ASSIGNMENT 4 REGRESSION

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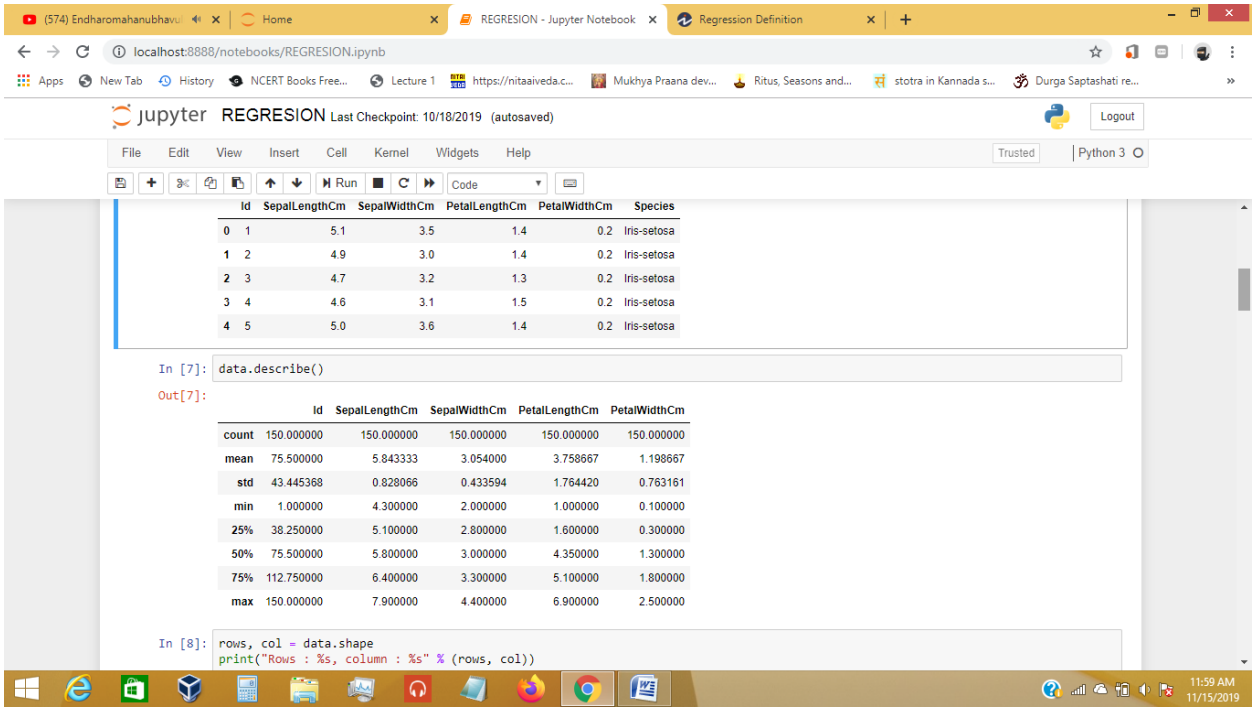
Regression is a statistical measurement used in finance, investing, and other disciplines that attempts to determine the strength of the relationship between one dependent variable (usually denoted by Y) and a series of other changing variables (known as independent variables).

