Augusto Rico

1

In [ ]:
```
library(tidyverse)
library(readxl)
```

In [ ]:
```
df<-read.csv("Pokemon.csv")
df$Legendary<-as.logical(df$Legendary)
df
```

A data.frame: 800 × 13

id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary
<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>
1	Bulbasaur	Grass	Poison	318	45	49	49	65	65	45	1	FALSE
2	Ivysaur	Grass	Poison	405	60	62	63	80	80	60	1	FALSE
3	Venusaur	Grass	Poison	525	80	82	83	100	100	80	1	FALSE
3	VenusaurMega Venusaur	Grass	Poison	625	80	100	123	122	120	80	1	FALSE
4	Charmander	Fire		309	39	52	43	60	50	65	1	FALSE
5	Charmeleon	Fire		405	58	64	58	80	65	80	1	FALSE
6	Charizard	Fire	Flying	534	78	84	78	109	85	100	1	FALSE
6	CharizardMega Charizard X	Fire	Dragon	634	78	130	111	130	85	100	1	FALSE
6	CharizardMega Charizard Y	Fire	Flying	634	78	104	78	159	115	100	1	FALSE
7	Squirtle	Water		314	44	48	65	50	64	43	1	FALSE
8	Wartortle	Water		405	59	63	80	65	80	58	1	FALSE
9	Blastoise	Water		530	79	83	100	85	105	78	1	FALSE
9	BlastoiseMega Blastoise	Water		630	79	103	120	135	115	78	1	FALSE
10	Caterpie	Bug		195	45	30	35	20	20	45	1	FALSE
11	Metapod	Bug		205	50	20	55	25	25	30	1	FALSE
12	Butterfree	Bug	Flying	395	60	45	50	90	80	70	1	FALSE
13	Weedle	Bug	Poison	195	40	35	30	20	20	50	1	FALSE
14	Kakuna	Bug	Poison	205	45	25	50	25	25	35	1	FALSE
15	Beedrill	Bug	Poison	395	65	90	40	45	80	75	1	FALSE
15	BeedrillMega Beedrill	Bug	Poison	495	65	150	40	15	80	145	1	FALSE
16	Pidgey	Normal	Flying	251	40	45	40	35	35	56	1	FALSE
17	Pidgeotto	Normal	Flying	349	63	60	55	50	50	71	1	FALSE
18	Pidgeot	Normal	Flying	479	83	80	75	70	70	101	1	FALSE
18	PidgeotMega Pidgeot	Normal	Flying	579	83	80	80	135	80	121	1	FALSE
19	Rattata	Normal		253	30	56	35	25	35	72	1	FALSE

id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary
<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>
20	Raticate	Normal		413	55	81	60	50	70	97	1	FALSE
21	Spearow	Normal	Flying	262	40	60	30	31	31	70	1	FALSE
22	Fearow	Normal	Flying	442	65	90	65	61	61	100	1	FALSE
23	Ekans	Poison		288	35	60	44	40	54	55	1	FALSE
24	Arbok	Poison		438	60	85	69	65	79	80	1	FALSE
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
700	Sylveon	Fairy		525	95	65	65	110	130	60	6	FALSE
701	Hawlucha	Fighting	Flying	500	78	92	75	74	63	118	6	FALSE
702	Dedenne	Electric	Fairy	431	67	58	57	81	67	101	6	FALSE
703	Carbink	Rock	Fairy	500	50	50	150	50	150	50	6	FALSE
704	Goomy	Dragon		300	45	50	35	55	75	40	6	FALSE
705	Sliggoo	Dragon		452	68	75	53	83	113	60	6	FALSE
706	Goodra	Dragon		600	90	100	70	110	150	80	6	FALSE
707	Klefki	Steel	Fairy	470	57	80	91	80	87	75	6	FALSE
708	Phantump	Ghost	Grass	309	43	70	48	50	60	38	6	FALSE
709	Trevenant	Ghost	Grass	474	85	110	76	65	82	56	6	FALSE
710	PumpkabooAverage Size	Ghost	Grass	335	49	66	70	44	55	51	6	FALSE
710	PumpkabooSmall Size	Ghost	Grass	335	44	66	70	44	55	56	6	FALSE
710	PumpkabooLarge Size	Ghost	Grass	335	54	66	70	44	55	46	6	FALSE
710	PumpkabooSuper Size	Ghost	Grass	335	59	66	70	44	55	41	6	FALSE
711	GourgeistAverage Size	Ghost	Grass	494	65	90	122	58	75	84	6	FALSE
711	GourgeistSmall Size	Ghost	Grass	494	55	85	122	58	75	99	6	FALSE
711	GourgeistLarge Size	Ghost	Grass	494	75	95	122	58	75	69	6	FALSE
711	GourgeistSuper Size	Ghost	Grass	494	85	100	122	58	75	54	6	FALSE
712	Bergmite	Ice		304	55	69	85	32	35	28	6	FALSE
713	Avalugg	Ice		514	95	117	184	44	46	28	6	FALSE

