# IS320 - Excel Project (Pokemon Dataset)

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# What is in the Pokemon Dataset?

Using our sourced Pokemon Dataset, we opted to create differing functions, pivot tables, trend forecasting, and general modeling of the data.

l A	ВС	D	E	F	G H		J	K	L	М	N	0	Р	Q	R
Original_Name *	Name Mo	■ Branch_Code	Generation *	Height "	Weight Type1	▼ Type2	Ability1	Ability2	Ability_Hidden	Color	Gender_Male	Gender_Female	▼ Gender_Unknown	▼ Egg_Steps	Egg_Group1
Bulbasaur	Bulbasaur	110	1	1 0.7	6.9 Grass	Poison	Overgrow		Chlorophyll	Green	87.5	12	2.5	0 2	0 Monster
lvysaur	lvysaur	220	1	1 1	13 Grass	Poison	Overgrow		Chlorophyll	Green	87.5	12	2.5	0 2	0 Monster
Venusaur	Venusaur	3 3 0	1	1 2	100 Grass	Poison	Overgrow		Chlorophyll	Green	87.5	5 12	2.5	0 2	0 Monster
Venusaur	Mega Venu	3 3 1	1	1 2.4	155.5 Grass	Poison	Thick Fat			Green	87.5	5 12	2.5	0 2	0 Monster
Charmander	Charmande	440	1	1 0.6	8.5 Fire		Blaze		Solar Power	Red	87.5	12	2.5	0 2	0 Monster
Charmeleon	Charmeleo	550	1	1 1.1	19 Fire		Blaze		Solar Power	Red	87.5	12	2.5	0 2	0 Monster
Charizard	Charizard	660	1	1 1.7	90.5 Fire	Flying	Blaze		Solar Power	Red	87.5	12	2.5	0 2	0 Monster
Charizard	Mega Char	661	1	1 1.7	110.5 Fire	Dragon	Tough Clar	ws		Black	87.5	12	2.5	0 2	0 Monster
Charizard	Mega Char	662	1	1 1.7	100.5 Fire	Flying	Drought			Red	87.5	12	2.5	0 2	0 Monster
Squirtle	Squirtle	770	1	1 0.5	9 Water		Torrent		Rain Dish	Blue	87.5	12	2.5	0 2	t0 Monster
Wartortle	Wartortle	8 8_0	1	1 1	22.5 Water		Torrent		Rain Dish	Blue	87.5	12	2.5	0 2	0 Monster
Blastoise	Blastoise	99_0	1		85.5 Water		Torrent		Rain Dish	Blue	87.5			0 2	0 Monster
Blastoise	Mega Blast	991	1	1 1.6	101.1 Water		Mega Laur	ncher		Blue	87.5	12	2.5	0 2	0 Monster
Caterpie	Caterpie	10 10 0	1	1 0.3	2.9 Bug		Shield Dus	t	Run Away	Green	50	)	50	0 1	15 Bug
Metapod	Metapod	11 11 0	1	1 0.7	9.9 Bug		Shed Skin			Green	50	)	50	0 1	15 Bug
Butterfree	Butterfree	12 12 0	1	1 1.1	32 Bug	Flying	Compound	d Eyes	Tinted Lens	White	50	)	50	0 1	L5 Bug
Weedle	Weedle	13 13_0	1	1 0.3	3.2 Bug	Poison	Shield Dus	t	Run Away	Brown	50	)	50	0 1	L5 Bug
Kakuna	Kakuna	14 14 0	1	1 0.6	10 Bug	Poison	Shed Skin			Yellow	50	)	50	0 1	L5 Bug
Beedrill	Beedrill	15 15_0	1	1 1	29.5 Bug	Poison	Swarm		Sniper	Yellow	50	)	50	0 1	15 Bug
Beedrill	Mega Beec	15 15 1	1	1 1.4	40.5 Bug	Poison	Adaptabili	ty		Yellow	50	)	50	0 1	L5 Bug
Pidgey	Pidgey	16 16_0	1	1 0.3	1.8 Norma	l Flying	Keen Eye	Tangled Fe	Big Pecks	Brown	50	)	50	0 1	15 Flying
Pidgeotto	Pidgeotto	17 17_0	1	1 1.1	30 Norma	l Flying	Keen Eye	Tangled Fe	e Big Pecks	Brown	50	)	50	0 1	L5 Flying
Pidgeot	Pidgeot	18 18_0	1	1 1.5	39.5 Norma	l Flying	Keen Eye	Tangled Fe	Big Pecks	Brown	50	)	50	0 1	L5 Flying
Pidgeot	Mega Pidge	18 18 1	1	1 2.2	50.5 Norma	l Flying	No Guard			Brown	50	)	50	0 1	L5 Flying
Rattata	Rattata	19 19_0	1	1 0.3	3.5 Norma	ıl	Run Away	Guts	Hustle	Purple	50	)	50	0 1	15 Ground
Rattata	Alolan Ratt	19 19_1	7	7 0.3	3.8 Dark	Normal	Gluttony	Hustle	Thick Fat	Black	50	)	50	0 1	15 Ground
Raticate	Raticate	20 20_0	1	1 0.7	18.5 Norma	ıl	Run Away	Guts	Hustle	Brown	50	)	50	0 1	L5 Ground
Raticate	Alolan Rati	20 20_1	7	7 0.7	25.5 Dark	Normal	Gluttony	Hustle	Thick Fat	Black	50		50	0 1	L5 Ground
Spearow	Spearow	21 21_0	1	1 0.3	2 Norma	Flying	Keen Eye		Sniper	Brown	50		50	0 1	L5 Flying
Fearow	Fearow	22 22_0	1	1 1.2	38 Norma	l Flying	Keen Eye		Sniper	Brown	50	)	50	0 1	L5 Flying
Ekans	Ekans	23 23_0	1	1 2	6.9 Poison		Intimidate	Shed Skin	Unnerve	Purple	50	)	50	0 2	0 Ground
Arbok	Arbok	24 24_0	1	1 3.5	65 Poison		Intimidate	Shed Skin	Unnerve	Purple	50	)	50	0 2	0 Ground
Pikachu	Pikachu	25 25_0	1	1 0.4	6 Electri	С	Static		Lightning Rod	Yellow	50	)	50	0 1	0 Ground
Raichu	Raichu	26 26_0	1	1 0.8	30 Electri	С	Static		Lightning Rod	Yellow	50	)	50	0 1	0 Ground
Raichu	Alolan Raic	26 26_1	7	7 0.7	21 Electri	c Psychic	Surge Surf	er		Brown	50	)	50	0 1	0 Ground
Sandshrew		27 27_0	1	1 0.6	12 Groun		Sand Veil		Sand Rush	Yellow	50	)	50	0 2	0 Ground
Sandshrew	Alolan San	27 27_1	7	7 0.7	40 Ice	Steel	Snow Cloa	k	Slush Rush	White	50	)	50	0 2	0 Ground
Sandslash		28 28_0	1		29.5 Groun		Sand Veil		Sand Rush	Yellow	50		50		0 Ground