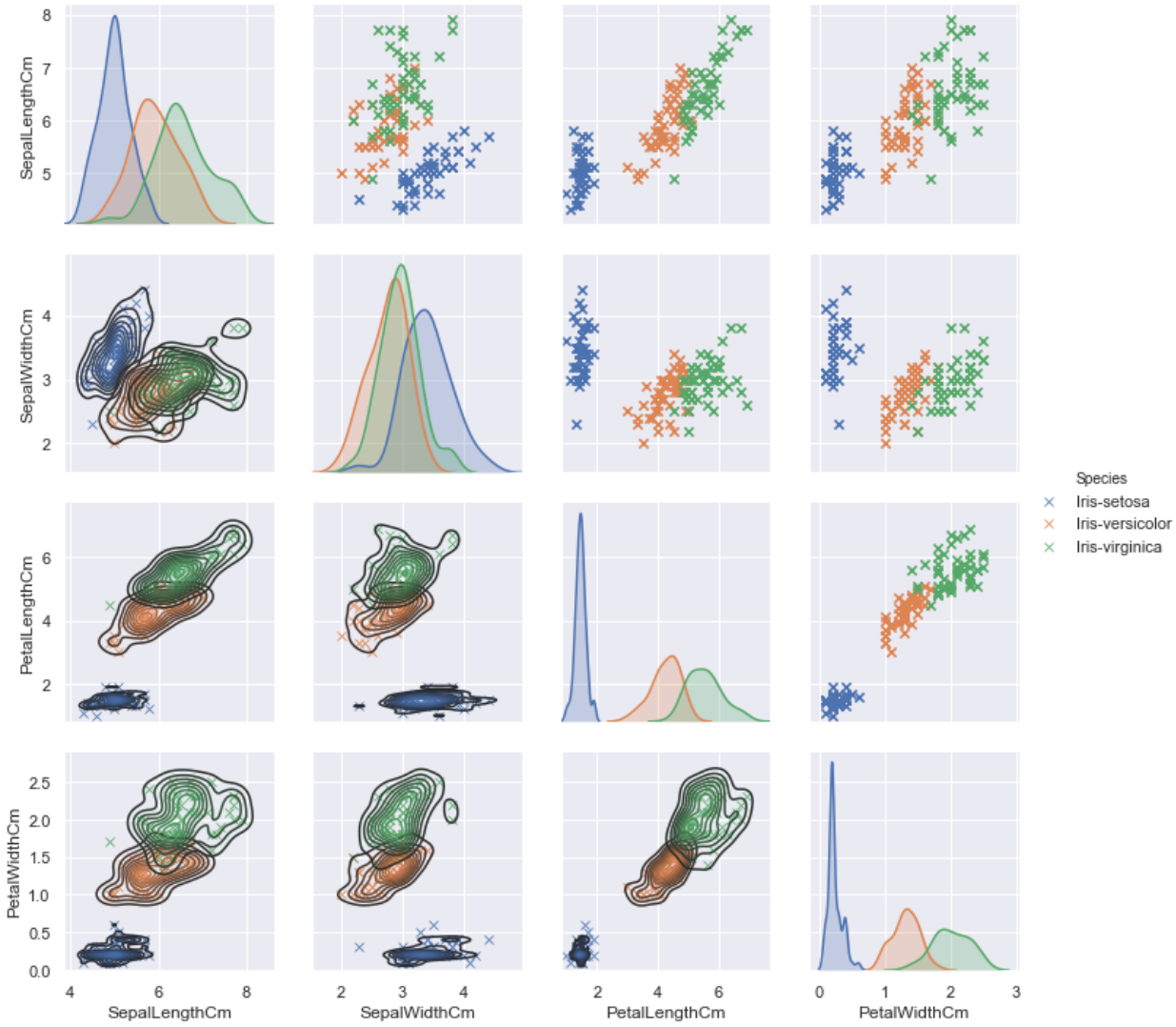
Regression helps investment and financial managers to value assets and understand the relationships between variables, such as commodity prices and the stocks of businesses dealing in those commodities.

Applying regression on iris data set:

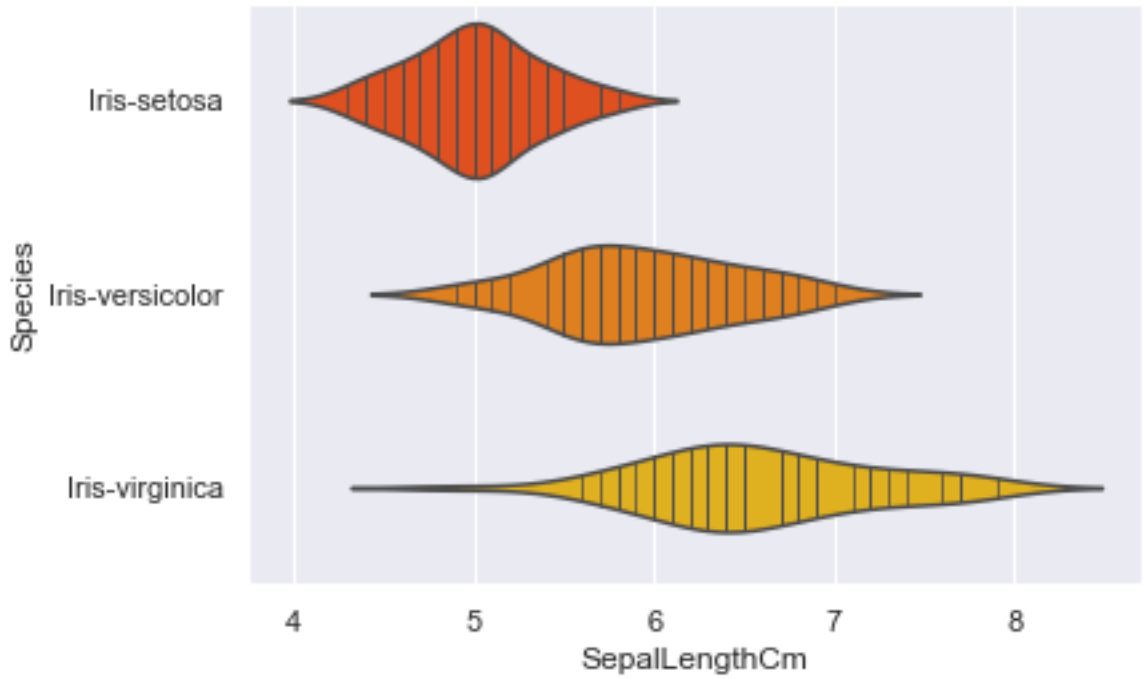
Code snippet:

