CENTRAL TEST

March 15, 2024

[12]:
```
#import necessary libraries
#loading the dataset and identifying the arrays
#Create the moddel and fit it into the data
#Get results
#Make a regrassion line and predictions
#Plot the graph
```

[13]:
```
#import  necessary libraries
import pandas as pd
import numpy as np
from sklearn.linear_model import LinearRegression
```

[14]:
```
#loading the dataset and idetify the arrays
data=pd.read_csv("C:\\Users\\DELL\\Desktop\\dataset ken.csv")
data
```

[14]:

	Work hours	Employee Output
0	9.892033	166.519278
1	4.561662	101.232060
2	5.109478	111.102744
3	7.926598	136.488276
4	7.546302	137.120214
..	…	…
195	4.207135	105.712627
196	9.243529	153.553019
197	1.680201	72.376029
198	6.630046	124.066461
199	19.766516	256.540815

[200 rows x 2 columns]

[15]:
```
#arrays
x=np.array(data["Work hours"]).reshape(-1,1)
y=np.array(data["Employee Output"])
x
```

[15]:
```
array([[ 9.89203291],
       [ 4.56166209],
```

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```

[11]:
```
y
```

[11]:
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array([166.5192781 , 101.2320599 , 111.1027435 , 136.4882763 ,
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       207.9388666 , 126.4276177 , 128.179451  , 130.3189111 ,
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       115.5973476 , 232.6098355 , 186.9318656 , 138.9946529 ,
       174.3342656 , 162.6729169 , 231.5953233 , 174.3707117 ,
       187.2117879 ,  74.17626476, 125.6521388 ,  64.33963402,
        99.59340618, 244.1487523 , 246.8842117 , 200.1901354 ,
       220.0982437 , 151.9600848 , 246.6763396 , 141.6056866 ,
       191.9890249 , 189.6602932 , 179.326341  , 113.2663167 ,
       191.6435798 , 242.4630319 , 216.5070602 , 141.0546574 ,
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       234.3177912 , 150.7104259 ,  62.96439972,  71.98203345,
        59.08434841, 169.3651984 , 138.7409486 ,  80.65280014,
       222.7825473 , 218.1268035 , 214.7952149 , 229.8299009 ,
       139.513619  , 211.7685156 , 175.7317806 , 177.7305407 ,
       116.5796356 , 173.3238268 , 143.8939235 , 160.1577634 ,
       159.264922  , 165.5999611 , 242.5082153 , 108.174525  ,
        68.73303961, 154.5765271 , 139.6385419 , 154.6310517 ,
        72.72339688, 179.8303183 , 254.9100074 ,  97.60625347,
        93.44753333, 261.4688288 , 205.8560828 , 189.6040414 ,
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       117.1914112 , 229.0765857 ,  97.09758122, 239.7772106 ,
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        79.92711504,  93.0902541 ,  90.36551668, 239.9403871 ,
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       216.2857314 , 123.0015592 ,  98.80552883, 149.6690991 ,
```

