

STAT_37810_Week3_Pair

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```
df <- read.csv("info.csv")
df
```

	name	age	city	favorite.color	height.cm.	weight.kg.
##						
## 1	Peter	22	Kaohsiung	purple	183	75
## 2	Mike	51	Tainan	white	173	64
## 3	Anthony	18	Kaohsiung	red	178	68
## 4	Megan	48	Taipei	silver	160	52
## 5	Harvey	24	Nanjing	blue	187	83
## 6	Hill	52	Suining	red	168	60
## 7	Ruby	57	Chongming	white	170	75
## 8	Jack	24	Nanjing	blue	172	70

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```
library(tibble)
df <- df %>% add_row(name = "Kendra", age = 12, city= "Chicago", favorite.color="red", height.cm.=168, weight.kg.=55)
df
```

	name	age	city	favorite.color	height.cm.	weight.kg.
##						
## 1	Peter	22	Kaohsiung	purple	183	75
## 2	Mike	51	Tainan	white	173	64
## 3	Anthony	18	Kaohsiung	red	178	68
## 4	Megan	48	Taipei	silver	160	52
## 5	Harvey	24	Nanjing	blue	187	83
## 6	Hill	52	Suining	red	168	60
## 7	Ruby	57	Chongming	white	170	75
## 8	Jack	24	Nanjing	blue	172	70
## 9	Kendra	12	Chicago	red	168	55

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```
data(mtcars)
head(mtcars)
```

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
## Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
## Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
## Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
## Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
## Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
## Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

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Row number of Datsun 710 is 3.
Column number of number of cylinder is 2.
The number of cylinder for Datsun 710 is 4.

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```
which(rownames(mtcars)=="Datsun 710")#Datsun 710's row number
## [1] 3
which(colnames(mtcars)=="cyl") #Number of cylinders's column number
## [1] 2
mtcars[which(rownames(mtcars)=="Datsun 710"),which(colnames(mtcars)=="cyl")]
## [1] 4
```

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```
nrow(mtcars)# number of row
## [1] 32
ncol(mtcars)# number of column
## [1] 11
```

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```
mtcars[["mpg"]]
## [1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2
## [15] 10.4 10.4 14.7 32.4 30.4 33.9 21.5 15.5 15.2 13.3 19.2 27.3 26.0 30.4
## [29] 15.8 19.7 15.0 21.4
mtcars[[1]]
## [1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2
## [15] 10.4 10.4 14.7 32.4 30.4 33.9 21.5 15.5 15.2 13.3 19.2 27.3 26.0 30.4
## [29] 15.8 19.7 15.0 21.4
```

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```
mtcars$mpg
## [1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2
## [15] 10.4 10.4 14.7 32.4 30.4 33.9 21.5 15.5 15.2 13.3 19.2 27.3 26.0 30.4
## [29] 15.8 19.7 15.0 21.4
```

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```
mtcars[, "mpg"]
```

```
## [1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2
## [15] 10.4 10.4 14.7 32.4 30.4 33.9 21.5 15.5 15.2 13.3 19.2 27.3 26.0 30.4
## [29] 15.8 19.7 15.0 21.4
```

```
mtcars[, c("mpg", "hp")]
```

```
##           mpg  hp
## Mazda RX4      21.0 110
## Mazda RX4 Wag  21.0 110
## Datsun 710      22.8  93
## Hornet 4 Drive  21.4 110
## Hornet Sportabout 18.7 175
## Valiant        18.1 105
## Duster 360     14.3 245
## Merc 240D      24.4  62
## Merc 230       22.8  95
## Merc 280       19.2 123
## Merc 280C      17.8 123
## Merc 450SE     16.4 180
## Merc 450SL     17.3 180
## Merc 450SLC    15.2 180
## Cadillac Fleetwood 10.4 205
## Lincoln Continental 10.4 215
## Chrysler Imperial 14.7 230
## Fiat 128       32.4  66
## Honda Civic    30.4  52
## Toyota Corolla 33.9  65
## Toyota Corona  21.5  97
## Dodge Challenger 15.5 150
## AMC Javelin    15.2 150
## Camaro Z28     13.3 245
## Pontiac Firebird 19.2 175
## Fiat X1-9      27.3  66
## Porsche 914-2  26.0  91
## Lotus Europa   30.4 113
## Ford Pantera L 15.8 264
## Ferrari Dino   19.7 175
## Maserati Bora   15.0 335
## Volvo 142E     21.4 109
```

