In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

In [8]:
```
df = pd.read_csv('Score_Students.csv')
df.head()
```

Out[8]:

	Hours	Scores
0	2.5	21
1	5.1	47
2	3.2	27
3	8.5	75
4	3.5	30

In [28]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5 entries, 0 to 4
Data columns (total 2 columns):
Actual       5 non-null int64
Predicted    5 non-null float64
dtypes: float64(1), int64(1)
memory usage: 160.0 bytes
```

In [30]:
```
df.columns
```

Out[30]:
```
Index(['Actual', 'Predicted'], dtype='object')
```

In [25]:
```
df.tail()
```

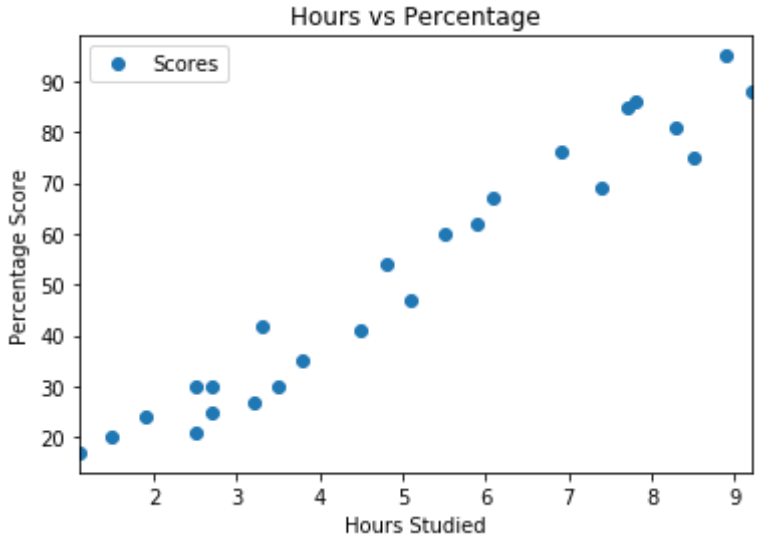
Out[25]:

	Actual	Predicted
0	20	16.884145
1	27	33.732261
2	69	75.357018
3	30	26.794801
4	62	60.491033

In [27]:
```
df.shape
```

Out[27]: (5, 2)

In [9]:
```
df.plot(x='Hours', y='Scores', style='o')
plt.title('Hours vs Percentage')
plt.xlabel('Hours Studied')
plt.ylabel('Percentage Score')
plt.show()
```



In [11]:
```
X = df.iloc[:, :-1].values
```

```
y = df.iloc[:, 1].values
```

In [12]:
```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y,
                            test_size=0.2, random_state=0)
```

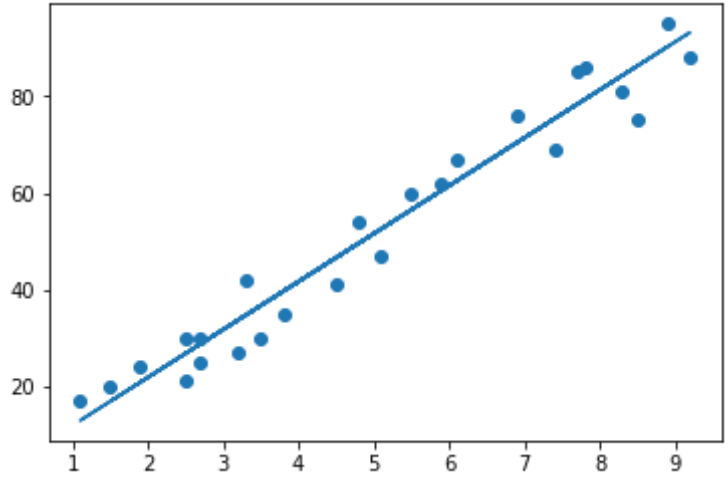
In [13]:
```
from sklearn.linear_model import LinearRegression
regressor = LinearRegression()
regressor.fit(X_train, y_train)

print("Training complete.")
```

```
Training complete.
```

In [14]:
```
# Plotting the regression line
line = regressor.coef_*X+regressor.intercept_

# Plotting for the test data
plt.scatter(X, y)
plt.plot(X, line);
plt.show()
```



In [15]:
```
print(X_test) # Testing data - In Hours
y_pred = regressor.predict(X_test) # Predicting the scores
```

```
[[1.5]
 [3.2]
 [7.4]
 [2.5]
 [5.9]]
```

In [16]:
```
# Comparing Actual vs Predicted
df = pd.DataFrame({'Actual': y_test, 'Predicted': y_pred})
df
```

Out[16]:

	Actual	Predicted
0	20	16.884145
1	27	33.732261
2	69	75.357018
3	30	26.794801
4	62	60.491033

In [23]:
```
# You can also test with your own data
# hours = 9.25
own_pred = regressor.predict([[9.25]])
print("No of Hours = {}".format(hours))
print("Predicted Score = {}".format(own_pred[0]))
```

```
No of Hours = 9.25
Predicted Score = 93.69173248737538
```

In [19]:
```
from sklearn import metrics
print('Mean Absolute Error:',
      metrics.mean_absolute_error(y_test, y_pred))
```

```
Mean Absolute Error: 4.183859899002975
```

In [ ]: