**"Guided Capstone Project Report"**

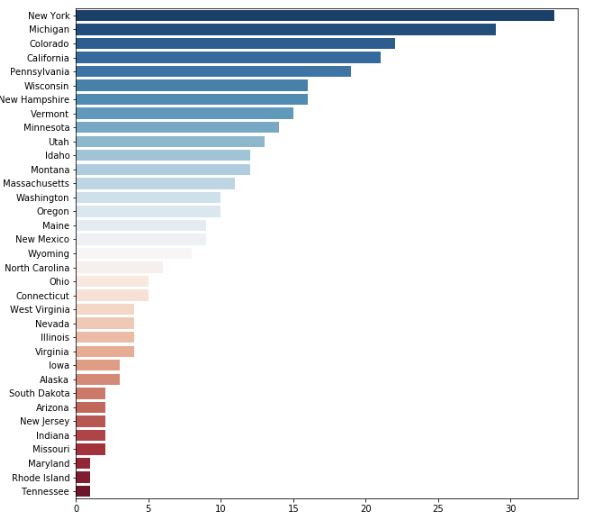
* **Objective:**

To offset the operation cost of the extra lift chair through increasing the adult weekend ticket price.

* **Data available for modeling:**
  + **We have following data for 330 different resorts:**

“Name, Region, state, summit\_elev, vertical\_drop, base\_elev, trams, fast Eight, fast Sixes, fast Quads, quad, triple, double, surface, total\_chairs, Runs, Terrain Parks, Longest Run\_mi, Skiable Terrain\_ac, Snow Making\_ac, days Open Last Year, years Open, average Snowfall, Adult Weekday, Adult Weekend, projected Days Open, Night Skiing\_ac”

* + **From the following states: Resorts from 35 states were included on our data set**



**Figure 1-Distribution of the States**

Note: Since region and states columns included identical information, we dropped the “Region” from our data frame.

* + **Before the modeling, data cleaning and data wrangling were performed to clean the dataset and make it ready for the modeling.**
* **Accepted Model:**

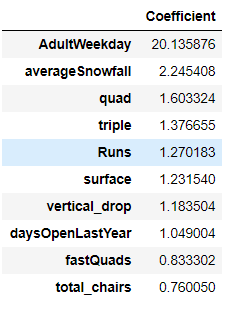
**X=df.drop(['Name','AdultWeekend','state','Region','summit\_elev','base\_elev'], axis=1)**

**y=df.AdultWeekend**

**scaler = preprocessing.StandardScaler().fit(X)**

**X\_scaled=scaler.transform(X)**

**y=y.ravel()**

**X\_train, X\_test, y\_train, y\_test = train\_test\_split(X\_scaled, y, test\_size=0.25, random\_state=1)**

**lm = linear\_model.LinearRegression()**

**model = lm.fit(X\_train,y\_train)**

**y\_pred = model.predict(X\_test)**

**print(explained\_variance\_score(y\_test, y\_pred))**

**mean\_absolute\_error(y\_test, y\_pred)**

**EVS=0.926**

**MAE=5.465**

* **Price prediction for the Big Mountain Resort according to the Model:**

BM\_pred = model. predict (BM\_scaled)

print ("The expected June Mountain Resort adult weekend price is $%s " % ' '. join (map (str, BM\_pred)))

The expected Big Mountain Resort adult weekend price is $59.70

