R Data Frames Exercises

For this exercise we will test your knowledge of data frames! Just follow the exercise instructions that are in bold below!

Ex 1: Recreate the following dataframe by creating vectors and using the data.frame function:

In [3]:

Out[3]:

	Age	Weight	Sex
Sam	22	150	M
Frank	25	165	M
Amy	26	120	F

Ex 2: Check if mtcars is a dataframe using is.data.frame()

In [1]:

Out[1]: TRUE

Ex 3: Use as.data.frame() to convert a matrix into a dataframe:

In [3]:
```
mat <- matrix(1:25,nrow = 5)
```

Out[3]:

	V1	V2	V3	V4	V5
1	1	6	11	16	21
2	2	7	12	17	22
3	3	8	13	18	23
4	4	9	14	19	24
5	5	10	15	20	25

Ex 4: Set the built-in data frame mtcars as a variable df. We'll use this df variable for the rest of the exercises.

In [4]:
```
df <- mtcars
```

Ex 5: Display the first 6 rows of df

In [5]:

Out[5]:

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21	6	160	110	3.9	2.62	16.46	0	1	4	4
Mazda RX4 Wag	21	6	160	110	3.9	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.32	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	3.44	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.46	20.22	1	0	3	1

Ex 6: What is the average mpg value for all the cars?

In [6]:

Out[6]: 20.090625

Ex 7: Select the rows where all cars have 6 cylinders (cyl column)

In [7]:

Out[7]:

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21	6	160	110	3.9	2.62	16.46	0	1	4	4
Mazda RX4 Wag	21	6	160	110	3.9	2.875	17.02	0	1	4	4
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Valiant	18.1	6	225	105	2.76	3.46	20.22	1	0	3	1
Merc 280	19.2	6	167.6	123	3.92	3.44	18.3	1	0	4	4
Merc 280C	17.8	6	167.6	123	3.92	3.44	18.9	1	0	4	4
Ferrari Dino	19.7	6	145	175	3.62	2.77	15.5	0	1	5	6

Ex 8: Select the columns am,gear, and carb.

In [8]:

Out[8]:

	am	gear	carb
Mazda RX4	1	4	4
Mazda RX4 Wag	1	4	4
Datsun 710	1	4	1
Hornet 4 Drive	0	3	1
Hornet Sportabout	0	3	2
Valiant	0	3	1
Duster 360	0	3	4
Merc 240D	0	4	2
Merc 230	0	4	2
Merc 280	0	4	4
Merc 280C	0	4	4
Merc 450SE	0	3	3
Merc 450SL	0	3	3
Merc 450SLC	0	3	3
Cadillac Fleetwood	0	3	4
Lincoln Continental	0	3	4
Chrysler Imperial	0	3	4
Fiat 128	1	4	1
Honda Civic	1	4	2
Toyota Corolla	1	4	1
Toyota Corona	0	3	1
Dodge Challenger	0	3	2
AMC Javelin	0	3	2
Camaro Z28	0	3	4
Pontiac Firebird	0	3	2
Fiat X1-9	1	4	1
Porsche 914-2	1	5	2
Lotus Europa	1	5	2
Ford Pantera L	1	5	4
Ferrari Dino	1	5	6
Maserati Bora	1	5	8
Volvo 142E	1	4	2

Ex 9: Create a new column called performance, which is calculated by hp/wt.

In [13]:

In [14]:
```
head(df)
```

Out[14]:

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb	performance
Mazda RX4	21	6	160	110	3.9	2.62	16.46	0	1	4	4	41.98473
Mazda RX4 Wag	21	6	160	110	3.9	2.875	17.02	0	1	4	4	38.26087
Datsun 710	22.8	4	108	93	3.85	2.32	18.61	1	1	4	1	40.08621
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1	34.21462
Hornet Sportabout	18.7	8	360	175	3.15	3.44	17.02	0	0	3	2	50.87209
Valiant	18.1	6	225	105	2.76	3.46	20.22	1	0	3	1	30.34682

Ex 10: Your performance column will have several decimal place precision. Figure out how to use round() (check help(round)) to reduce this accuracy to only 2 decimal places.

In [16]:

In [17]:
```
head(df)
```

Out[17]:

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb	performance
Mazda RX4	21	6	160	110	3.9	2.62	16.46	0	1	4	4	41.98
Mazda RX4 Wag	21	6	160	110	3.9	2.875	17.02	0	1	4	4	38.26
Datsun 710	22.8	4	108	93	3.85	2.32	18.61	1	1	4	1	40.09
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1	34.21
Hornet Sportabout	18.7	8	360	175	3.15	3.44	17.02	0	0	3	2	50.87
Valiant	18.1	6	225	105	2.76	3.46	20.22	1	0	3	1	30.35

Ex 10: What is the average mpg for cars that have more than 100 hp AND a wt value of more than 2.5.

In [20]:

Out[20]: 16.8636363636364

Ex 11: What is the mpg of the Hornet Sportabout?

In [26]:

Out[26]: 18.7

Great Job!

You'll get even more practice on these operations during your final project!