id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary
<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>
714	Noibat	Flying	Dragon	245	40	30	35	45	40	55	6	FALSE
715	Noivern	Flying	Dragon	535	85	70	80	97	80	123	6	FALSE
716	Xerneas	Fairy		680	126	131	95	131	98	99	6	TRUE
717	Yveltal	Dark	Flying	680	126	131	95	131	98	99	6	TRUE
718	Zygarde50% Forme	Dragon	Ground	600	108	100	121	81	95	95	6	TRUE
719	Diancie	Rock	Fairy	600	50	100	150	100	150	50	6	TRUE
719	DiancieMega Diancie	Rock	Fairy	700	50	160	110	160	110	110	6	TRUE
720	HoopaHoopa Confined	Psychic	Ghost	600	80	110	60	150	130	70	6	TRUE
720	HoopaHoopa Unbound	Psychic	Dark	680	80	160	60	170	130	80	6	TRUE
721	Volcanion	Fire	Water	600	80	110	120	130	90	70	6	TRUE

In [ ]:
```
cat('the datatype of Name is: ',typeof(df$Name))
cat('\nthe datatype of HP is: ',typeof(df$HP))
cat('\nthe datatype of Attack is: ',typeof(df$Attack))
cat('\nthe datatype of Legendary is: ',typeof(df$Legendary))
```

```
the datatype of Name is:  character
the datatype of HP is:  integer
the datatype of Attack is:  integer
the datatype of Legendary is:  logical
```

2

In [ ]:
```
df_f100<-df[df$id<=100,]
df_f100
```

A data.frame: 109 × 13

	id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary
	<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>
1	1	Bulbasaur	Grass	Poison	318	45	49	49	65	65	45	1	FALSE
2	2	Ivysaur	Grass	Poison	405	60	62	63	80	80	60	1	FALSE
3	3	Venusaur	Grass	Poison	525	80	82	83	100	100	80	1	FALSE
4	3	VenusaurMega Venusaur	Grass	Poison	625	80	100	123	122	120	80	1	FALSE
5	4	Charmander	Fire		309	39	52	43	60	50	65	1	FALSE
6	5	Charmeleon	Fire		405	58	64	58	80	65	80	1	FALSE
7	6	Charizard	Fire	Flying	534	78	84	78	109	85	100	1	FALSE
8	6	CharizardMega Charizard X	Fire	Dragon	634	78	130	111	130	85	100	1	FALSE
9	6	CharizardMega Charizard Y	Fire	Flying	634	78	104	78	159	115	100	1	FALSE
10	7	Squirtle	Water		314	44	48	65	50	64	43	1	FALSE
11	8	Wartortle	Water		405	59	63	80	65	80	58	1	FALSE
12	9	Blastoise	Water		530	79	83	100	85	105	78	1	FALSE
13	9	BlastoiseMega Blastoise	Water		630	79	103	120	135	115	78	1	FALSE
14	10	Caterpie	Bug		195	45	30	35	20	20	45	1	FALSE
15	11	Metapod	Bug		205	50	20	55	25	25	30	1	FALSE
16	12	Butterfree	Bug	Flying	395	60	45	50	90	80	70	1	FALSE
17	13	Weedle	Bug	Poison	195	40	35	30	20	20	50	1	FALSE
18	14	Kakuna	Bug	Poison	205	45	25	50	25	25	35	1	FALSE
19	15	Beedrill	Bug	Poison	395	65	90	40	45	80	75	1	FALSE
20	15	BeedrillMega Beedrill	Bug	Poison	495	65	150	40	15	80	145	1	FALSE
21	16	Pidgey	Normal	Flying	251	40	45	40	35	35	56	1	FALSE
22	17	Pidgeotto	Normal	Flying	349	63	60	55	50	50	71	1	FALSE
23	18	Pidgeot	Normal	Flying	479	83	80	75	70	70	101	1	FALSE
24	18	PidgeotMega Pidgeot	Normal	Flying	579	83	80	80	135	80	121	1	FALSE