- Included in the Pokemon Dataset:
  - o Name
  - o ID
  - Types
  - o HP
  - Category
  - o Attack, DEF, Speed

#### Example:

- Pikachu, ID: 25, Type: Electric, HP: 35, DEF: 40, Category: Ordinary

## Business Questions We Answered

- Would it be possible to find out the differing amounts of each specific Pokemon type?
- What type of Pokemon is "Gengar", "Arceus"?
- If new Pokemon were introduced into the game, how would we input the new data?
- Which Pokemon type has the highest attack damage?
- Which Generation has the most Pokemon? Which has the least?
- Do the Pokemons get stronger with each form?

#### COUNTIFS

Using a COUNTIFS() function, we are able to deduce the differing amounts of each specific pokemon type based on the user input of Pokemon Type

#### Criteria for COUNTIFS():

- Pokemon Type?
- Generation?
- Category (Ordinary, Legendary, Mythical, etc.)?

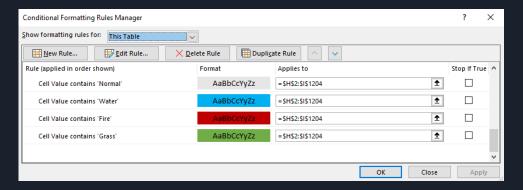
POKEMON CRITERIA					
TYPE:	Electric				
GEN:	1				
CATEGORY:	Ordinary				
Total:	8				

POKEMON CRITE	RIA	
TYPE:	Rock	
GEN:	7	
CATEGORY:	Ordinary	
Total:	15	

POKEMON CRITE	ERIA	
TYPE:	Psychic	
GEN:	1	
CATEGORY:	Legendary	
Total:	3	

## Conditional Formatting

- Used Conditional Formatting to highlight cells based on Pokemon Type in the Type1 and Type2 Columns
  - Each Type of Pokemon has its own color code.
    - Ex. Water is Blue, Fire is Red, Grass is Green.



