

Lab Assignment 2:

Objective: To apply linear regression on a dataset.

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Course : M.Tech.(Cyber Security)

```
In [37]: install.packages("tidyverse")

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

...

```
In [38]: library(tidyverse)
library(gridExtra)
```

```
In [8]: data("marketing", package = "datarium")
```

```
In [23]: head(marketing)
```

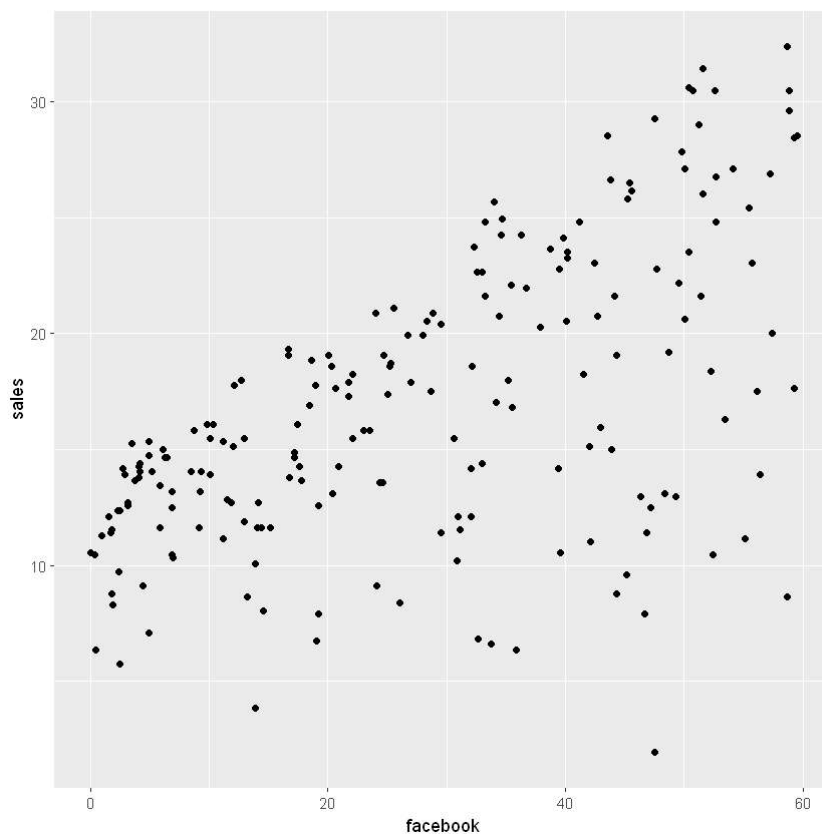
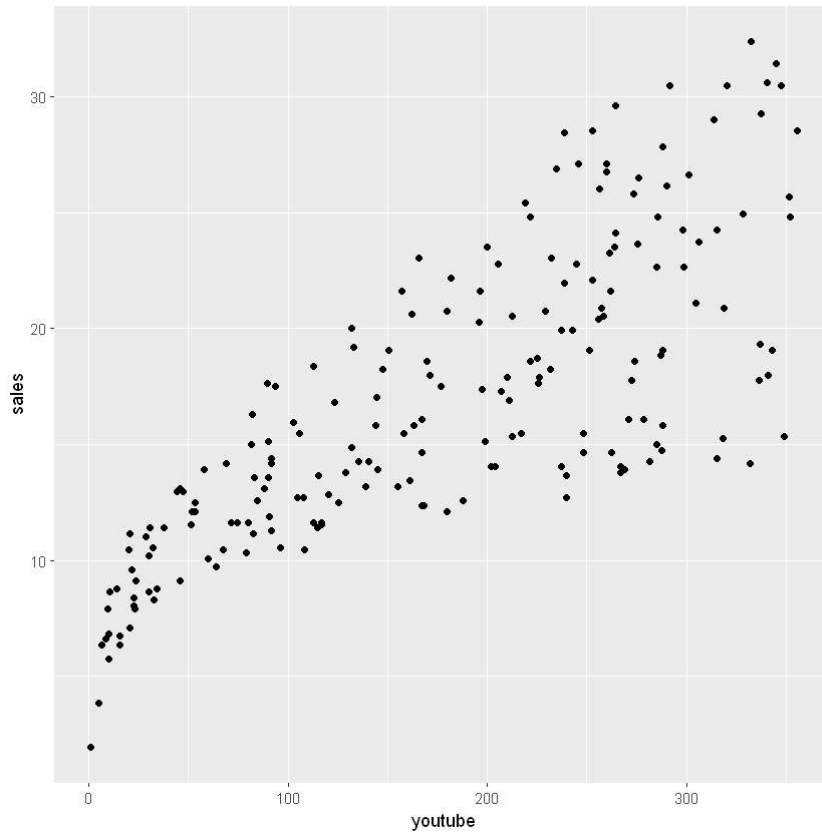
A data.frame: 6 × 4

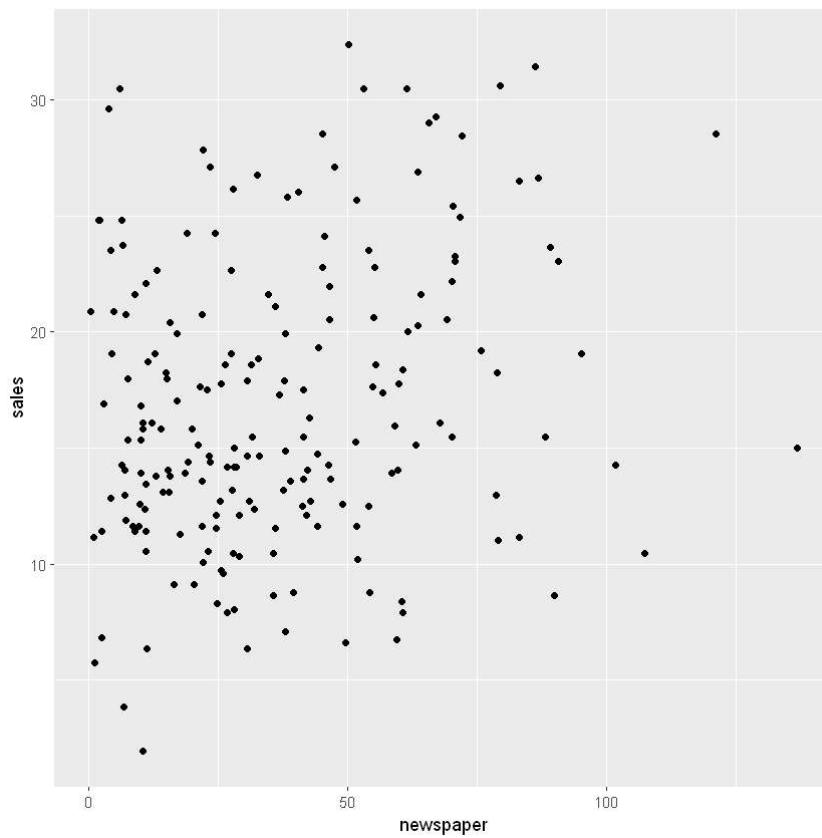
	youtube	facebook	newspaper	sales
	<dbl>	<dbl>	<dbl>	<dbl>
1	276.12	45.36	83.04	26.52
2	53.40	47.16	54.12	12.48
3	20.64	55.08	83.16	11.16
4	181.80	49.56	70.20	22.20
5	216.96	12.96	70.08	15.48
6	10.44	58.68	90.00	8.64