	id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary
	<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>
25	19	Rattata	Normal		253	30	56	35	25	35	72	1	FALSE
26	20	Raticate	Normal		413	55	81	60	50	70	97	1	FALSE
27	21	Spearow	Normal	Flying	262	40	60	30	31	31	70	1	FALSE
28	22	Fearow	Normal	Flying	442	65	90	65	61	61	100	1	FALSE
29	23	Ekans	Poison		288	35	60	44	40	54	55	1	FALSE
30	24	Arbok	Poison		438	60	85	69	65	79	80	1	FALSE
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
80	73	Tentacruel	Water	Poison	515	80	70	65	80	120	100	1	FALSE
81	74	Geodude	Rock	Ground	300	40	80	100	30	30	20	1	FALSE
82	75	Graveler	Rock	Ground	390	55	95	115	45	45	35	1	FALSE
83	76	Golem	Rock	Ground	495	80	120	130	55	65	45	1	FALSE
84	77	Ponyta	Fire		410	50	85	55	65	65	90	1	FALSE
85	78	Rapidash	Fire		500	65	100	70	80	80	105	1	FALSE
86	79	Slowpoke	Water	Psychic	315	90	65	65	40	40	15	1	FALSE
87	80	Slowbro	Water	Psychic	490	95	75	110	100	80	30	1	FALSE
88	80	SlowbroMega Slowbro	Water	Psychic	590	95	75	180	130	80	30	1	FALSE
89	81	Magnemite	Electric	Steel	325	25	35	70	95	55	45	1	FALSE
90	82	Magneton	Electric	Steel	465	50	60	95	120	70	70	1	FALSE
91	83	Farfetch'd	Normal	Flying	352	52	65	55	58	62	60	1	FALSE
92	84	Doduo	Normal	Flying	310	35	85	45	35	35	75	1	FALSE
93	85	Dodrio	Normal	Flying	460	60	110	70	60	60	100	1	FALSE
94	86	Seel	Water		325	65	45	55	45	70	45	1	FALSE
95	87	Dewgong	Water	Ice	475	90	70	80	70	95	70	1	FALSE
96	88	Grimer	Poison		325	80	80	50	40	50	25	1	FALSE
97	89	Muk	Poison		500	105	105	75	65	100	50	1	FALSE
98	90	Shellder	Water		305	30	65	100	45	25	40	1	FALSE

	id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary
	<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>
99	91	Cloyster	Water	Ice	525	50	95	180	85	45	70	1	FALSE
100	92	Gastly	Ghost	Poison	310	30	35	30	100	35	80	1	FALSE
101	93	Haunter	Ghost	Poison	405	45	50	45	115	55	95	1	FALSE
102	94	Gengar	Ghost	Poison	500	60	65	60	130	75	110	1	FALSE
103	94	GengarMega Gengar	Ghost	Poison	600	60	65	80	170	95	130	1	FALSE
104	95	Onix	Rock	Ground	385	35	45	160	30	45	70	1	FALSE
105	96	Drowzee	Psychic		328	60	48	45	43	90	42	1	FALSE
106	97	Hypno	Psychic		483	85	73	70	73	115	67	1	FALSE
107	98	Krabby	Water		325	30	105	90	25	25	50	1	FALSE
108	99	Kingler	Water		475	55	130	115	50	50	75	1	FALSE
109	100	Voltorb	Electric		330	40	30	50	55	55	100	1	FALSE

In [ ]:
```
cat('the mean attack of the first 100 pokemon is: ', mean(df_f100$Attack), 'and the mean attack of all pokemon is: ', mean(df$Attac
cat('\nthe mean defense of the first 100 pokemon is: ', mean(df_f100$Defense), 'and the mean defense of all pokemon is: ', mean(df$
cat('\nthe mean speed of the first 100 pokemon is: ', mean(df_f100$Speed), 'and the mean speed of all pokemon is: ', mean(df$Speed)
```

```
the mean attack of the first 100 pokemon is:  71.37615 and the mean attack of all pokemon is:  79.00125
the mean defense of the first 100 pokemon is:  66.06422 and the mean defense of all pokemon is:  73.8425
the mean speed of the first 100 pokemon is:  69.74312 and the mean speed of all pokemon is:  68.2775
```

los primeros 100 pokemon tienen un ataque menor que el promedio de todos los pokemon\ los primeros 100 pokemon tienen una defensa menor que el promedio de todos los pokemon\ los primeros 100 pokemon tienen una velocidad mayor no significa que el promedio de todos los pokemon

3

In [ ]:
```
df %>% group_by(Type.1) %>% summarise(mean_attack=mean(Attack),mean_defense=mean(Defense),mean_speed=mean(Speed), Total=mean(Total)
```

A tibble: 18 × 6

Type.1	mean_attack	mean_defense	mean_speed	Total	count
<chr>	<dbl>	<dbl>	<dbl>	<dbl>	<int>
Bug	70.97101	70.72464	61.68116	378.9275	69
Dark	88.38710	70.22581	76.16129	445.7419	31
Dragon	112.12500	86.37500	83.03125	550.5312	32
Electric	69.09091	66.29545	84.50000	443.4091	44
Fairy	61.52941	65.70588	48.58824	413.1765	17
Fighting	96.77778	65.92593	66.07407	416.4444	27
Fire	84.76923	67.76923	74.44231	458.0769	52
Flying	78.75000	66.25000	102.50000	485.0000	4
Ghost	73.78125	81.18750	64.34375	439.5625	32
Grass	73.21429	70.80000	61.92857	421.1429	70
Ground	95.75000	84.84375	63.90625	437.5000	32
Ice	72.75000	71.41667	63.45833	433.4583	24
Normal	73.46939	59.84694	71.55102	401.6837	98
Poison	74.67857	68.82143	63.57143	399.1429	28
Psychic	71.45614	67.68421	81.49123	475.9474	57
Rock	92.86364	100.79545	55.90909	453.7500	44
Steel	92.70370	126.37037	55.25926	487.7037	27
Water	74.15179	72.94643	65.96429	430.4554	112

4

In [ ]:
```
df %>% group_by(Legendary) %>% summarise(Total=mean(Total), count=n())
```

A tibble: 2 × 3

Legendary	Total	count
<lgl>	<dbl>	<int>
FALSE	417.2136	735
TRUE	637.3846	65

los pokemon legendarios tienen hablidades en conjunto mas fuertes que los que no son legendarios, por lo que en promedio un enfrentamiento entre un pokemon legendario y uno no legendario, el pokemon legendario debe tener una mayor probabilidad de victoria

5

In [ ]:
```
names(df)
```

'id' · 'Name' · 'Type.1' · 'Type.2' · 'Total' · 'HP' · 'Attack' · 'Defense' · 'Sp..Atk' · 'Sp..Def' · 'Speed' · 'Generation' · 'Legendary'

In [ ]:
```
df<-df %>% mutate(Total_copy=Attack+Defense+Speed+HP+Sp..Atk+Sp..Def)
df
```

