In [1]:

```
import pandas as pd
import seaborn as sns
from matplotlib import pyplot as plt
data=pd.read_csv("pokemon1.csv")
```

Preprocessing

In [2]:

```
data['type2'].fillna('None', inplace=True) # Replacing the values in type2 with None
data['percentage_male'].fillna('None', inplace=True) # Replacing the values in percentag
data['height_m'].fillna(data['height_m'].mean(), inplace=True) # Replacing the values in
data['weight_kg'].fillna(data['weight_kg'].mean(), inplace=True) # Replacing the values
data[data["capture_rate"]== "30 (Meteorite)255 (Core)"][['name','capture_rate','type1','
data["capture_rate"].replace({'30 (Meteorite)255 (Core)': '30'}, inplace=True)
data['capture_rate'] = data['capture_rate'].astype('int')
data['capture_rate'].dtype
```

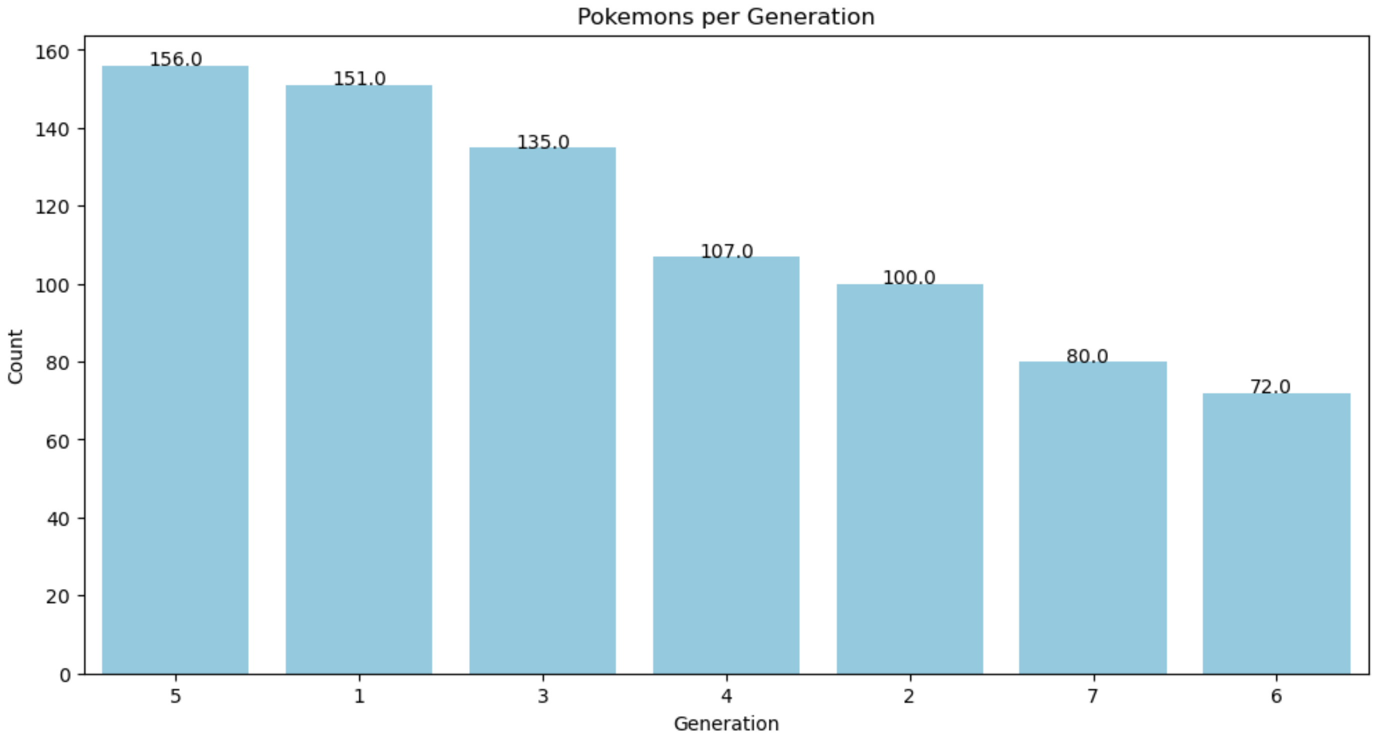
Out[2]:

```
dtype('int32')
```

What is the count of pokemon per generation

In [29]:

```
plt.figure(figsize=(12,6))
ax = sns.countplot(x='generation',data=data,order=data['generation'].value_counts().inde
ax.set_title('Pokemons per Generation')
ax.set(xlabel='Generation',ylabel='Count')
for p in ax.patches:
    ax.annotate('{:.1f}'.format(p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))
plt.show()
```



How many types of pokemon are there in each generation

In [13]:
```
primary_type_generation_group = data.groupby(['generation', 'type1'])['name'].count().to
primary_type_generation_group.rename(columns={'name' : 'name_count'}, inplace=True)
primary_type_generation_group.head(20).T
```

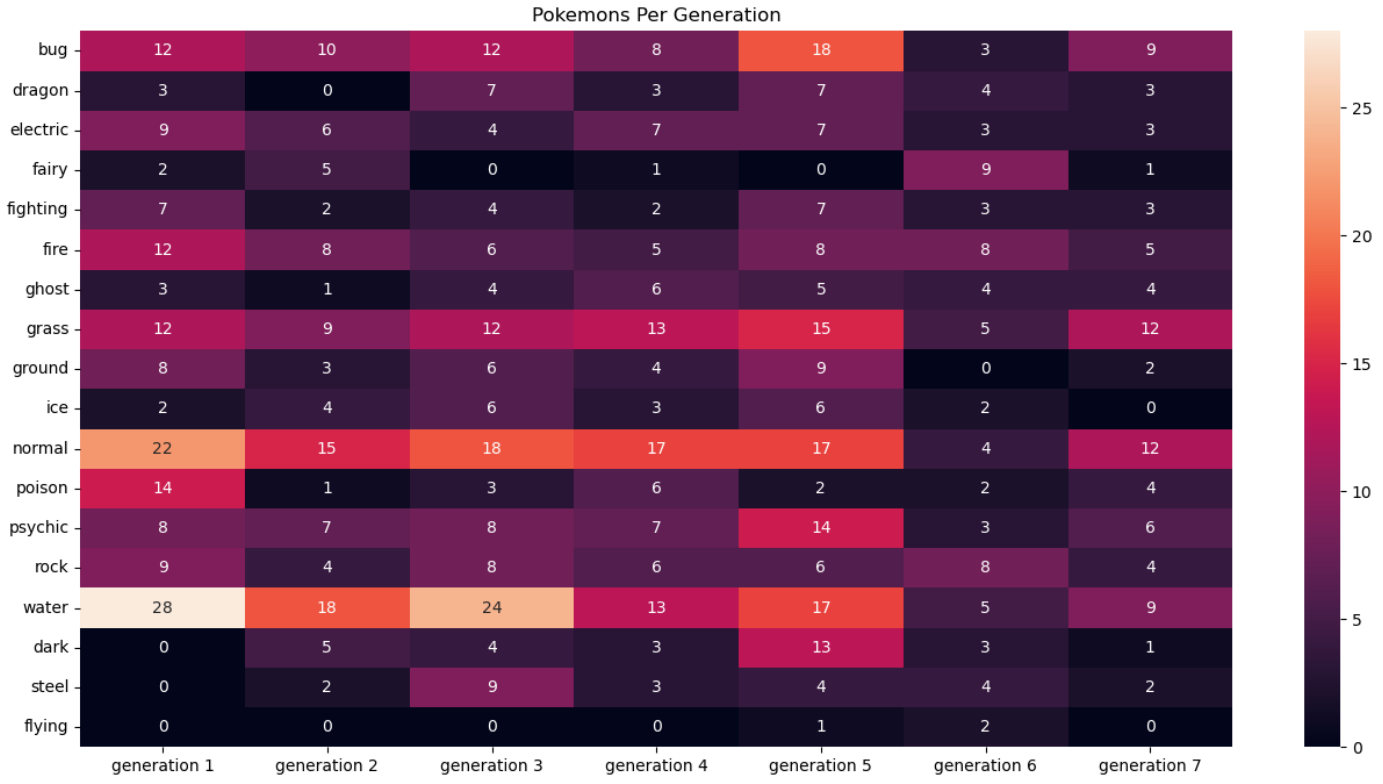
Out[13]:

