In [ ]:

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BY MD AZIZ
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In [ ]:

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TASK1 no.1:Predict the percentage of marks of an student based on the number of study h
ours
```

In [1]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

In [2]:

```
url= 'http://bit.ly/w-data'
dataset= pd.read_csv(url)
dataset.head()
```

Out[2]:

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

In [3]:

```
dataset.info()
```

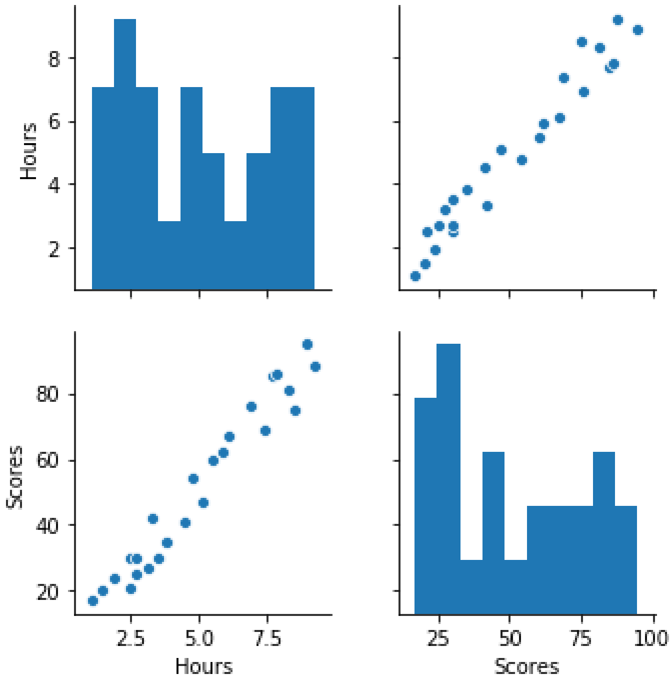
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 25 entries, 0 to 24
Data columns (total 2 columns):
Hours     25 non-null float64
Scores    25 non-null int64
dtypes: float64(1), int64(1)
memory usage: 480.0 bytes
```

In [4]:

```
sns.pairplot(dataset)
```

Out[4]:

```
<seaborn.axisgrid.PairGrid at 0x7fd4ddb45850>
```



In [5]:

```
x= dataset.iloc[:,0:1]
x.head()
```

Out[5]:

	Hours
0	2.5
1	5.1
2	3.2
3	8.5
4	3.5

In [6]:

```
y= dataset.iloc[:,1:]
y.head()
```

Out[6]:

	Scores
0	21
1	47
2	27
3	75
4	30

In [7]:

```
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)
print(x_train.shape, y_train.shape, x_test.shape, y_test.shape)
```

```
(20, 1) (20, 1) (5, 1) (5, 1)
```

In [8]:

```
from sklearn.linear_model import LinearRegression
model= LinearRegression()
model.fit(x_train, y_train)
predictions= model.predict(x_test)
```

In [9]:

```
comparison= pd.DataFrame(np.c_[y_test, predictions],columns=['Original Score','Predictions'])
comparison
```

Out[9]:

	Original Score	Predictions
0	25.0	29.366875
1	95.0	89.085513
2	41.0	46.704544
3	81.0	83.306290
4	30.0	27.440467

In [10]:

```
from sklearn import metrics
print('MSE:',metrics.mean_squared_error(y_test, predictions))
print('MAE:',metrics.mean_absolute_error(y_test, predictions))
print('RMSE:',np.sqrt(metrics.mean_squared_error(y_test, predictions)))
```

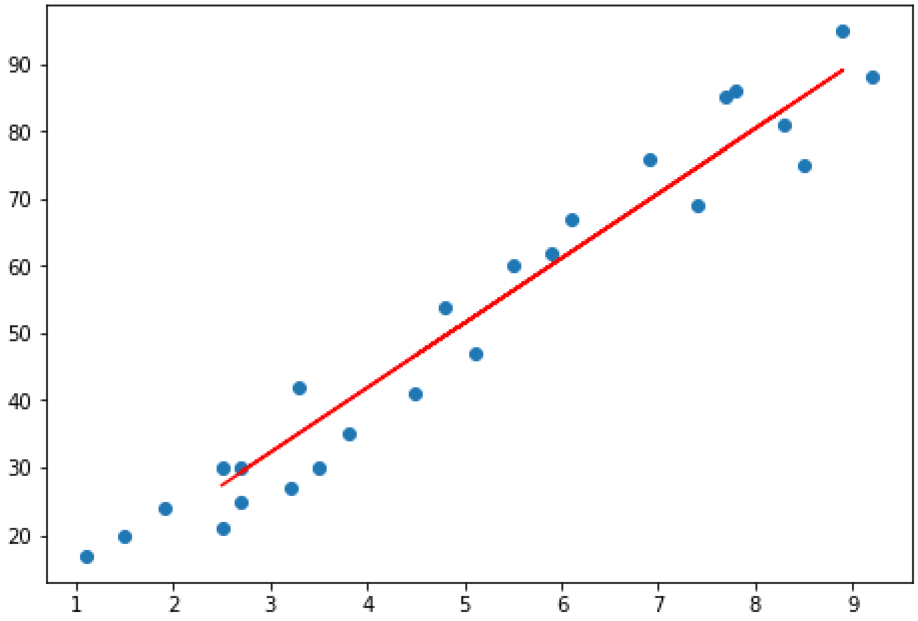
```
MSE: 19.69255118705455
MAE: 4.170345703057074
RMSE: 4.437629005116871
```

In [11]:

```
fig= plt.figure()
axes= fig.add_axes([0,0,1,1])
axes.scatter(x,y)
axes.plot(x_test,predictions,color='red')
```

Out[11]:

```
[<matplotlib.lines.Line2D at 0x7fd4d519ab50>]
```



In [12]:

```
A= model.predict([[9.5]])
print('If student studies 9.5 hrs/day he would get {} percentage.'.format(A[0][0]))
```

```
If student studies 9.5 hrs/day he would get 94.86473585365005 percentage.
```

In [ ]: