Lab Assigment 2:

Objective: To apply linear regression on a dataset.

Name: Aakash Verma

Registration No. : 24-08-26

Course : M.Tech.(Cyber Security)

In [1]:
```
install.packages("tidyverse")

install.packages("datarium")
install.packages("gridExtra")
```

...

In [3]:
```
library(tidyverse)
library(gridExtra)
```

In [4]:
```
data("marketing", package = "datarium")
```

In [5]:
```
head(marketing)
```

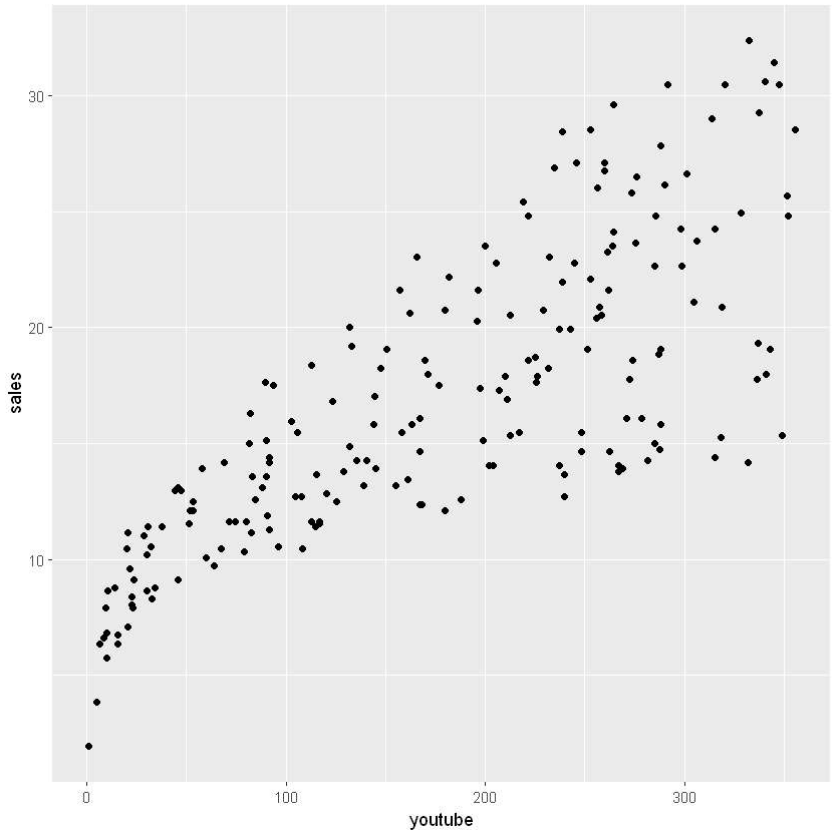
A data.frame: 6 × 4

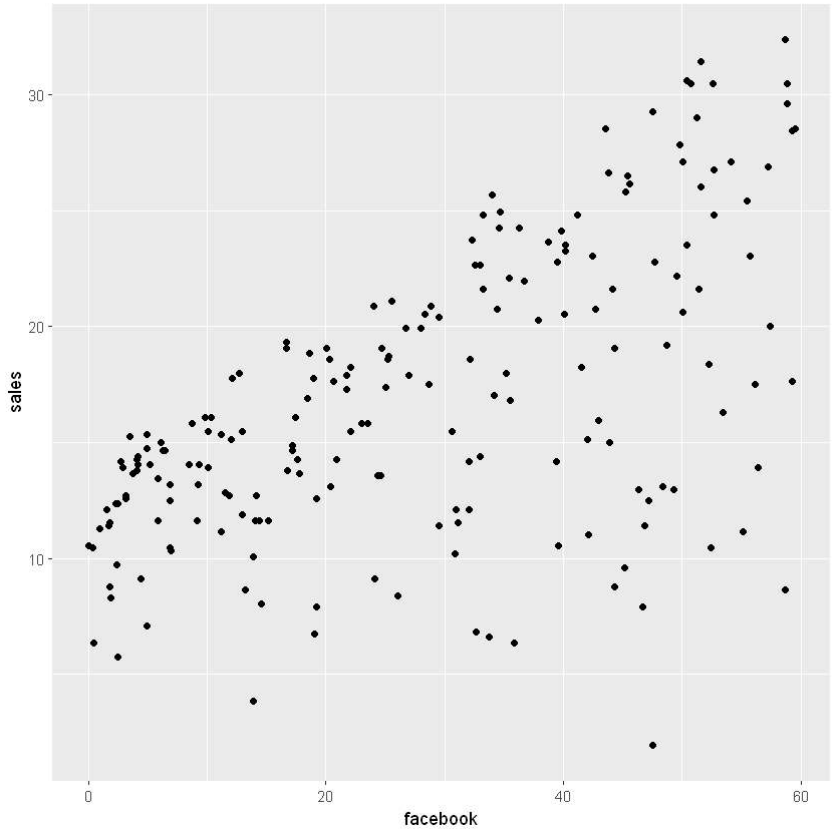
	youtube	facebook	newspaper	sales
	<dbl>	<dbl>	<dbl>	<dbl>
1	276.12	45.36	83.04	26.52
2	53.40	47.16	54.12	12.48
3	20.64	55.08	83.16	11.16
4	181.80	49.56	70.20	22.20
5	216.96	12.96	70.08	15.48
6	10.44	58.68	90.00	8.64

