
Mean :	7.50	Mean :	7.501
3rd Qu.:	7.98	3rd Qu.:	8.190
Max.	:12.74	Max.	:12.500

### C. Creating scatter Plots

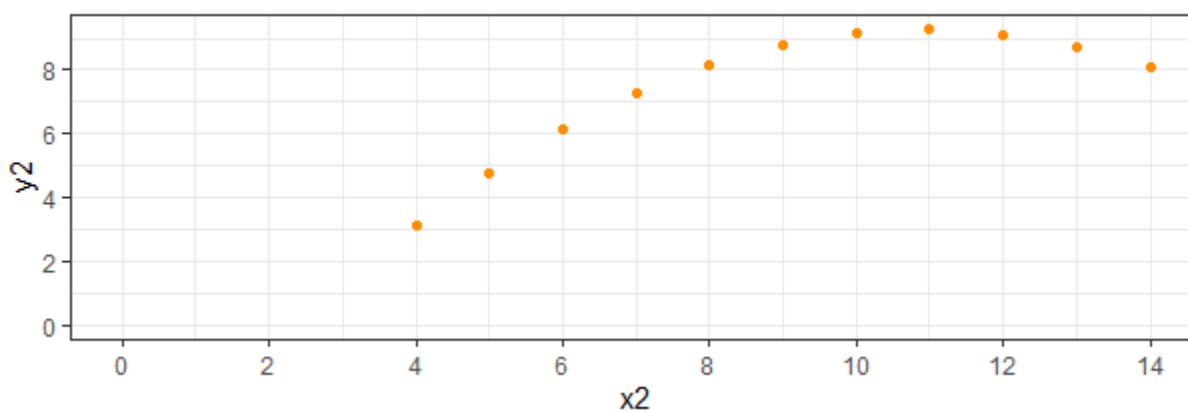
```

p1 <- ggplot(anscombe) +
  geom_point(aes(x1, y1), color = "green", size = 1.5) +
  scale_x_continuous(breaks = seq(0,20,2)) +
  scale_y_continuous(breaks = seq(0,12,2)) +
  expand_limits(x = 0, y = 0) +
  labs(x = "x1", y = "y1",
       title = "Dataset 1" ) +
  theme_bw()
p1
p2 <- ggplot(anscombe) +
  geom_point(aes(x2, y2), color = "darkorange", size = 1.5) +
  scale_x_continuous(breaks = seq(0,20,2)) +
  scale_y_continuous(breaks = seq(0,12,2)) +
  expand_limits(x = 0, y = 0) +
  labs(x = "x2", y = "y2",
       title = "Dataset 2" ) +
  theme_bw()
p2
p3 <- ggplot(anscombe) +
  geom_point(aes(x3, y3), color = "yellow", size = 1.5) +
  scale_x_continuous(breaks = seq(0,20,2)) +
  scale_y_continuous(breaks = seq(0,12,2)) +
  expand_limits(x = 0, y = 0) +
  labs(x = "x3", y = "y3",
       title = "Dataset 3" ) +
  theme_bw()
p3
p4 <- ggplot(anscombe) +
  geom_point(aes(x4, y4), color = "blue", size = 1.5) +
  scale_x_continuous(breaks = seq(0,20,2)) +
  scale_y_continuous(breaks = seq(0,12,2)) +
  expand_limits(x = 0, y = 0) +
  labs(x = "x4", y = "y4",
       title = "Dataset 4" ) +
  theme_bw()

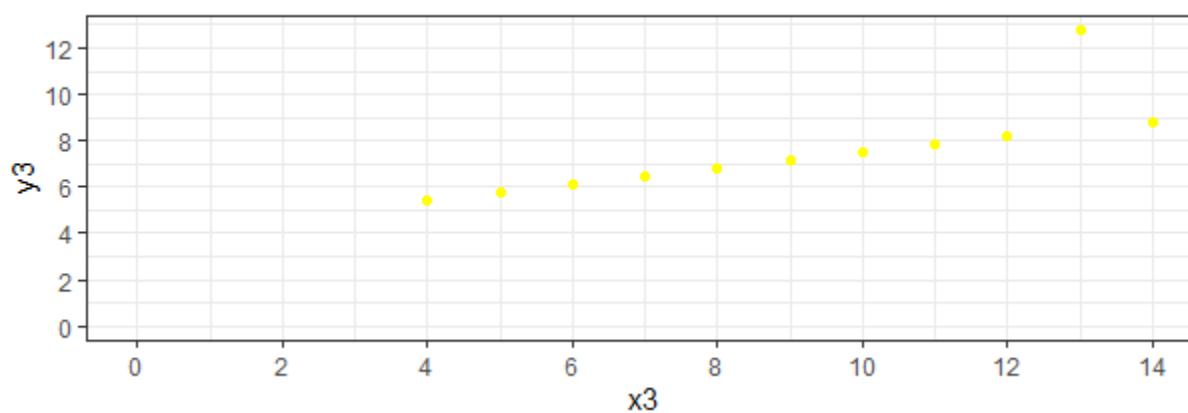
```