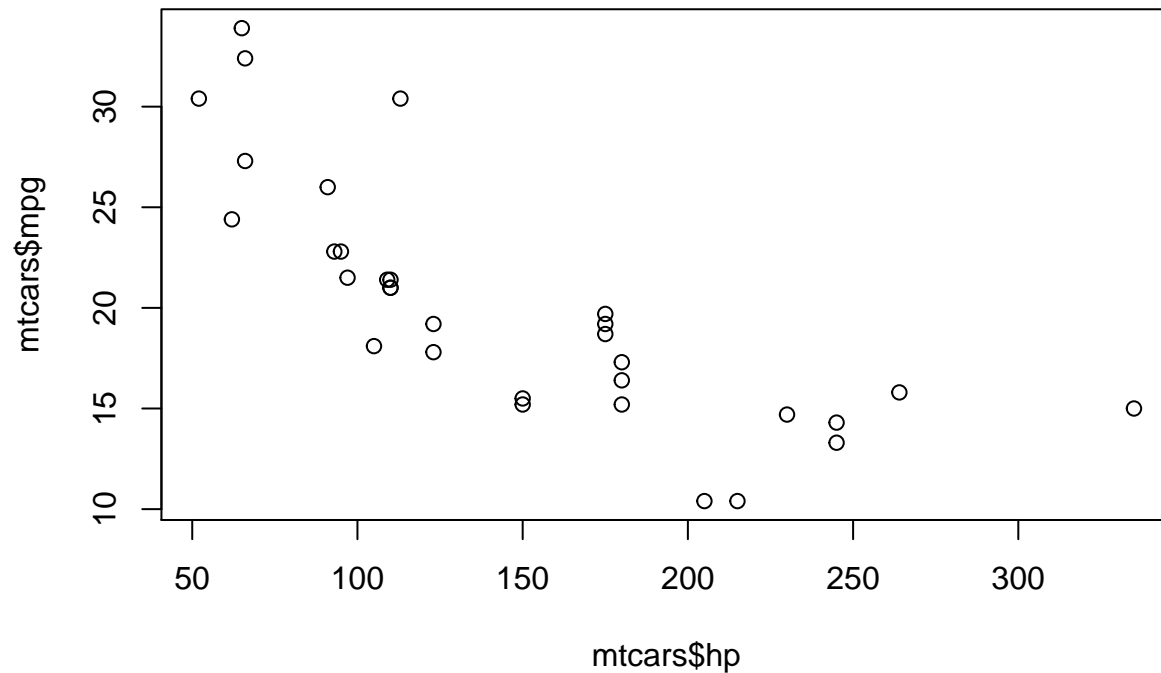
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```
mean(mtcars$mpg)
```

```
## [1] 20.09062
```

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```
plot(mtcars$hp,mtcars$mpg)
```



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```
fit <- lm(mpg~hp,data=mtcars)
summary(fit)
```

```
##
## Call:
## lm(formula = mpg ~ hp, data = mtcars)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -5.7121 -2.1122 -0.8854  1.5819  8.2360
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 30.09886    1.63392  18.421  < 2e-16 ***
## hp         -0.06823    0.01012  -6.742 1.79e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.863 on 30 degrees of freedom
## Multiple R-squared:  0.6024, Adjusted R-squared:  0.5892
## F-statistic: 45.46 on 1 and 30 DF, p-value: 1.788e-07
```