```
       240.7701697 , 169.2570257 , 135.7616461 , 143.3359188 ,
       116.2795834 , 120.4711087 , 144.49536   , 187.0082382 ,
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        58.71833251, 246.7027141 , 199.8556287 , 243.0758258 ,
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        76.72949328,  75.85879091, 212.867657  , 105.7126269 ,
       153.5530185 ,  72.37602864, 124.0664607 , 256.5408145 ])
```

[16]:
```
#Create the moddel and fit it into the data
model=LinearRegression()
model.fit(x,y)
```

[16]:
```
LinearRegression()
```

[17]:
```
#Get results
accuracy=model.score(x,y)
accuracy
```

[17]:
```
0.9929360224793831
```

[18]:
```
#Make predictions
y_pred=model.predict(x)
y_pred
```

[18]:
```
array([158.58177339, 105.61555982, 111.05903846, 139.05186853,
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```

```
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152.13779402,  76.98338708, 126.1684351 , 256.70139746])
```
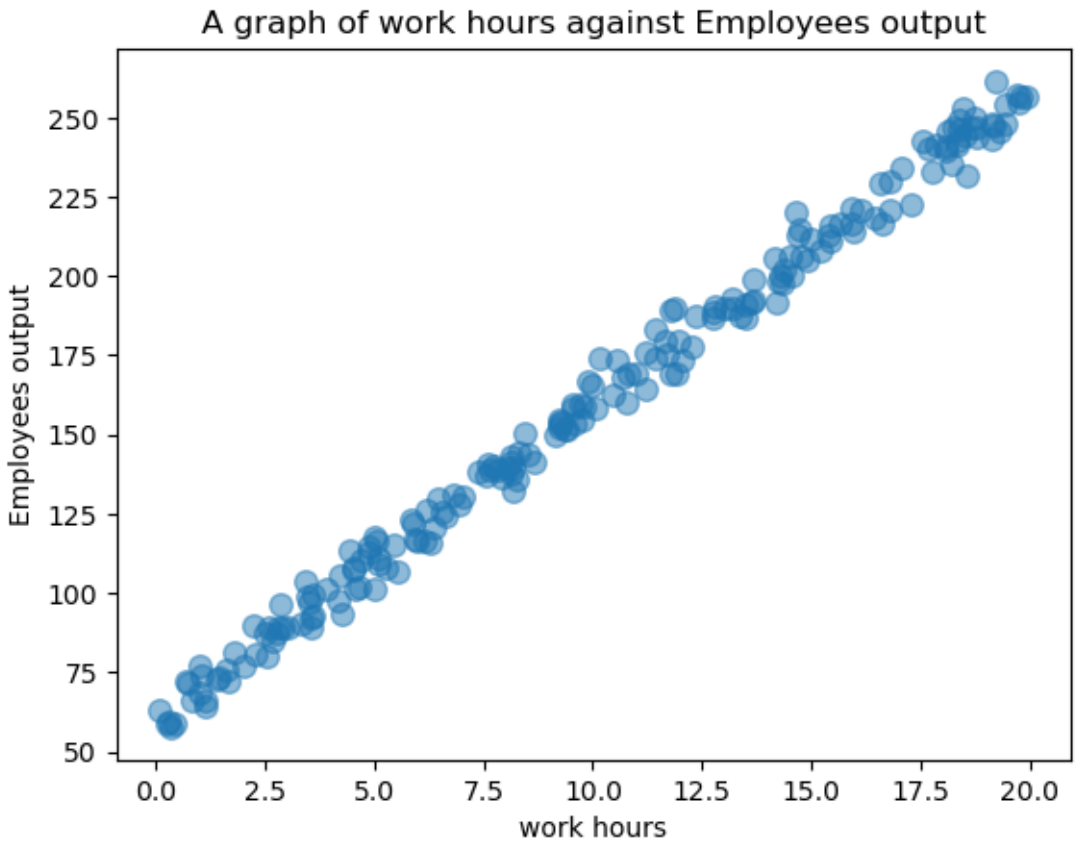

[19]:
```
#visualize
import matplotlib.pyplot as plt
plt.scatter(x,y,label="datapoints",alpha=0.5, s=70)
plt.title("A graph of work hours against Employees output")
plt.xlabel("work hours")
plt.ylabel("Employees output")
plt.show()
```



Model Optimisation

[20]:
```
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=42)
x_train.shape
```

[20]:
```
(160, 1)
```

[21]:
```
#Create the model and fit in the trained dataset
model=LinearRegression()
model.fit(x_train,y_train)
```

[21]:
```
LinearRegression()
```

[22]:
```
#Accuracy
y_pred=model.predict(x_test)
y_pred
```

[22]:
```
array([167.51628428, 171.76512795, 246.78175171, 205.1635476 ,
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       151.56256711, 178.70603977, 158.00335046, 230.05586894])
```

[23]:
```
results = model.score(x_test,  y_pred)
results
```

[23]:
```
1.0
```

Logisticc Regression

[ ]:
```

```