

manova

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1 MANOVA

- we are using Sample data set price and purchase_days_before_daprture are dependent
- and airline are independent variables

```
[ ]: # Import Libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from statsmodels.multivariate.manova import MANOVA
```

```
[ ]: # Load Dataset
df = pd.read_csv('Sample.csv')
df.head()
```

```
[ ]: purchase_days_before_daprture  airline  baggage_weight  baggage_pieces  \
0                                0    alpha         0.000000           0
1                                4    beta          0.444444           0
2                                2    beta          0.444444           0
3                               12    beta          0.888889           0
4                               17   gamma          0.444444           1

      price
0   8739.0
1  10088.0
2   7350.0
3   9684.0
4   7765.0
```

```
[ ]: df.columns
```

```
[ ]: Index(['purchase_days_before_daprture', 'airline', 'baggage_weight',
          'baggage_pieces', 'price'],
          dtype='object')
```

```
[ ]: # MANOVA
movs =MANOVA.from_formula('purchase_days_before_daprture+price +
    ↳baggage_weight+baggage_pieces ~ airline',data=df)
print(movs.mv_test())
```

Multivariate linear model

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Intercept	Value	Num DF	Den DF	F Value	Pr > F	

Wilks' lambda	0.1081	4.0000	29993.0000	61872.1552	0.0000	
Pillai's trace	0.8919	4.0000	29993.0000	61872.1552	0.0000	
Hotelling-Lawley trace	8.2515	4.0000	29993.0000	61872.1552	0.0000	
Roy's greatest root	8.2515	4.0000	29993.0000	61872.1552	0.0000	

airline	Value	Num DF	Den DF	F Value	Pr > F	

Wilks' lambda	0.2871	12.0000	79354.3106	3985.8011	0.0000	
Pillai's trace	0.7159	12.0000	89985.0000	2350.3901	0.0000	
Hotelling-Lawley trace	2.4731	12.0000	52483.4377	6181.0824	0.0000	
Roy's greatest root	2.4689	4.0000	29995.0000	18513.4609	0.0000	
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```
[ ]:
```