A data.frame: 800 × 14

id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary	Total_copy
<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>	<int>
1	Bulbasaur	Grass	Poison	318	45	49	49	65	65	45	1	FALSE	318
2	Ivysaur	Grass	Poison	405	60	62	63	80	80	60	1	FALSE	405
3	Venusaur	Grass	Poison	525	80	82	83	100	100	80	1	FALSE	525
3	VenusaurMega Venusaur	Grass	Poison	625	80	100	123	122	120	80	1	FALSE	625
4	Charmander	Fire		309	39	52	43	60	50	65	1	FALSE	309
5	Charmeleon	Fire		405	58	64	58	80	65	80	1	FALSE	405
6	Charizard	Fire	Flying	534	78	84	78	109	85	100	1	FALSE	534
6	CharizardMega Charizard X	Fire	Dragon	634	78	130	111	130	85	100	1	FALSE	634
6	CharizardMega Charizard Y	Fire	Flying	634	78	104	78	159	115	100	1	FALSE	634
7	Squirtle	Water		314	44	48	65	50	64	43	1	FALSE	314
8	Wartortle	Water		405	59	63	80	65	80	58	1	FALSE	405
9	Blastoise	Water		530	79	83	100	85	105	78	1	FALSE	530
9	BlastoiseMega Blastoise	Water		630	79	103	120	135	115	78	1	FALSE	630
10	Caterpie	Bug		195	45	30	35	20	20	45	1	FALSE	195
11	Metapod	Bug		205	50	20	55	25	25	30	1	FALSE	205
12	Butterfree	Bug	Flying	395	60	45	50	90	80	70	1	FALSE	395
13	Weedle	Bug	Poison	195	40	35	30	20	20	50	1	FALSE	195
14	Kakuna	Bug	Poison	205	45	25	50	25	25	35	1	FALSE	205
15	Beedrill	Bug	Poison	395	65	90	40	45	80	75	1	FALSE	395
15	BeedrillMega Beedrill	Bug	Poison	495	65	150	40	15	80	145	1	FALSE	495
16	Pidgey	Normal	Flying	251	40	45	40	35	35	56	1	FALSE	251
17	Pidgeotto	Normal	Flying	349	63	60	55	50	50	71	1	FALSE	349

id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary	Total_copy
<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>	<int>
18	Pidgeot	Normal	Flying	479	83	80	75	70	70	101	1	FALSE	479
18	PidgeotMega Pidgeot	Normal	Flying	579	83	80	80	135	80	121	1	FALSE	579
19	Rattata	Normal		253	30	56	35	25	35	72	1	FALSE	253
20	Raticate	Normal		413	55	81	60	50	70	97	1	FALSE	413
21	Spearow	Normal	Flying	262	40	60	30	31	31	70	1	FALSE	262
22	Fearow	Normal	Flying	442	65	90	65	61	61	100	1	FALSE	442
23	Ekans	Poison		288	35	60	44	40	54	55	1	FALSE	288
24	Arbok	Poison		438	60	85	69	65	79	80	1	FALSE	438
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
700	Sylveon	Fairy		525	95	65	65	110	130	60	6	FALSE	525
701	Hawlucha	Fighting	Flying	500	78	92	75	74	63	118	6	FALSE	500
702	Dedenne	Electric	Fairy	431	67	58	57	81	67	101	6	FALSE	431
703	Carbink	Rock	Fairy	500	50	50	150	50	150	50	6	FALSE	500
704	Goomy	Dragon		300	45	50	35	55	75	40	6	FALSE	300
705	Sliggoo	Dragon		452	68	75	53	83	113	60	6	FALSE	452
706	Goodra	Dragon		600	90	100	70	110	150	80	6	FALSE	600
707	Klefki	Steel	Fairy	470	57	80	91	80	87	75	6	FALSE	470
708	Phantump	Ghost	Grass	309	43	70	48	50	60	38	6	FALSE	309
709	Trevenant	Ghost	Grass	474	85	110	76	65	82	56	6	FALSE	474
710	PumpkabooAverage Size	Ghost	Grass	335	49	66	70	44	55	51	6	FALSE	335
710	PumpkabooSmall Size	Ghost	Grass	335	44	66	70	44	55	56	6	FALSE	335
710	PumpkabooLarge Size	Ghost	Grass	335	54	66	70	44	55	46	6	FALSE	335
710	PumpkabooSuper Size	Ghost	Grass	335	59	66	70	44	55	41	6	FALSE	335