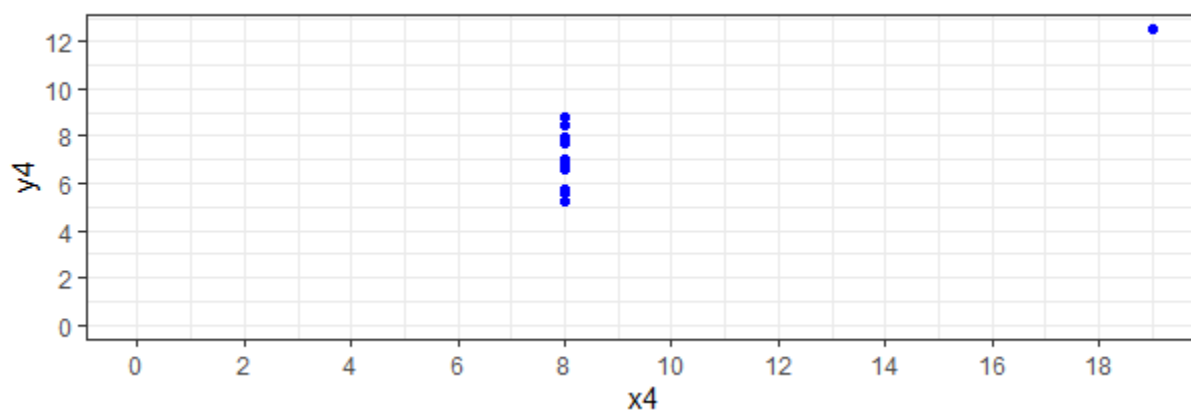
Dataset 2



Dataset 3



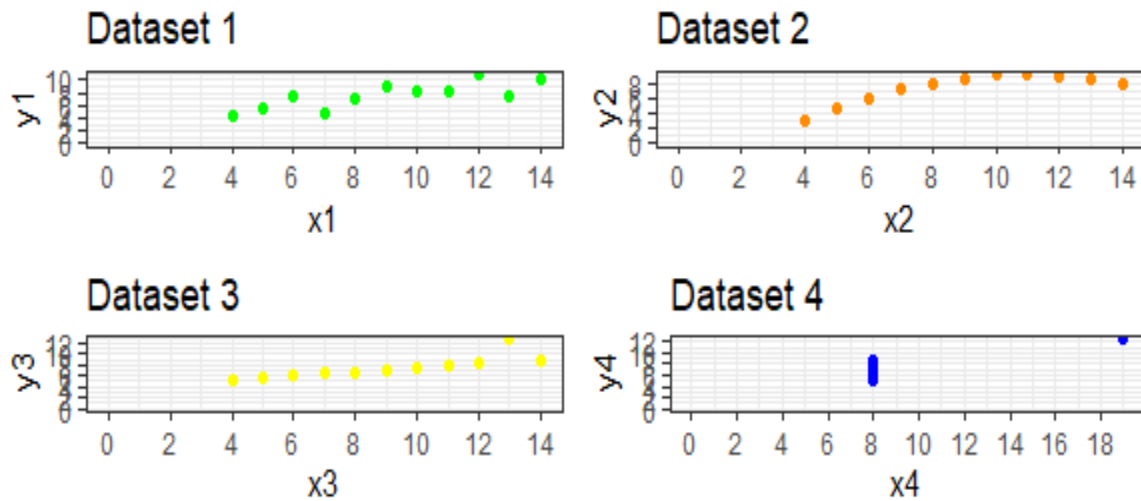
Dataset 4



#### D. Anscombe's Quartet

```
grid.arrange(grobs = list(p1, p2, p3, p4),
              ncol = 2,
              top = "Anscombe's Quartet")
...
```

## Anscombe's Quartet



### E. Fitting Linear model

```

top = "Anscombe's Quartet"
lm1 <- lm(y1 ~ x1, data = anscombe)
lm1
lm2 <- lm(y2 ~ x2, data = anscombe)
lm2
lm3 <- lm(y3 ~ x3, data = anscombe)
lm3
lm4 <- lm(y4 ~ x4, data = anscombe)
lm4
p1_fitted <- p1 + geom_abline(intercept = 3.0001, slope = 0.5001, color = "purple")
p2_fitted <- p2 + geom_abline(intercept = 3.001, slope = 0.500, color = "purple")
p3_fitted <- p3 + geom_abline(intercept = 3.0025, slope = 0.4997, color = "purple")
p4_fitted <- p4 + geom_abline(intercept = 3.0017, slope = 0.499, color = "purple")

grid.arrange(grobs = list(p1_fitted, p2_fitted,
                          p3_fitted, p4_fitted),
              ncol = 2,
              top = "Anscombe's Quartet")
...

```

## Anscombe's Quartet