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	
generation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
type1	bug	dragon	electric	fairy	fighting	fire	ghost	grass	ground	ice	normal	poison	psychic	rock	w
name_count	12	3	9	2	7	12	3	12	8	2	22	14	8	9	

In [27]:
```
primary_type_generation_dict  = {}
for generation in list(primary_type_generation_group['generation'].unique()):
    current_generation = []
    for p_type in primary_type_generation_group['type1'].unique():
        try:
            current_generation.append(
                primary_type_generation_group.loc[(primary_type_generation_group['genera
                                                   & (primary_type_generation_group['type1'] == p_t
        except IndexError:
            current_generation.append(0)
    primary_type_generation_dict[f'generation {generation}'] = current_generation

p_type_by_generation = pd.DataFrame(primary_type_generation_dict, index= primary_type_ge
```

In [28]:
```
fig,axes = plt.subplots(figsize=(16,8))
sns.heatmap(p_type_by_generation,annot=True).set_title('Pokemons Per Generation')
plt.show()
```



Which type has the easiest pokemon to catch

In [14]:
```
plt.figure(figsize=(16,6))
ax = sns.boxplot(x='type1', y='capture_rate', hue='is_legendary', data = data)

ax.set_xlabel(xlabel='Primary Type')
.(ylabel='Capture Rate')
```

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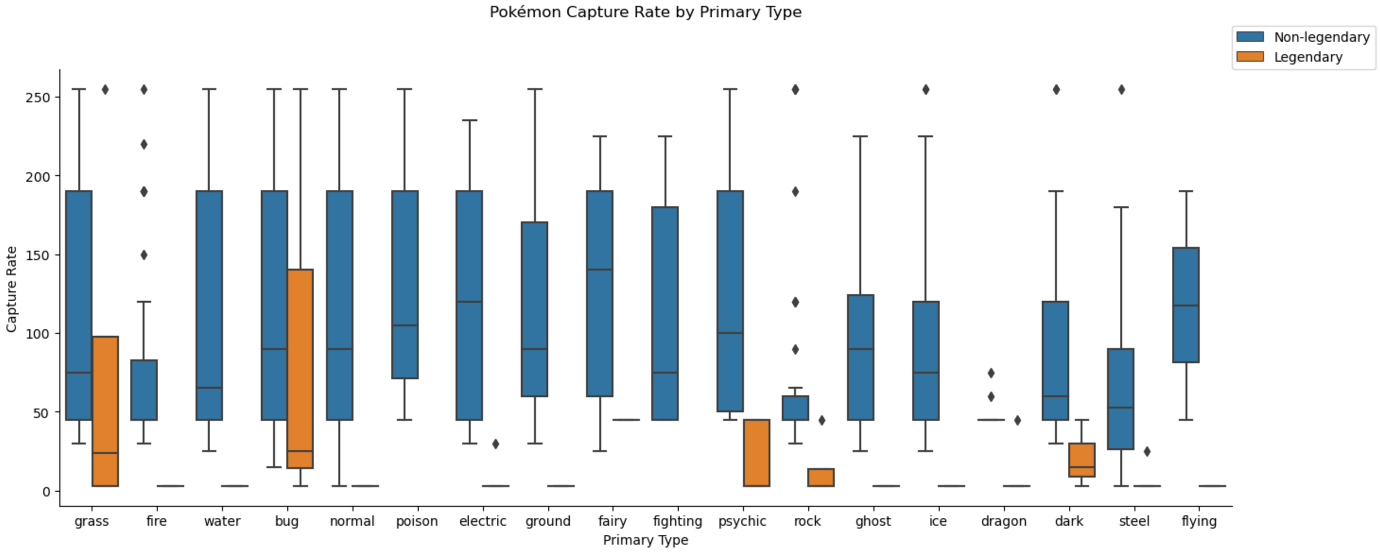
```
ax.set_title('Pokémon Capture Rate by Primary Type', pad=40)

sns.despine(top=True, right=True)

handles, labels = ax.get_legend_handles_labels()
ax.legend(handles, ['Non-legendary', 'Legendary'], loc=(1,1))
```

```
Out[14]: <matplotlib.legend.Legend at 0x1eadb797cd0>
```



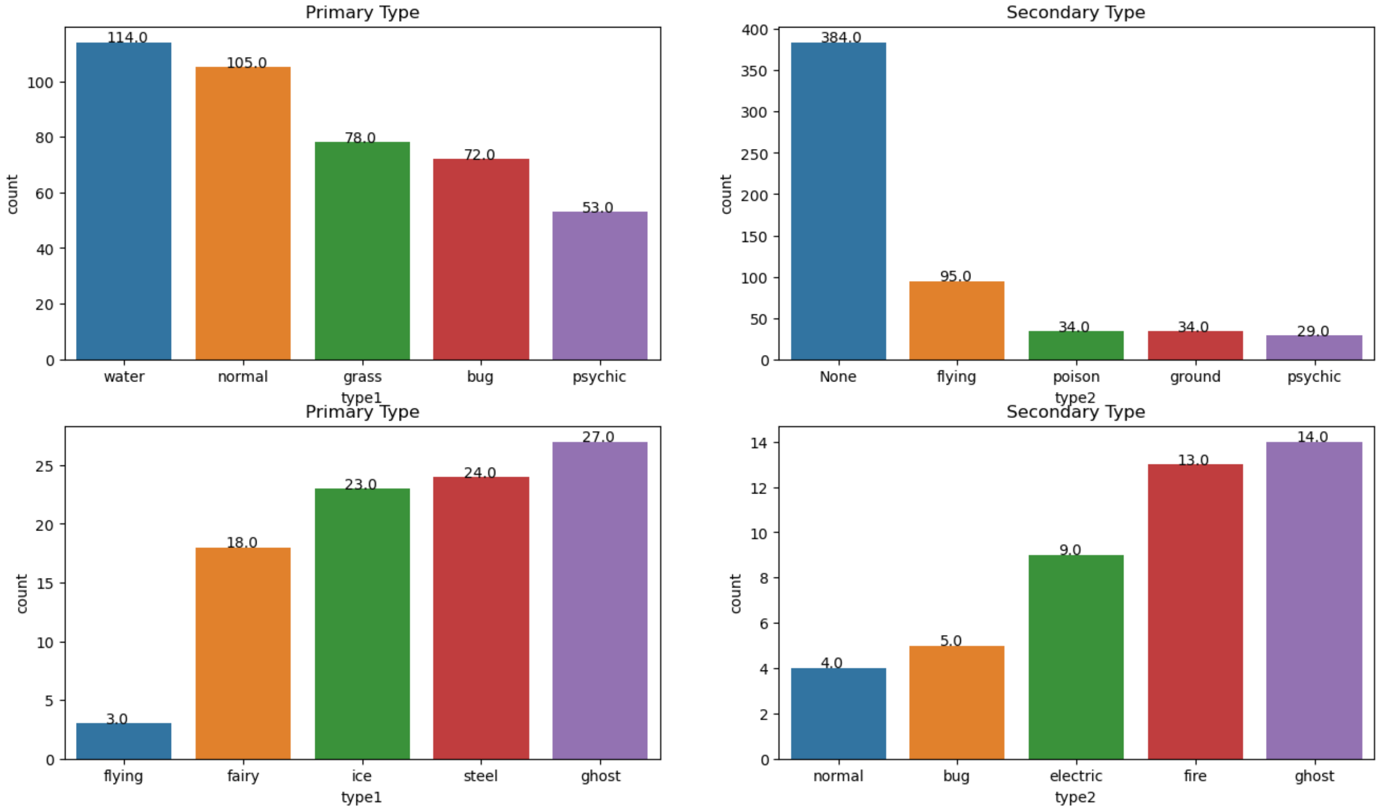
What are the most widespread types of pokemon in both primary (Type1) and secondary types (Type2)

```
In [15]: fig,axes = plt.subplots(2,2,figsize=(16,9))
ax = sns.countplot(x='type1',data=data,order=data['type1'].value_counts().iloc[:5].index
ax.set_title('Primary Type')
for p in ax.patches:
    ax.annotate('{:.1f}'.format(p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))

ax = sns.countplot(x='type2',data=data,order=data['type2'].value_counts().iloc[:5].index
ax.set_title('Secondary Type')
for p in ax.patches:
    ax.annotate('{:.1f}'.format(p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))

ax = sns.countplot(x='type1',data=data,order=data['type1'].value_counts(ascending=True).
ax.set_title('Primary Type')
for p in ax.patches:
    ax.annotate('{:.1f}'.format(p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))

ax = sns.countplot(x='type2',data=data,order=data['type2'].value_counts(ascending=True).
ax.set_title('Secondary Type')
for p in ax.patches:
    ax.annotate('{:.1f}'.format(p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))
plt.show()
```



