framing

August 25, 2023

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##Project Title:- Predict the heart attack disease for organisation WHO(World Health Organization) . using machine learning algorithm rate of heart attack disease in increasing or decreasing manner.

###Problem Statement A WHO estimated 12 million death records.One of them half off the death result is found in US.The research intenders the researchers scholar pointout the most relevant risk factor of heartattack As a datascience engineer predict the overall risk using machine learning alogorithm which is called as logistic regression

###Task 1 ####>import the libraries ##Task2 ####>import the data set to your used workspace ###Task 3 ####>Use a appropriate argument of sklearn library to train,test and split the dataset ### Task 4 ##### hit your values with the arrange using feature scaling ###Task 5 ##### Check your model accuracy and precision using confusion matrix

```python
[17]: #import the libraries
      import numpy as np
      import pandas as pd
      import seaborn as sns
      import matplotlib.pyplot as plt
      from sklearn.model_selection import train_test_split
      from sklearn.linear_model import LinearRegression
      from sklearn.metrics import mean_squared_error
```

```python
[18]: #Read the data
      data=pd.read_csv("framingham.csv")
      data
```

[18]:

	male	age	education	currentSmoker	cigsPerDay	BPMeds	\
0	1	39	4	0	0.0	0	
1	0	46	2	0	0.0	0	
2	1	48	1	1	20.0	0	
3	0	61	3	1	30.0	0	
4	0	46	3	1	23.0	0	
...	...	...	...	...	...	...	
4233	1	50	1	1	1.0	0	

4234	1	51	3	1	43.0	0
4235	0	48	2	1	20.0	0
4236	0	44	1	1	15.0	0
4237	0	52	2	0	0.0	0

	prevalentStroke	prevalentHyp	diabetes	totChol	sysBP	diaBP	BMI \
0	0	0	0	195	106.0	70.0	26.97
1	0	0	0	250	121.0	81.0	28.73
2	0	0	0	245	127.5	80.0	25.34
3	0	1	0	225	150.0	95.0	28.58
4	0	0	0	285	130.0	84.0	23.10
...	...	...	...	...	...	...	
4233	0	1	0	313	179.0	92.0	25.97
4234	0	0	0	207	126.5	80.0	19.71
4235	0	0	0	248	131.0	72.0	22.00
4236	0	0	0	210	126.5	87.0	19.16
4237	0	0	0	269	133.5	83.0	21.47

	heartRate	glucose	TenYearCHD
0	80.0	77	0
1	95.0	76	0
2	75.0	70	0
3	65.0	103	1
4	85.0	85	0
...	...	...	...
4233	66.0	86	1
4234	65.0	68	0
4235	84.0	86	0
4236	86.0	0	0
4237	80.0	107	0

[4238 rows x 16 columns]

```python
from sklearn.model_selection import train_test_split
X=data[["age"]]
y=data["currentSmoker"]
X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.
 2,random_state=42)
```

```python
print(X_test)
```

	age
3188	63
764	45
3264	51
1967	45
2185	45

```
   …     …
3303    47
4056    44
4210    50
3971    64
2540    55

[848 rows x 1 columns]
```

[36]: `print(X_train)`

```
        age
3252    40
3946    57
1261    47
2536    41
4089    64
…       …
3444    36
466     57
3092    60
3772    39
860     35

[3390 rows x 1 columns]
```

[37]: `print(y_test)`

```
3188    0
764     0
3264    1
1967    1
2185    1
        ..
3303    0
4056    0
4210    0
3971    0
2540    1
Name: currentSmoker, Length: 848, dtype: int64
```

[38]: `print(y_train)`

```
3252    1
3946    0
1261    0
2536    1
4089    0
```

```
        ..
3444    1
466     1
3092    0
3772    1
860     0
Name: currentSmoker, Length: 3390, dtype: int64
```

```python
[39]: from sklearn.preprocessing import StandardScaler
      sc =StandardScaler()
      X_train = sc.fit_transform(X_train)
      X_test = sc.transform(X_test)
```

```python
[40]: print(X_train)
```

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####Conclusion : According to the modern analysis the LougisticRegression algorithm works successfully '0.6" accuracy. ####The accuracy shows that building the model is successful

```python
[41]: print(X_test)
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```

[42]:
```python
from sklearn.linear_model import LogisticRegression
classifier = LogisticRegression(random_state = 0)
classifier.fit(X_train, y_train)
```

[42]: LogisticRegression(random_state=0)

[44]:
```python
y_pred = classifier.predict(X_test)
```

[45]:
```python
from sklearn.metrics import confusion_matrix, accuracy_score
cm = confusion_matrix(y_test, y_pred)
print(cm)
accuracy_score(y_test, y_pred)
```

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[[263 183]
 [155 247]]
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[45]: 0.6014150943396226

[ ]: