Intro / Dependencies

In [1]:
```
import pandas as pd
import datetime as dt
import statsmodels.api as sm
```

In [2]:
```
file = "Analysis_test.xlsx"
```

In [3]:
```
df = pd.read_excel("Analysis_test.xlsx",usecols=["Date","Site Visits","Searches"])
df = pd.concat([df,pd.get_dummies(df["Date"].dt.weekday_name)],axis=1)
df.drop(columns=["Searches"],inplace=True)
```

In [4]:
```
df.head()
```

Out[4]:

	Date	Site Visits	Friday	Monday	Saturday	Sunday	Thursday	Tuesday	Wednesday
0	2016-08-01	36468	0	1	0	0	0	0	0
1	2016-08-02	34307	0	0	0	0	0	1	0
2	2016-08-03	33930	0	0	0	0	0	0	1
3	2016-08-04	31783	0	0	0	0	1	0	0
4	2016-08-05	27253	1	0	0	0	0	0	0

In [5]:
```
dates = []
for n in range(1,len(df)+1):
    dates.append(n)
```

In [6]:
```
df["Date"] = dates
df
```

Out[6]:

	Date	Site Visits	Friday	Monday	Saturday	Sunday	Thursday	Tuesday	Wednesday
0	1	36468	0	1	0	0	0	0	0
1	2	34307	0	0	0	0	0	1	0
2	3	33930	0	0	0	0	0	0	1
3	4	31783	0	0	0	0	1	0	0
4	5	27253	1	0	0	0	0	0	0
...	...	...	...	...	...	...	...	...	...
70	71	28747	0	1	0	0	0	0	0
71	72	27318	0	0	0	0	0	1	0
72	73	30192	0	0	0	0	0	0	1
73	74	30598	0	0	0	0	1	0	0
74	75	25375	1	0	0	0	0	0	0

75 rows × 9 columns

#1 Estimate the Visits for Oct 15

In [7]:
```
xcol = df.drop(columns = ["Site Visits"]).columns
ycol = "Site Visits"
X = df[xcol]
Y = df[ycol]
X.insert(0,"intercept",1)
model = sm.OLS(Y, X).fit()
predictions = model.predict(X)
print_model = model.summary2().tables
print_model[0]
print_model[1]
coefs = print_model[1]["Coef."]
final_value= coefs["intercept"] + coefs["Saturday"] + coefs["Date"]*76
print(f"Estimated Visits for Oct 15 is {final_value}")
```

```
Estimated Visits for Oct 15 is 17465.799999993647
```

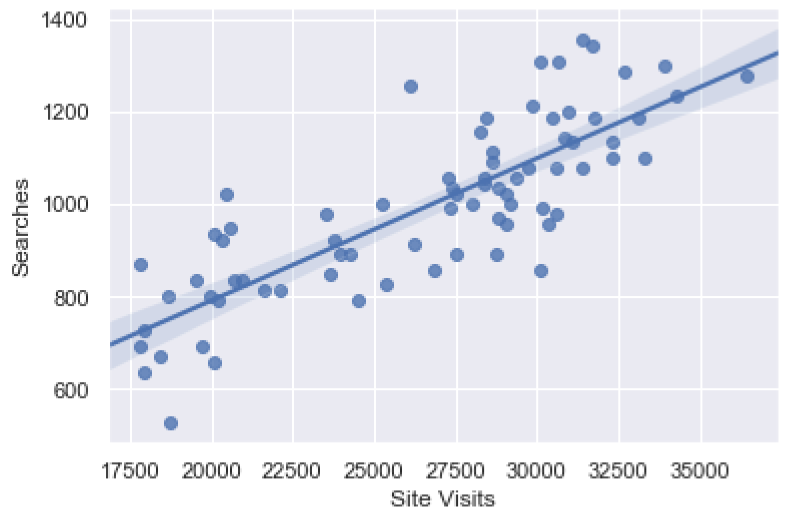
In [16]:
```
# #Method 2
# predictrow= X.tail(1)
# predictrow.at[74,'Date']=76
# predictrow.at[74,'Friday']=0
# predictrow.at[74,'Saturday']=1
# predictrow.reset_index
# model.predict(target)
```

Do a chart that shows the relationship between Site Visits and Searches

In [13]:
```
df1 = pd.read_excel("Analysis_test.xlsx",usecols=["Date","Site Visits","Searches"])
df1 = pd.concat([df1,pd.get_dummies(df1["Date"].dt.weekday_name)],axis=1
)
```

Visualization using Seaborn

In [14]:
```
import seaborn as sns; sns.set(color_codes=True)
ax = sns.regplot(x="Site Visits", y="Searches", data=df1)
```



Visualization using Plotly (Image attached)

In [15]:
```
import plotly as py
import plotly.graph_objs as go
import plotly.express as px
py.offline.init_notebook_mode(connected = True)

fig = px.scatter(df1, x="Searches", y="Site Visits", trendline="ols")
py.offline.plot(fig)
print("IMAGE is attached")
```