Which type is the most likely to be a legendary Pokemon

In [16]:

```
legend = data[data['is_legendary']==1][['name','type1','type2']]
legend.head()
```

Out[16]:

	name	type1	type2
143	Articuno	ice	flying
144	Zapdos	electric	flying
145	Moltres	fire	flying
149	Mewtwo	psychic	None
150	Mew	psychic	None

In [17]:

```
from collections import Counter
# i= int(i)
#for secondary
s = []
secondary = legend['type2']
for i in secondary:
    if 'None' in i:
        pass
    else:
        s.append(i)
count_s = Counter(s)

# for combined
c=[]
combined = legend['type1']
for i in combined:
    if 'None' in i:
```

```
    else:
        c.append(i)
count_c = Counter(c)

count_s = sorted(count_s.items(), key=lambda x: x[1],reverse=True)
count_c = sorted(count_c.items(), key=lambda x: x[1],reverse=True)
```

In [18]:

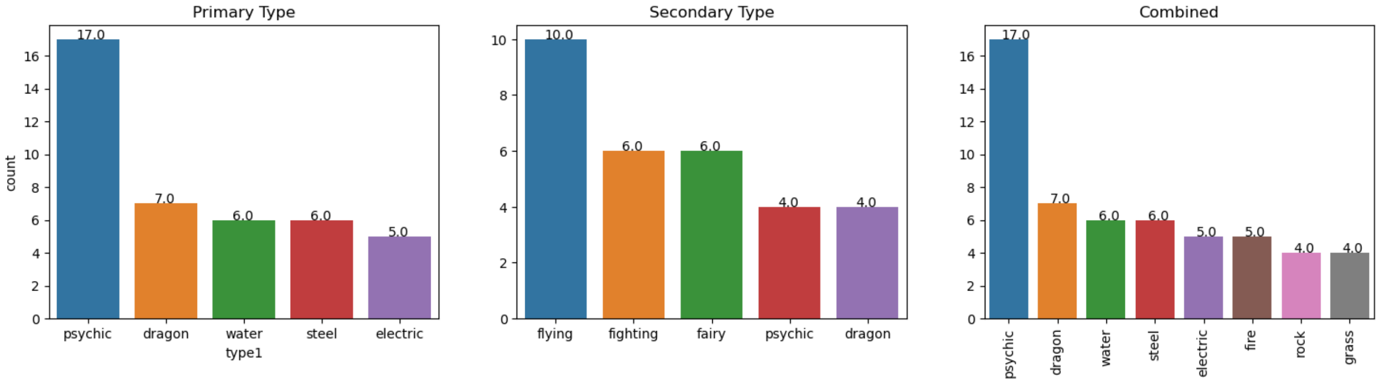
```
# separating the key, values we got from Counter() of both count_c(combined) and count_s
v_s,k_s=[],[]
v_c,k_c=[],[]
for i in count_s:
    k_s.append(i[0])
    v_s.append(i[1])
for i in count_c:
    k_c.append(i[0])
    v_c.append(i[1])
```

In [19]:

```
fig,axes = plt.subplots(1,3,figsize=(18,4))
ax = sns.countplot(x='type1',data=legend,order=legend['type1'].value_counts().iloc[:5].i
ax.set_title('Primary Type')
for p in ax.patches:
    ax.annotate('{:.1f}'.format(p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))

ax = sns.barplot(x=k_s[:5],y=v_s[:5], ax=axes[1])
ax.set_title('Secondary Type')
for p in ax.patches:
    ax.annotate('{:.1f}'.format(p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))

ax = sns.barplot(x=k_c[:8],y=v_c[:8], ax=axes[2])
ax.set_title('Combined')
locs, labels = plt.xticks()
plt.setp(labels, rotation=90)
for p in ax.patches:
    ax.annotate('{:.1f}'.format(p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))
```