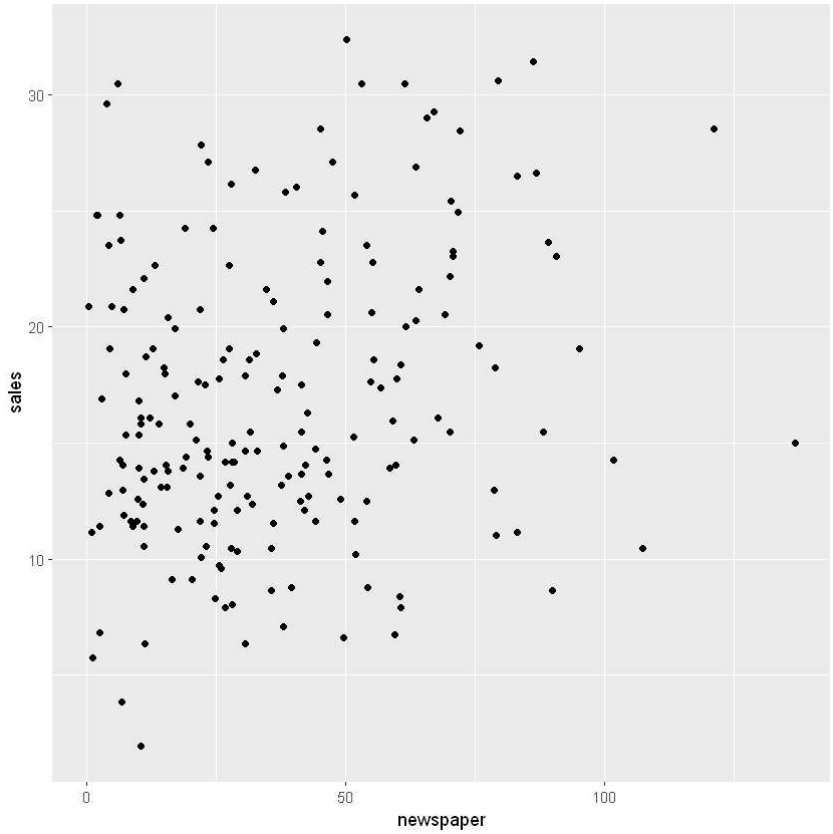
In [6]:
```
summary(marketing)
```

```
    youtube          facebook       newspaper          sales      
 Min.   :  0.84   Min.   : 0.00   Min.   :  0.36   Min.   : 1.92  
 1st Qu.: 89.25   1st Qu.:11.97   1st Qu.: 15.30   1st Qu.:12.45  
 Median :179.70   Median :27.48   Median : 30.90   Median :15.48  
 Mean   :176.45   Mean   :27.92   Mean   : 36.66   Mean   :16.83  
 3rd Qu.:262.59   3rd Qu.:43.83   3rd Qu.: 54.12   3rd Qu.:20.88  
 Max.   :355.68   Max.   :59.52   Max.   :136.80   Max.   :32.40  
```