data = pd.read_csv('C:/Users/Nahvsha acharya/Desktop/iris-flower-dataset/Iris.csv')

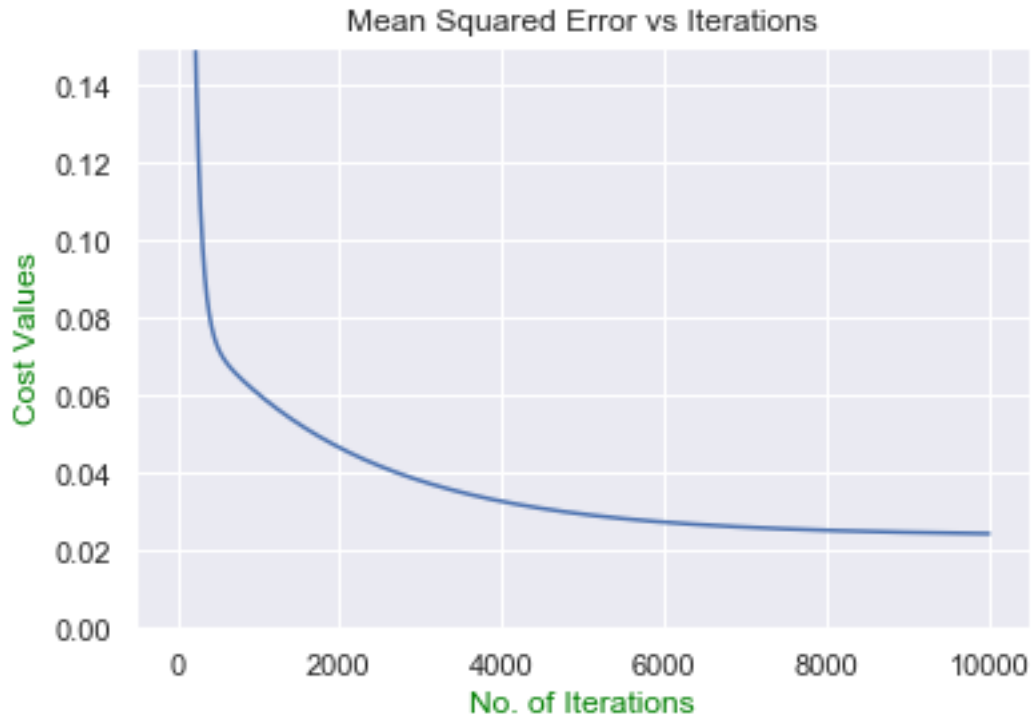





```
sns.violinplot(x='SepalLengthCm', y='Species', data=data, inner='stick', palette='autumn')
plt.show()
sns.violinplot(x='SepalWidthCm', y='Species', data=data, inner='stick', palette='autumn')
plt.show()
sns.violinplot(x='PetalLengthCm', y='Species', data=data, inner='stick', palette='autumn')
plt.show()
sns.violinplot(x='PetalWidthCm', y='Species', data=data, inner='stick', palette='autumn')
plt.show()
```




```
# Let's train our model to compute values of theta

for i in range(iteration):

    J[i] = (1/(2 * rows) * np.sum((np.dot(X, theta.T) - y) ** 2 ))

    theta -= ((learning_rate/rows) * np.dot((np.dot(X, theta.T) - y).reshape(1,rows), X))


prediction = np.round(np.dot(X, theta.T))


ax = plt.subplot(111)

ax.plot(np.arange(iteration), J)

ax.set_ylim([0,0.15])

plt.ylabel("Cost Values", color="Green")

plt.xlabel("No. of Iterations", color="Green")

plt.title("Mean Squared Error vs Iterations")

plt.show()
```



Predictions