Can we find the strongest pokemon

In [11]:

```
top10_pokemon_base_total = data.sort_values(by="base_total", ascending=False).reset_inde
plt.figure(figsize=(20,10))
ax = sns.barplot(x=top10_pokemon_base_total["name"], y=top10_pokemon_base_total["base_to
ax.set_title("Which is the best pokémon?", size=20)
ax.set(xlabel="Base Total", ylabel="Name")
for p in ax.patches:
    ax.annotate('{:.1f}'.format( p.get_height()), (p.get_x()+0.25, p.get_height()+0.01))
```

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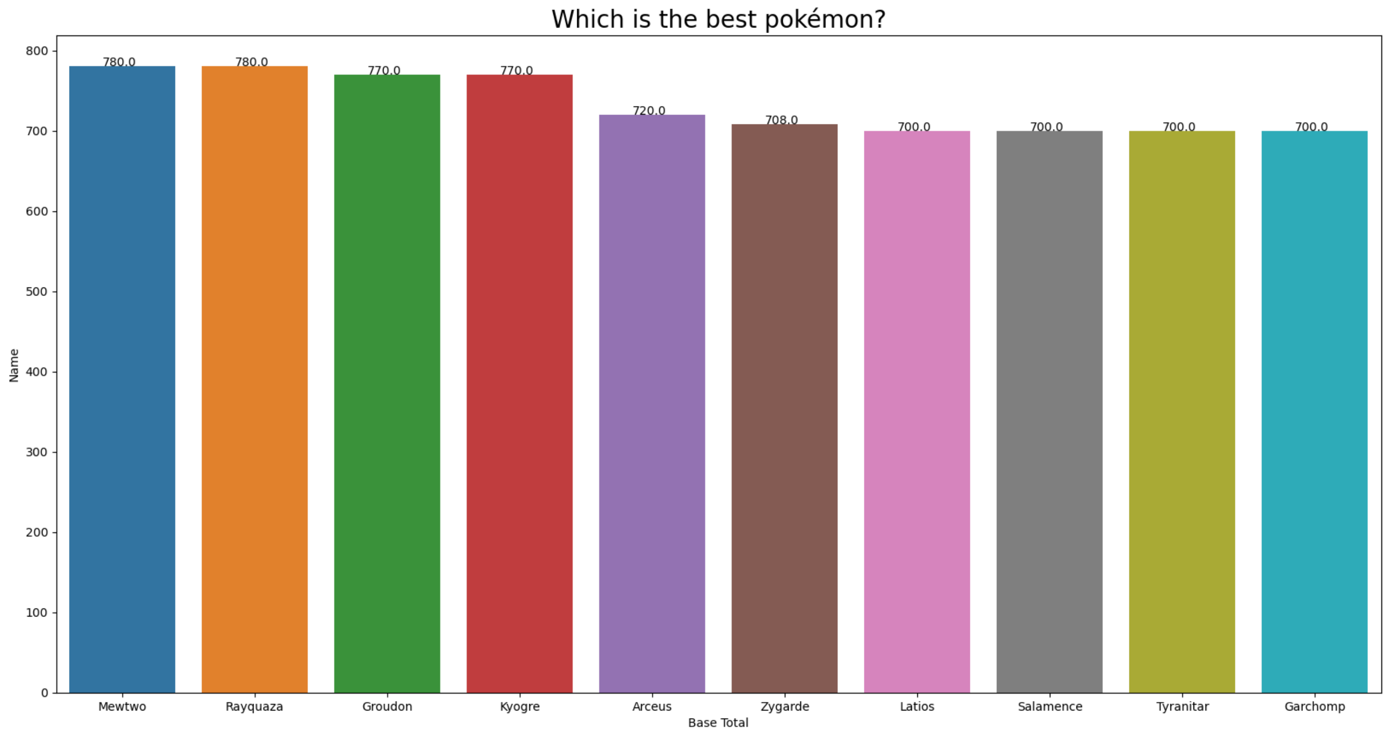

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