id	Name	Type.1	Type.2	Total	HP	Attack	Defense	Sp..Atk	Sp..Def	Speed	Generation	Legendary	Total_copy
<int>	<chr>	<chr>	<chr>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<lgl>	<int>
711	GourgeistAverage Size	Ghost	Grass	494	65	90	122	58	75	84	6	FALSE	494
711	GourgeistSmall Size	Ghost	Grass	494	55	85	122	58	75	99	6	FALSE	494
711	GourgeistLarge Size	Ghost	Grass	494	75	95	122	58	75	69	6	FALSE	494
711	GourgeistSuper Size	Ghost	Grass	494	85	100	122	58	75	54	6	FALSE	494
712	Bergmite	Ice		304	55	69	85	32	35	28	6	FALSE	304
713	Avalugg	Ice		514	95	117	184	44	46	28	6	FALSE	514
714	Noibat	Flying	Dragon	245	40	30	35	45	40	55	6	FALSE	245
715	Noivern	Flying	Dragon	535	85	70	80	97	80	123	6	FALSE	535
716	Xerneas	Fairy		680	126	131	95	131	98	99	6	TRUE	680
717	Yveltal	Dark	Flying	680	126	131	95	131	98	99	6	TRUE	680
718	Zygarde50% Forme	Dragon	Ground	600	108	100	121	81	95	95	6	TRUE	600
719	Diancie	Rock	Fairy	600	50	100	150	100	150	50	6	TRUE	600
719	DiancieMega Diancie	Rock	Fairy	700	50	160	110	160	110	110	6	TRUE	700
720	HoopaHoopa Confined	Psychic	Ghost	600	80	110	60	150	130	70	6	TRUE	600
720	HoopaHoopa Unbound	Psychic	Dark	680	80	160	60	170	130	80	6	TRUE	680
721	Volcanion	Fire	Water	600	80	110	120	130	90	70	6	TRUE	600

Extra

In [ ]:
```
df<-df %>% mutate(have_type.2=ifelse(Type.2=="",FALSE,TRUE))
df %>% group_by(have_type.2) %>% summarise(Total=mean(Total), count=n())
```

A tibble: 2 × 3

have_type.2	Total	count
<lgl>	<dbl>	<int>
FALSE	412.0155	386
TRUE	456.6280	414

los pokemon con segunda habilidad son mas fuertes que los que no tienen segunda habilidad

In [ ]:
```
df %>% group_by(Generation) %>% summarise(Total=mean(Total), count=n())
```

A tibble: 6 × 3

Generation	Total	count
<int>	<dbl>	<int>
1	426.8133	166
2	418.2830	106
3	436.2250	160
4	459.0165	121
5	434.9879	165
6	436.3780	82

los pokemon de la cuarta generacion son los mas fuertes de todos con una significativa diferencia

In [ ]:
```
df %>% group_by(Legendary,Generation) %>% summarise(Total=mean(Total), count=n())
```

```
`summarise()` has grouped output by 'Legendary'. You can override using the
`.groups` argument.
```

A grouped_df: 12 × 4

Legendary	Generation	Total	count
<lgl>	<int>	<dbl>	<int>
FALSE	1	417.9438	160
FALSE	2	408.2970	101
FALSE	3	409.2676	142
FALSE	4	437.8796	108
FALSE	5	416.6200	150
FALSE	6	414.0946	74
TRUE	1	663.3333	6
TRUE	2	620.0000	5
TRUE	3	648.8889	18
TRUE	4	634.6154	13
TRUE	5	618.6667	15
TRUE	6	642.5000	8

apesar de los pocos que hay la primera generacion es la que tiene los pokemon legendarios mas fuertes