Original_Name =	Name 🕋	No =	Branch_Co	ode 🕋	Generation =	Height =	Weight =	Type1 =	Type2 =
Bulbasaur	Bulbasau	1	1_0		1	0.7	6.9	Grass	Poison
lvysaur	lvysaur	2	2_0		1	1	13	Grass	Poison
Venusaur	Venusau	3	3_0		1	2	100	Grass	Poison
Venusaur	Mega Vei	3	3_1		1	2.4	155.5	Grass	Poison
Charmander	Charman	4	4_0		1	0.6	8.5	Fire	
Charmeleon	Charmele	5	5_0		1	1.1	19	Fire	
Charizard	Charizard	6	6_0		1	1.7	90.5	Fire	Flying
Charizard	Mega Cha	6	6_1		1	1.7	110.5	Fire	Dragon
Charizard	Mega Cha	6	6_2		1	1.7	100.5	Fire	Flying
Squirtle	Squirtle	7	7_0		1	0.5	9	Water	
Wartortle	Wartortle	8	8_0		1	1	22.5	Water	
Blastoise	Blastoise	9	9_0		1	1.6	85.5	Water	
Blastoise	Mega Bla	9	9_1		1	1.6	101.1	Water	
Caterpie	Caterpie	10	10_0		1	0.3	2.9	Bug	
Metapod	Metapod	11	11_0		1	0.7	9.9	Bug	
Butterfree	Butterfre	12	12_0		1	1.1	32	Bug	Flying
Weedle	Weedle	13	13_0		1	0.3	3.2	Bug	Poison
Kakuna	Kakuna	14	14_0		1	0.6	10	Bug	Poison
Beedrill	Beedrill	15	15_0		1	1	29.5	Bug	Poison
Beedrill	Mega Be	15	15_1		1	1.4	40.5	Bug	Poison
Pidgey	Pidgey	16	16_0		1	0.3	1.8	Normal	Flying
Pidgeotto	Pidgeotto	17	17_0		1	1.1	30	Normal	Flying
Pidgeot	Pidgeot	18	18_0		1	1.5	39.5	Normal	Flying
Pidgeot	Mega Pid	18	18_1		1	2.2	50.5	Normal	Flying
Rattata	Rattata	19	19_0		1	0.3	3.5	Normal	
Rattata	Alolan Ra	19	19_1		7	0.3	3.8	Dark	Normal
Raticate	Raticate	20	20_0		1	0.7	18.5	Normal	
Raticate	Alolan Ra	20	20_1		7	0.7	25.5	Dark	Normal
Spearow	Spearow	21	21_0		1	0.3	2	Normal	Flying
Fearow	Fearow	22	22_0		1	1.2	38	Normal	Flying
Ekans	Ekans	23	23_0		1	2	6.9	Poison	
Arbok	Arbok	24	24_0		1	3.5	65	Poison	
Pikachu	Pikachu	25	25_0		1	0.4	6	Electric	
Raichu	Raichu	26	26_0		1	0.8	30	Electric	
Raichu	Alolan Ra	26	26_1		7	0.7	21	Electric	Psychic
Sandshrew	Sandshre	27	27_0		1	0.6	12	Ground	
Sandshrew	Alolan Sa	27	27_1		7	0.7	40	Ice	Steel
Sandslash	Sandslas	28	28_0		1	1	29.5	Ground	
Sandslash	Alolan Sa	28	28_1		7	1.2	55	Ice	Steel
Nidoran F	Nidoran I	29	29_0		1	0.4	7	Poison	
Nidorina	Nidorina	30	30_0		1	0.8	20	Poison	
Nidoqueen	Nidoque	31	31_0		1	1.3	60	Poison	Ground
Nidoran M	Nidoran I	32	32_0		1	0.5	9	Poison	
Nidorino	Nidorino	33	33_0		1	0.9	19.5	Poison	
Nidoking	Nidoking	34	34_0		1	1.4	62	Poison	Ground
Clefairy	Clefairy	35	35_0		1	0.6	7.5	Fairy	
Clefable	Clefable	36	36_0		1	1.3	40	Fairy	

