

# Nevyn Neal - hw\_02

## Question 1

```
#Correct sub-setting followed by original question:  
mtcars[mtcars$cyl < 6,] #mtcars[mtcars$cyl < 6]
```

##		mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
##	Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1	1	4	1
##	Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1	0	4	2
##	Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1	0	4	2
##	Fiat 128	32.4	4	78.7	66	4.08	2.200	19.47	1	1	4	1
##	Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4	2
##	Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.90	1	1	4	1
##	Toyota Corona	21.5	4	120.1	97	3.70	2.465	20.01	1	0	3	1
##	Fiat X1-9	27.3	4	79.0	66	4.08	1.935	18.90	1	1	4	1
##	Porsche 914-2	26.0	4	120.3	91	4.43	2.140	16.70	0	1	5	2
##	Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1	5	2
##	Volvo 142E	21.4	4	121.0	109	4.11	2.780	18.60	1	1	4	2

```
mtcars[2:3,] #mtcars[-1:3,]
```

##		mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
##	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

```
mtcars[mtcars$cyl == 8, ] #mtcars[mtcars$cyl = 8, ]
```

##		mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
##	Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0	0	3	2
##	Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0	0	3	4
##	Merc 450SE	16.4	8	275.8	180	3.07	4.070	17.40	0	0	3	3
##	Merc 450SL	17.3	8	275.8	180	3.07	3.730	17.60	0	0	3	3
##	Merc 450SLC	15.2	8	275.8	180	3.07	3.780	18.00	0	0	3	3
##	Cadillac Fleetwood	10.4	8	472.0	205	2.93	5.250	17.98	0	0	3	4
##	Lincoln Continental	10.4	8	460.0	215	3.00	5.424	17.82	0	0	3	4
##	Chrysler Imperial	14.7	8	440.0	230	3.23	5.345	17.42	0	0	3	4
##	Dodge Challenger	15.5	8	318.0	150	2.76	3.520	16.87	0	0	3	2
##	AMC Javelin	15.2	8	304.0	150	3.15	3.435	17.30	0	0	3	2
##	Camaro Z28	13.3	8	350.0	245	3.73	3.840	15.41	0	0	3	4
##	Pontiac Firebird	19.2	8	400.0	175	3.08	3.845	17.05	0	0	3	2
##	Ford Pantera L	15.8	8	351.0	264	4.22	3.170	14.50	0	1	5	4
##	Maserati Bora	15.0	8	301.0	335	3.54	3.570	14.60	0	1	5	8

```
mtcars[mtcars$cyl == 4 | mtcars$cyl == 6, ] # mtcars[mtcars$cyl == 4 | 6, ]
```

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
## Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0	1	4	4
## Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0	1	4	4
## Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1	1	4	1
## Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1	0	3	1
## Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1	0	3	1
## Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1	0	4	2
## Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1	0	4	2
## Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1	0	4	4
## Merc 280C	17.8	6	167.6	123	3.92	3.440	18.90	1	0	4	4
## Fiat 128	32.4	4	78.7	66	4.08	2.200	19.47	1	1	4	1
## Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4	2
## Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.90	1	1	4	1
## Toyota Corona	21.5	4	120.1	97	3.70	2.465	20.01	1	0	3	1
## Fiat X1-9	27.3	4	79.0	66	4.08	1.935	18.90	1	1	4	1
## Porsche 914-2	26.0	4	120.3	91	4.43	2.140	16.70	0	1	5	2
## Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1	5	2
## Ferrari Dino	19.7	6	145.0	175	3.62	2.770	15.50	0	1	5	6
## Volvo 142E	21.4	4	121.0	109	4.11	2.780	18.60	1	1	4	2

## Question 2

Since NA is a logical type variable, `x[NA]` coerces the integers of `x` to their `NA_integer` value, NA.

## Question 3

R subsetting defaults to indexing columns when row or columns are not specified (using commas). Because `mtcars` does not have 15 columns, the index is out of bounds. `'mtcars[1:15,]'` indexes rows instead of columns, and since there are at least 15 rows in the `mtcars` dataframe, those are returned successfully.

## Question 4

The first line creates a 3 row matrix with 9 values (implicitly defines 3 columns). Some of the values in the initial matrix are NA. The next line returns the indices of `x` in which `is.na(x) == true`, then replaces the values at those locations with 0.

## Question 5

```
data("mtcars")
mtcars$mpg2 = 'null'
mtcars$mpg2[mtcars$mpg < 16] = 'Low'
mtcars$mpg2[mtcars$mpg >= 16 & mtcars$mpg < 21] = 'Low_intermediate'
mtcars$mpg2[mtcars$mpg >= 21 & mtcars$mpg < 26] = 'Intermediate_high'
mtcars$mpg2[mtcars$mpg >= 26] = 'Low_intermediate'
```