```
import pandas as pd #useful for loading the dataset
import numpy as np #to perform array
```

```
from google.colab import files
uploaded = files.upload()
```

Choose Files salary.csv

- **salary.csv**(text/csv) - 571950 bytes, last modified: 3/16/2024 - 100% done

```
Saving salary.csv to salary.csv
```

```
dataset = pd.read_csv('salary.csv')
```

```
print(dataset.shape)
print(dataset.head(5))
```

```
(32561, 5)
   age  education.num  capital.gain  hours.per.week income
0   90              9             0              40  <=50K
1   82              9             0              18  <=50K
2   66             10             0              40  <=50K
3   54              4             0              40  <=50K
4   41             10             0              40  <=50K
```

```
income_set = set(dataset['income'])
dataset['income'] = dataset['income'].map({'<=50K': 0, '>50K': 1}).astype(int)
print(dataset.head)
```

```
<bound method NDFrame.head of        age  education.num  capital.gain  hours.per.week  income
0       90              9             0              40       0
1       82              9             0              18       0
2       66             10             0              40       0
3       54              4             0              40       0
4       41             10             0              40       0
...    ...            ...           ...             ...     ...
32556   22             10             0              40       0
32557   27             12             0              38       0
32558   40              9             0              40       1
32559   58              9             0              40       0
32560   22              9             0              20       0

[32561 rows x 5 columns]>
```

```
X = dataset.iloc[:, :-1].values
X
```

```
array([[90,  9,  0, 40],
       [82,  9,  0, 18],
       [66, 10,  0, 40],
       ...,
       [40,  9,  0, 40],
       [58,  9,  0, 40],
       [22,  9,  0, 20]])
```

```
Y = dataset.iloc[:, -1].values
Y
```

```
array([0, 0, 0, ..., 1, 0, 0])
```

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, Y, test_size = 0.25, random_state = 0)
```

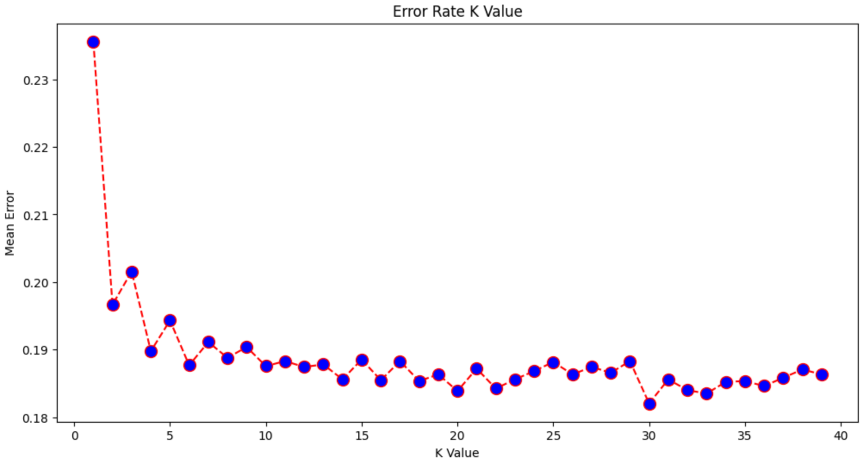
```
from sklearn.preprocessing import StandardScaler
sc = StandardScaler()
X_train = sc.fit_transform(X_train)
X_test = sc.transform(X_test)
```

```
error = []
from sklearn.neighbors import KNeighborsClassifier
import matplotlib.pyplot as plt

# Calculating error for K values between 1 and 40
for i in range(1, 40):
    model = KNeighborsClassifier(n_neighbors=i)
    model.fit(X_train, y_train)
    pred_i = model.predict(X_test)
    error.append(np.mean(pred_i != y_test))

plt.figure(figsize=(12, 6))
plt.plot(range(1, 40), error, color='red', linestyle='dashed', marker='o',
         markerfacecolor='blue', markersize=10)
plt.title('Error Rate K Value')
plt.xlabel('K Value')
plt.ylabel('Mean Error')
```

```
Text(0, 0.5, 'Mean Error')
```



```
from sklearn.neighbors import KNeighborsClassifier
model = KNeighborsClassifier(n_neighbors = 2, metric = 'minkowski', p = 2)
model.fit(X_train, y_train)
```

```
▾        KNeighborsClassifier
KNeighborsClassifier(n_neighbors=2)
```

```
age = int(input("Enter New Employee's Age: "))
edu = int(input("Enter New Employee's Education: "))
cg = int(input("Enter New Employee's Captital Gain: "))
wh = int(input("Enter New Employee's Hour's Per week: "))
newEmp = [[age,edu,cg,wh]]
result = model.predict(sc.transform(newEmp))
print(result)

if result == 1:
  print("Employee might got Salary above 50K")
else:
  print("Customer might not got  Salary above 50K")
```

```
Enter New Employee's Age: 25
Enter New Employee's Education: 12
Enter New Employee's Captital Gain: 10000
Enter New Employee's Hour's Per week: 30
[1]
Employee might got Salary above 50K
```

```
y_pred = model.predict(X_test)
print(np.concatenate((y_pred.reshape(len(y_pred),1), y_test.reshape(len(y_test),1)),1))
```

```
[[0 0]
 [0 0]
 [0 0]
 ...
 [0 0]
 [0 0]
 [0 0]]
```

```
from sklearn.metrics import confusion_matrix, accuracy_score
cm = confusion_matrix(y_test, y_pred)

print("Confusion Matrix: ")
print(cm)

print("Accuracy of the Model: {0}%".format(accuracy_score(y_test, y_pred)*100))
```

```
Confusion Matrix: 
[[5918  275]
 [1326  622]]
Accuracy of the Model: 80.33411128853949%
```