```python
In [1]: import numpy as np
        import pandas as pd
        from sklearn.model_selection import train_test_split
        data = pd.read_csv("BostonHousing.csv", header="infer").values
        X = data[:,0:-1]
        y = data[:,-1]
        X_train, X_test, y_train, y_test = train_test_split(X,y,test_size=0.2)
```

```python
In [2]: pred = []
        k = 3
        for i in range(X_test.shape[0]):
            dist = np.sqrt(np.sum((X_train-X_test[i])**2, axis=1))
            minInd = np.argpartition(dist, k)[0:k]
            similartiy = 1/(dist+10e-20)
            denom = sum(similartiy[minInd])
            pred.append(np.dot(similartiy[minInd]/denom, y_train[minInd]))
        pred = np.array(pred, float)
        def MAE(a,b):
            return np.sum(abs(a-b))/len(a)
        def MSE(a,b):
            return np.sum((a-b)**2)/len(a)
        def RMSE(a,b):
            return np.sqrt(np.sum((a-b)**2)/len(a))
        def MAPE(a,b):
            return np.sum(abs(a-b)/b)/len(a)*100
        print(f"MAE : {MAE(pred, y_test)}")
        print(f"MSE : {MSE(pred, y_test)}")
        print(f"RMSE : {RMSE(pred, y_test)}")
        print(f"MAPE : {MAPE(pred, y_test)}%")
```

```
MAE : 4.129900661349063
MSE : 33.77988941824441
RMSE : 5.812046921545318
MAPE : 20.121955815414573%
```

```python
In [3]: from sklearn.neighbors import KNeighborsRegressor
        model = KNeighborsRegressor(3)
        model.fit(X_train, y_train)
        pred = model.predict(X_test)
        print(f"MAE : {MAE(pred, y_test)}")
        print(f"MSE : {MSE(pred, y_test)}")
        print(f"RMSE : {RMSE(pred, y_test)}")
        print(f"MAPE : {MAPE(pred, y_test)}%")
```

```
MAE : 4.311437908496733
MSE : 37.64316993464052
RMSE : 6.135402996922086
MAPE : 20.709185679610208%
```

Mihir Patel