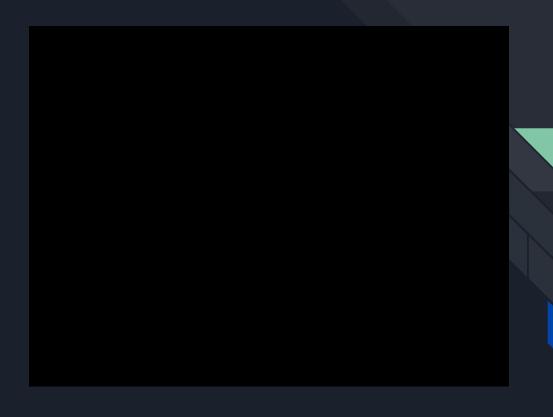
## **VLOOKUP**

- In our project, we used VLOOKUP as a function to look up Pokemon information based on the user input of Pokemon Name
- The VLOOKUP presents information regarding the Pokemon such as:
  - What is the Pokemon's ID?
  - O What is Branch Code?
  - Is the Pokemon a one type or two type?
  - O How much HP does the Pokemon have?
  - How much Attack does the Pokemon have?
  - How much Defense does the Pokemon have?
  - What is the Pokemon category?

VLOOKUP	(Enter Poken	non Name)	
Name:	Gengar		
ID:	94		
Branch_Code:	94_0		
Type1:	Ghost		
Type2:	Poison		
HP:	60		
Attack:	65		
Defense:	60		
Category:	Ordinary		

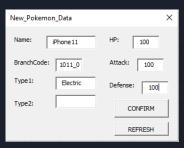
VLOOKUP	(Enter Poken		
Name:	Arceus		
ID:	493		
Branch_Code:	493_0		
Type1:	Normal		
Type2:	0		
HP:	120		
Attack:	120		
Defense:	120		
Category:	Mythical		

## VLOOKUP Demo



#### UserForm

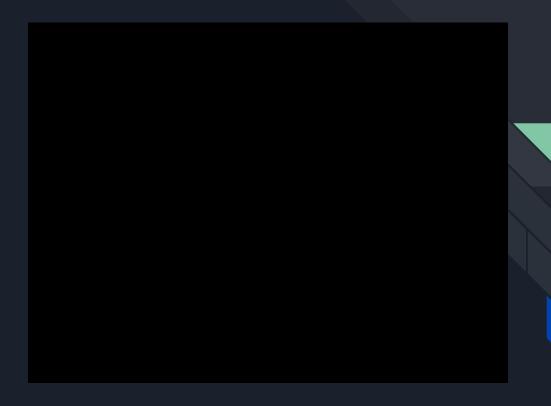
- We created a UserForm that allows us to continue gathering new data if new Pokemons are introduced into the game.
- UserForm asks for basic information about the Pokemon
- Once confirmed, new data will be added to the list as shown
- Refresh button, clears all the text boxes to allow for quicker data entry.



Name 🔻	Branch_Code 🔻	Type1 ▼	Type2 ▼	HP ▼	Attack ▼	Defense 🔻
Wo-Chien	1001_0	Dark	Grass	85	85	100
Chien-Pac	1002_0	Dark	Ice	80	120	80
Ting-Lu	1003_0	Dark	Ground	155	110	125
Chi-Yu	1004_0	Dark	Fire	55	80	80
Roaring M	1005_0	Dragon	Dark	105	139	71
Iron Valia	1006_0	Fairy	Fighting	74	130	90
Koraidon	1007_0	Fighting	Dragon	100	135	115
Miraidon	1008_0	Electric	Dragon	100	85	100
Walking V	1009_0	Water	Dragon	99	83	91
Iron Leave	1010_0	Grass	Psychic	90	130	88
iPhone	1011_0	Electric		100	100	100

```
Private Sub CommandButton1 Click()
erow = Sheets("ShortenPokedexColumns+UserForm").Range("a" & Rows.Count).End(xlUp).Row
    Range("a" & erow + 1) = TextBox1.Value
    Range("b" & erow + 1) = TextBox2.Value
    Range("c" & erow + 1) = TextBox3.Value
    Range("d" & erow + 1) = TextBox4.Value
    Range("e" & erow + 1) = TextBox5.Value
    Range("f" & erow + 1) = TextBox6.Value
    Range("g" & erow + 1) = TextBox7.Value
    TextBox1.Value = ""
    TextBox2.Value = ""
    TextBox3.Value = ""
    TextBox4.Value = ""
    TextBox5.Value = ""
    TextBox6.Value = ""
    TextBox7.Value = ""
End Sub
Private Sub CommandButton2 Click()
    TextBox1.Value = ""
    TextBox2.Value = ""
    TextBox3.Value = ""
    TextBox4.Value = ""
    TextBox5.Value = ""
    TextBox6.Value = ""
    TextBox7.Value = ""
End Sub
Private Sub UserForm Click()
End Sub
```