```
In [34]: 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 [66]: 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 [59]: model1 = lm(sales ~ youtube, marketing)
model2 = lm(sales ~ facebook, marketing)
model3 = lm(sales ~ newspaper, marketing)
```

```
In [63]: 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
```

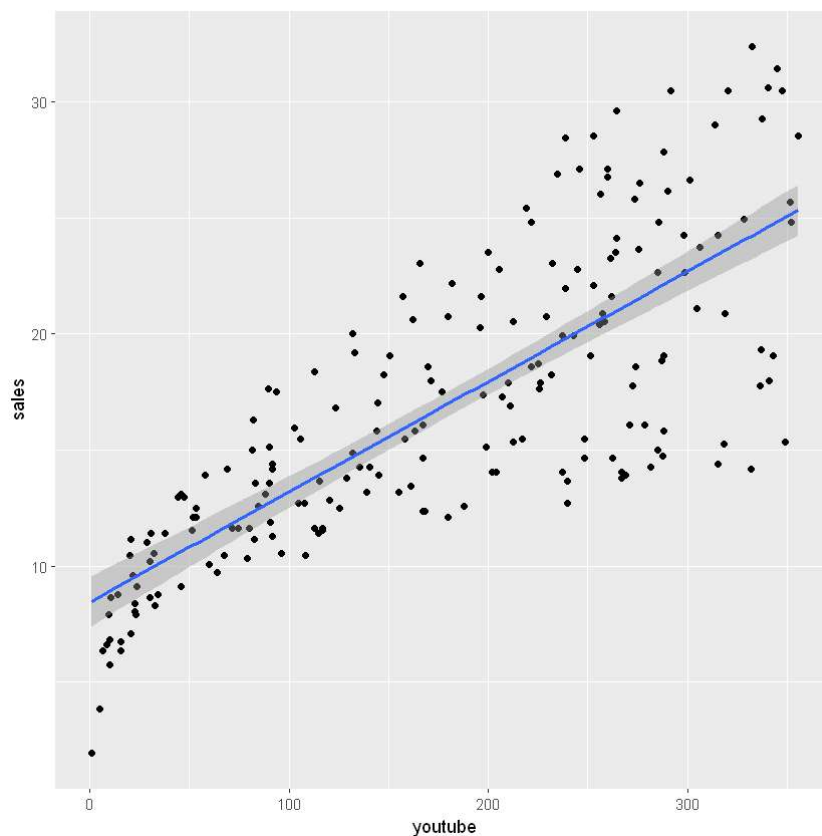
```
[1] "-----"
```

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

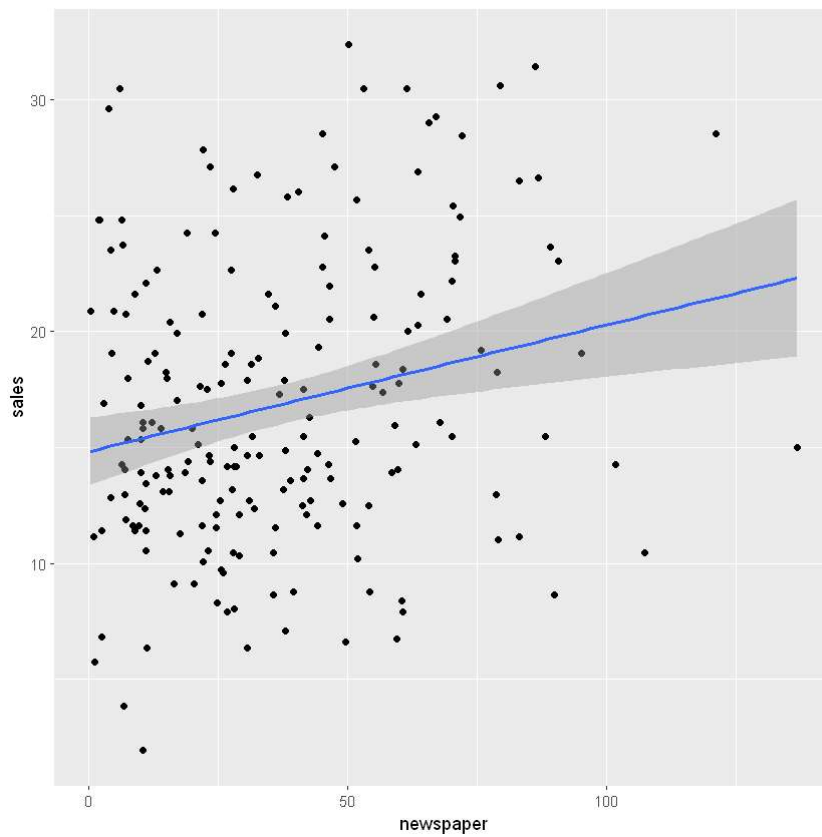
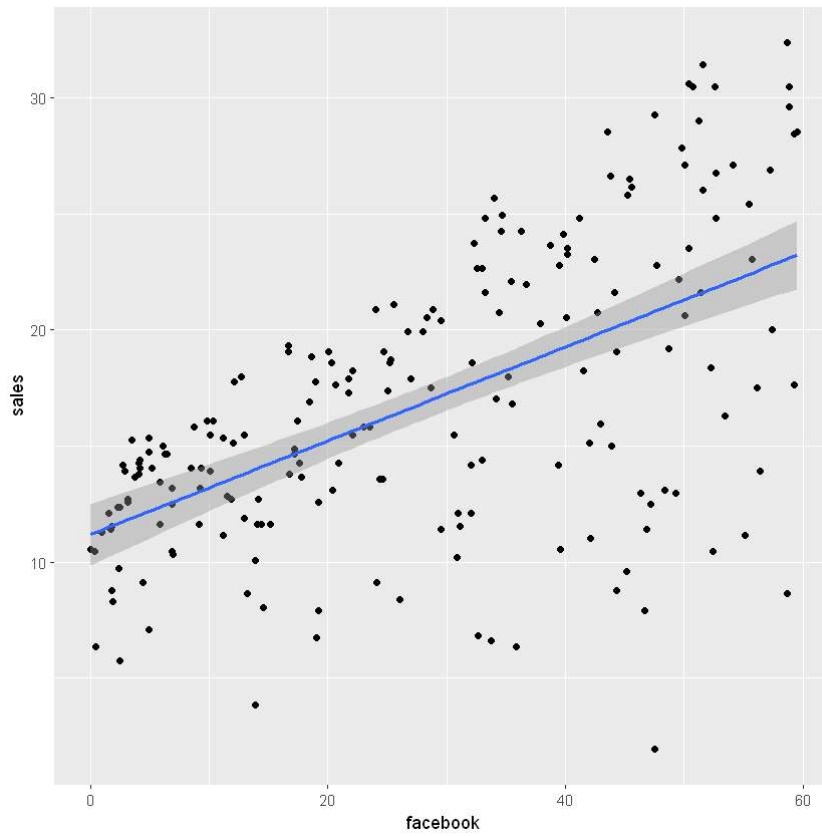
```
Coefficients:  
(Intercept)      newspaper  
      14.82169      0.05469
```

```
In [67]: ggplot(marketing, aes(youtube, sales)) +  
  geom_point() +  
  stat_smooth(method = lm)  
  
ggplot(marketing, aes(facebook, sales)) +  
  geom_point() +  
  stat_smooth(method = lm)  
  
ggplot(marketing, aes(newspaper, sales)) +  
  geom_point() +  
  stat_smooth(method = lm)
```

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



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



In []: