

Model Planning and Building

Aim:

To describe the model planning and Building of the whole data set

Code:

```

import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.linear_model import LinearRegression
from sklearn.preprocessing import StandardScaler
df = pd.read_csv('advertising.csv')
print(df.head())
print(df.describe())

# Feature & target
X = df[['TV', 'Radio', 'Newspapers']]
Y = df['Sales']

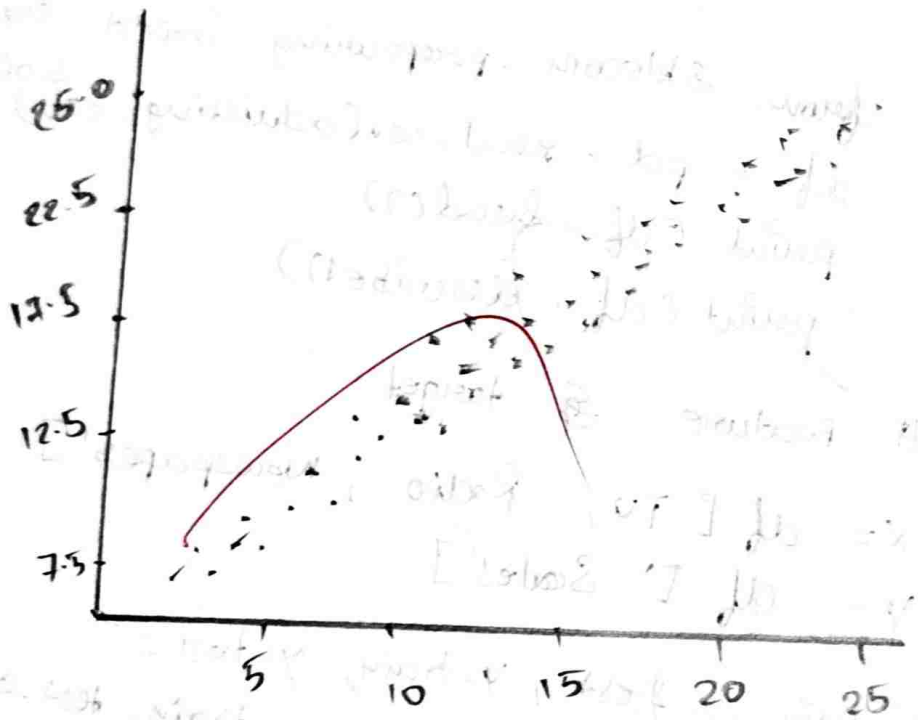
X_train, X_test, Y_train, Y_test = train_test_split(
    X, Y, test_size=0.2,
    random=0)

```

Output

TV	Radio	Newspaper	Sales
280.1	87.8	69.2	22.1
44.5	39.3	45.1	10.4
17.2	45.9	69.3	12.0
151.5	41.3	58.5	16.5

Linear regression MSE : 4.5222



(0 = no ad)

Train Model.

```
model = Linear Regression()  
model.fit(x=train, y=train)
```

```
y_pred = model.predict(x=test)
```

```
mse = mean_squared_error(x=test, y=test)
```

```
print('Linear Regression .MSE', mse)
```

```
plt.figure(figsize=(8,5))
```

```
sns.scatterplot(x=y_test, y=y_pred)
```

```
plt.xlabel('Actual Sales')
```

```
plt.ylabel('Predicted Sales')
```

```
plt.title('Linear Regression . Actual vs  
predict sales')
```

```
plt.show()
```

apply K-mean.

```
db[cluster] = kmean.fit_predict(scaled)
```

```
plt.figure(figsize=(8,6))
```

```
sns.scatterplot(data=db, x='TV',  
y='sales',  
hue='cluster')
```

```
... = set 2')
```

```
plt.show()
```

Result: The Program has been executed successfully.