In [7]:
```
ggplot(marketing, aes(x = youtube, y = sales)) +
  geom_point()

ggplot(marketing, aes(x = facebook, y = sales)) +
  geom_point()

ggplot(marketing, aes(x = newspaper, y = sales)) +
  geom_point()
```







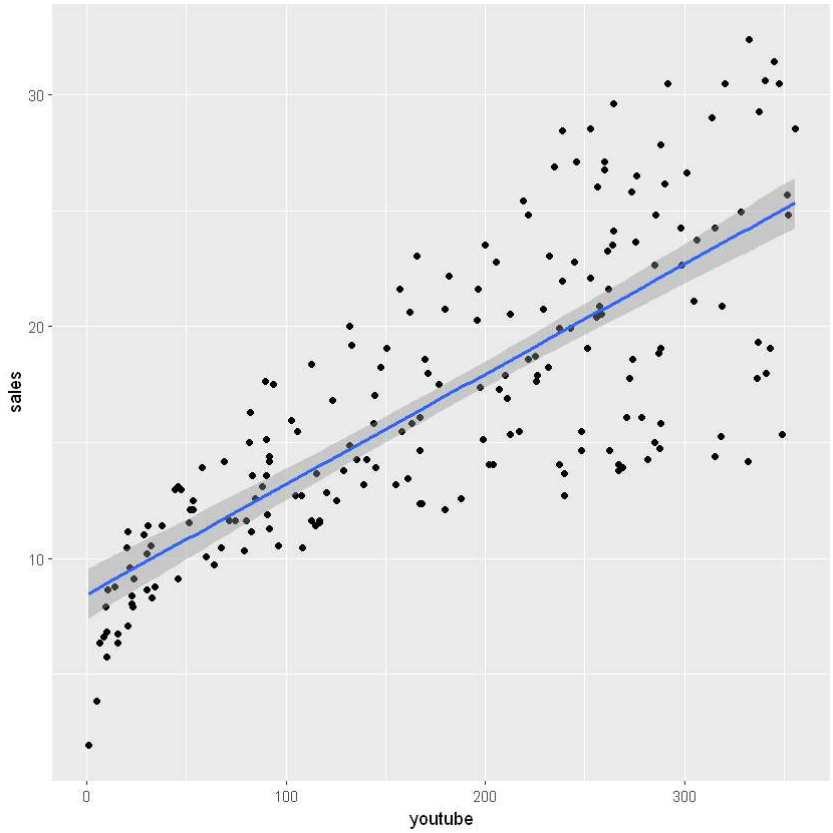
In [8]:
```
model1 = lm(sales ~ youtube, marketing)
model2 = lm(sales ~ facebook, marketing)
model3 = lm(sales ~ newspaper, marketing)
```

In [9]:
```
model1
print('-------------------------------------------')
model2
print('-------------------------------------------')
model3
```

```
Call:
lm(formula = sales ~ youtube, data = marketing)

Coefficients:
(Intercept)      youtube
    8.43911      0.04754

[1] "-------------------------------------------"


Call:
lm(formula = sales ~ facebook, data = marketing)

Coefficients:
(Intercept)     facebook
    11.1740       0.2025

[1] "-------------------------------------------"


Call:
lm(formula = sales ~ newspaper, data = marketing)

Coefficients:
(Intercept)    newspaper
   14.82169      0.05469
```

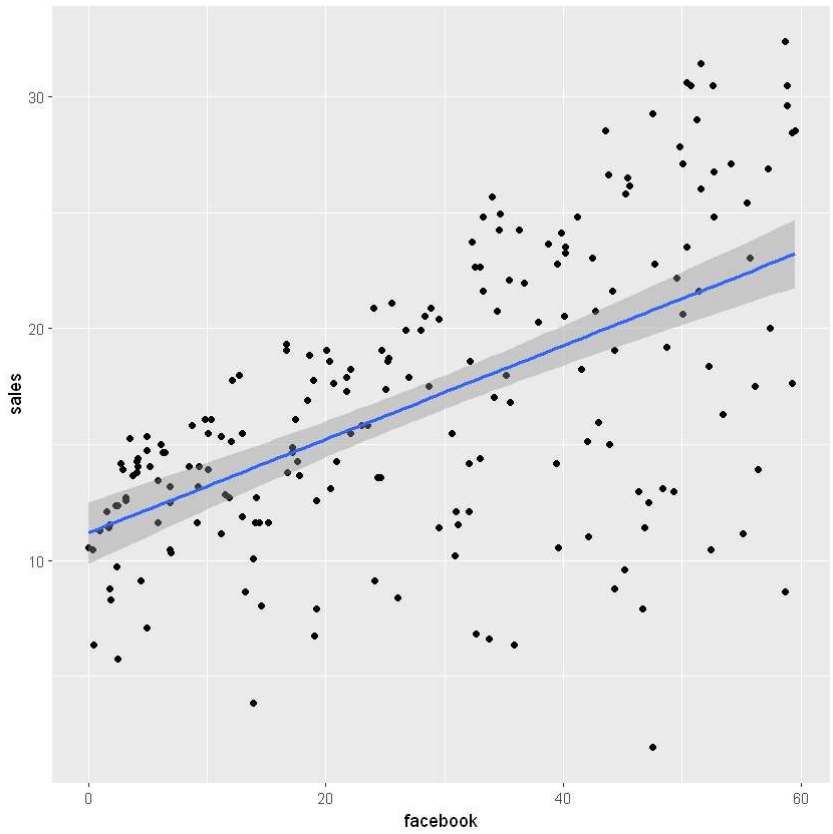
In [10]:
```
ggplot(marketing, aes(youtube, sales)) +
  geom_point() +
  stat_smooth(method = lm)
```

```
`geom_smooth()` using formula = 'y ~ x'
```



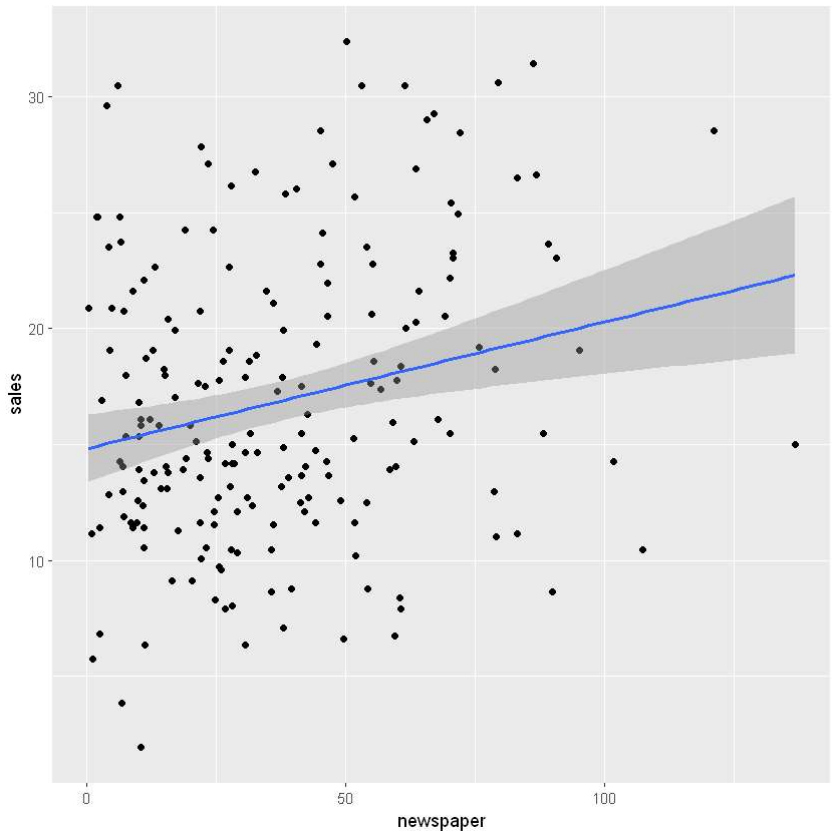
In [11]:
```
ggplot(marketing, aes(facebook, sales)) +
  geom_point() +
  stat_smooth(method = lm)
```

```
`geom_smooth()` using formula = 'y ~ x'
```



In [12]:
```
ggplot(marketing, aes(newspaper, sales)) +
  geom_point() +
  stat_smooth(method = lm)
```

```
`geom_smooth()` using formula = 'y ~ x'
```



In [ ]:
```

```