

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

In [2]: dataset=pd.read_csv("Concrete_Data_Yeh.csv")

In [3]: dataset

Out[3]:
```

	cement	slag	flyash	water	superplasticizer	coarseaggregate	fineaggregate	age	csMPa
0	540.0	0.0	0.0	162.0	2.5	1040.0	676.0	28	79.99
1	540.0	0.0	0.0	162.0	2.5	1055.0	676.0	28	61.89
2	332.5	142.5	0.0	228.0	0.0	932.0	594.0	270	40.27
3	332.5	142.5	0.0	228.0	0.0	932.0	594.0	365	41.05
4	198.6	132.4	0.0	192.0	0.0	978.4	825.5	360	44.30
...
1025	276.4	116.0	90.3	179.6	8.9	870.1	768.3	28	44.28
1026	322.2	0.0	115.6	196.0	10.4	817.9	813.4	28	31.18
1027	148.5	139.4	108.6	192.7	6.1	892.4	780.0	28	23.70
1028	159.1	186.7	0.0	175.6	11.3	989.6	788.9	28	32.77
1029	260.9	100.5	78.3	200.6	8.6	864.5	761.5	28	32.40

1030 rows × 9 columns

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In [4]: independent=dataset[["cement","slag","flyash","water","superplasticizer","coarseaggregate",
                             "fineaggregate","age"]]

In [5]: dependent=dataset["csMPa"]

In [6]: from sklearn.model_selection import train_test_split
X_train,X_test,Y_train,Y_test=train_test_split(independent,dependent,test_size=1/3,random_state=0)

In [7]: X_train

Out[7]:
```

	cement	slag	flyash	water	superplasticizer	coarseaggregate	fineaggregate	age
48	237.5	237.5	0.0	228.0	0.0	932.0	594.0	7
891	151.0	0.0	185.0	167.0	16.0	1074.0	678.0	28
263	212.6	0.0	100.4	159.4	10.4	1003.8	903.8	100
1027	148.5	139.4	108.6	192.7	6.1	892.4	780.0	28
723	310.0	0.0	0.0	192.0	0.0	1012.0	830.0	28
...
277	251.4	0.0	118.3	188.5	5.8	1028.4	757.7	56
763	385.0	0.0	0.0	186.0	0.0	966.0	763.0	1
835	144.0	0.0	175.0	158.0	18.0	943.0	844.0	28
559	239.6	359.4	0.0	185.7	0.0	941.6	664.3	28
684	192.0	288.0	0.0	192.0	0.0	929.8	716.1	90

686 rows × 8 columns

```
In [12]: regressor = RandomForestRegressor(n_estimators=100, random_state=0)
regressor.fit(X_train, Y_train)

Out[12]:
▼      RandomForestRegressor
RandomForestRegressor(random_state=0)

In [14]: Y_pred=regressor.predict(X_test)

In [18]: from sklearn.metrics import r2_score
r_score=r2_score(Y_test,Y_pred)

In [19]: r_score

Out[19]: 0.896597311724475

In [20]: cement_input=int(input("value of grade:"))
slag_input=int(input("enter slag value:"))
flyash_input=int(input("enter a value:"))
water_input=int(input("enter a water level:"))
admixture_input=int(input("enter admixture:"))
coarseaggregate_input=int(input("enter a coarseaggregate value:"))
fineaggregate_input=int(input("enter fineaggregate value:"))
age_input=int(input("value of age:"))

In [21]: future_prediction=regressor.predict([[cement_input,slag_input,flyash_input,water_input,admixture_input,coarseaggregate_input,fineaggregate_input,age_input]])
print("future prediction={}".format(future_prediction))

future prediction=[40.1152]
C:\Users\admin\anaconda3\Lib\site-packages\sklearn\base.py:439: UserWarning: X does not have valid feature names, but RandomForestRegressor was fitted with feature names
warnings.warn(

In [23]: import pickle
filename="finalmodel.sav"
pickle.dump(regressor,open(filename,"wb"))

In [24]: load_model=pickle.load(open("finalmodel.sav","rb"))

In [27]: result=load_model.predict([[475,0,0,228,0,932,594,28]])

C:\Users\admin\anaconda3\Lib\site-packages\sklearn\base.py:439: UserWarning: X does not have valid feature names, but RandomForestRegressor was fitted with feature names
warnings.warn(

In [28]: result
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