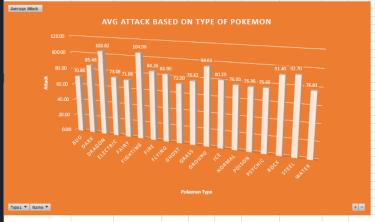
## UserForm Demo



## PivotTables

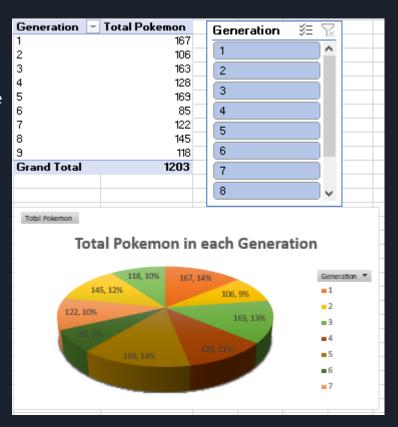
- We used the PivotTable function to find the average attack for each type of Pokemon.
  - Fighting has the highest average attack.
  - Dragon has the second highest average attack.
  - Bug has the lowest average attack.





## PivotTables

- We used the PivotTable function to figure out which Generations have the most Pokemon and which Generations have the least.
  - Generations 1 (167) and 5 (169)
     have the most Pokemon in them.
  - Generation 6 (85) has the least
     Pokemon



## Forecasting Pokemon Skill Points

 We used Forecasting to predict how many attack points would the next Charizard have.

Stage	Name	Attack		FOR	ECACTIA	ic cu	140174	DD ATT	N C IV		
	Charmander	52		FUR	ECASTIN	NG CH	IAKIZA	KU ATT	4CK		
2	Charmeleon	64	160							146	
3	Charizard	84	140					130	_		
4	Mega Charizard X	130	120								
	Next Charizard?	146	100				84				
							84				
			80	52	64						
			60								
			40								
			20								
			0								ς.
				Charmander	Charmeleo	n Ch	arizard	Mega		Next	
								Charizard	ХС	harizard?	
					2			4			

## Forecasting Pokemon Skill Points

 We also used Forecasting to predict how many Defensive skill points the potential next MewTwo could have.

Stage	Name	Defense	FORECASTING MEMTING DEFENCE
1	Mewtwo	90	FORECASTING MEWTWO DEFENSE
2	Mega Mewtwo X	100	120
3	Next Mewtwo?	110	100 90 100 110
			MEWTWO MEGA  MEWTWO X NEXT  MEWTWO?  3

## Forecasting Pokemon Skill Points

 We used Forecasting to predict the total amount of skill points this Pokemon would have if it were to have another evolution/stage/form.

Stage	Name	Total	FORESASTING TOTAL SKILL BOINTS
1	Duskull	295	FORECASTING TOTAL SKILL POINTS
2	Dusclops	455	
3	Dusknoir	525	+ NEXT EVOLUTION? 655
4	Next Evolution?	655	
			m DUSKNOIR
			n DUSCLOPS
			- DUSKULL 295
			0 100 200 300 400 500 600 700

#### Challenges Encountered

- Data set did not contain any dates so we couldn't really use those types of functions.
- Dataset only had one table so there were no relationships in this dataset.
- Confusing Columns such as Original\_Name and Name; No and Branch\_Code.
  - This is caused because of multiple forms a Pokemon could potentially have.

## Conclusion

- Would it be possible to find out the differing amounts of each specific Pokemon type?
  - Using the COUNTIFS function, we are able to find out the differing amounts of each specific Pokemon type.
- What type of Pokemon is "Gengar", "Arceus"?
  - Using the VLOOKUP function, we discover that Gengar is a Ghost and Poison type while Arceus is a Normal type.
- If new Pokemon were introduced into the game, how would we input the new data?
  - Implemented a UserForm function, so we are able to input new data if new Pokemon are introduced.
- Which Pokemon type has the highest attack damage?
  - According to the PivotTable, Fighting and Dragon types have the highest attack damage.
- Which Generation has the most Pokemon? Which has the least?
  - PivotTable shows that Generations 1 and 5 have the most Pokemon while Generation 6 has the least Pokemon.
- Do the Pokemons get stronger with each form?
  - Using the Forecasting function, we can conclude that Pokemons do get stronger with each evolution as they tend to gain more SP and have more SP than the previous form.

