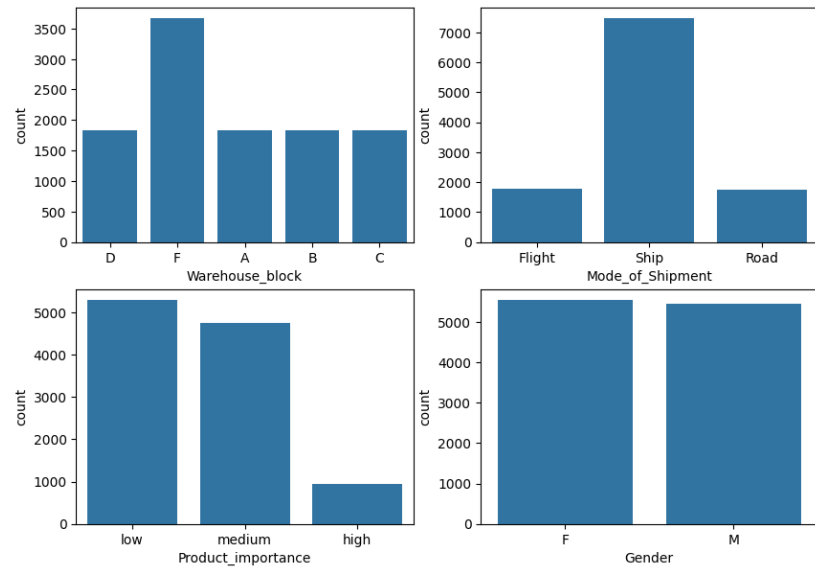
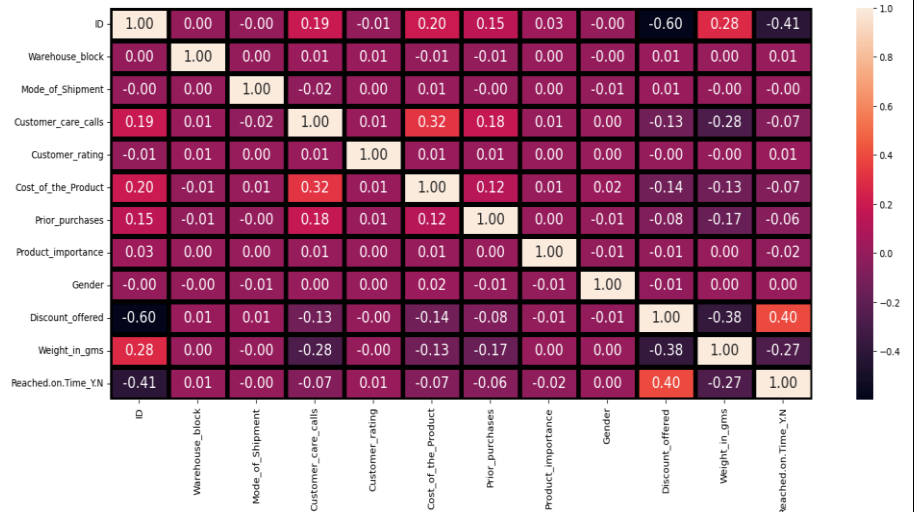


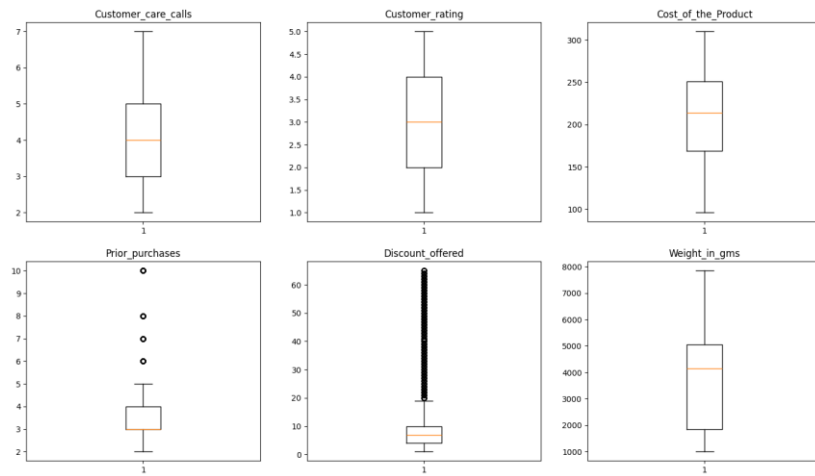
Bivariate Analysis



Multivariate Analysis



Outliers and Anomalies



Data Preprocessing Code Screenshots

Loading Data

```
#Load the Dataset
data=pd.read_csv('Train.csv')
data.head()
```

| | ID | Warehouse_block | Mode_of_Shipment | Customer_care_calls | Customer_rating | Cost_of_the_Product | Prior_purchases | Product_importance |
|---|----|-----------------|------------------|---------------------|-----------------|---------------------|-----------------|--------------------|
| 0 | 1 | D | Flight | 4 | 2 | 177 | 3 | 44 |
| 1 | 2 | F | Flight | 4 | 5 | 216 | 2 | 59 |
| 2 | 3 | A | Flight | 2 | 2 | 183 | 4 | 48 |
| 3 | 4 | B | Flight | 3 | 3 | 176 | 4 | 10 |
| 4 | 5 | C | Flight | 2 | 2 | 184 | 3 | 46 |

Handling Missing Data

```
#Checking for missing values
data.isnull().sum()
```

```
ID          0
Warehouse_block    0
Mode_of_Shipment  0
Customer_care_calls  0
Customer_rating    0
Cost_of_the_Product  0
Prior_purchases    0
Product_importance  0
Gender            0
Discount_offered    0
Weight_in_gms       0
Reached.on.Time_Y.N  0
dtype: int64
```

Data Encoding

```
from sklearn.preprocessing import LabelEncoder
le = LabelEncoder()
data.Warehouse_block = le.fit_transform(data.Warehouse_block)
data.Mode_of_Shipment = le.fit_transform(data.Mode_of_Shipment)
data.Product_importance = le.fit_transform(data.Product_importance)
data.Gender = le.fit_transform(data.Gender)
data.head()
```

| | ID | Warehouse_block | Mode_of_Shipment | Customer_care_calls | Customer_rating | Cost_of_the_Product | Prior_purchases | Product importance | Gender | Discount offered | Weight |
|---|----|-----------------|------------------|---------------------|-----------------|---------------------|-----------------|--------------------|--------|------------------|--------|
| 0 | 1 | 3 | 0 | 4 | 2 | 177 | 3 | 1 | 0 | 44 | |
| 1 | 2 | 4 | 0 | 4 | 5 | 216 | 2 | 1 | 1 | 59 | |
| 2 | 3 | 0 | 0 | 2 | 2 | 183 | 4 | 1 | 1 | 48 | |
| 3 | 4 | 1 | 0 | 3 | 3 | 176 | 4 | 2 | 1 | 10 | |
| 4 | 5 | 2 | 0 | 2 | 2 | 184 | 3 | 2 | 0 | 46 | |

| | |
|---------------------|--|
| Data Transformation | <pre>from sklearn.preprocessing import StandardScaler scale=StandardScaler() xnorm_train = scale.fit_transform(x_train) xnorm_test = scale.fit_transform(x_test)</pre> <pre>from sklearn.preprocessing import MinMaxScaler norm=MinMaxScaler() x=norm.fit_transform(x) x</pre> |
| Feature Engineering | Code is in the final code submitted. |
| Save Processed Data | - |