

# Scenario

We want to see whether there is any association between customers from different regions and purchasing a product from a specific purchase channel.

# Hypothesis

**H<sub>0</sub>:** There is no significant association between region and purchase channel.

**H<sub>a</sub>:** There is a significant association between region and purchase channel.

Sig. Level

0.05 or 5%

# Appropriate Test

Chi-square test for independence

# Performing Test

```
from scipy.stats import chi2_contingency
```

```
cross_tab = pd.crosstab(preprocessed_data['Region'], preprocessed_data['Purchase_Channel'])
```

```
chi2, p_value, dof, expected = chi2_contingency(cross_tab)
```

```
print("P-value:", p_value)
```

# Decision & Conclusion

$\alpha = 0.05$



```
if p_value < alpha:
```

```
    print("Reject the null hypothesis. There is a significant association between region and purchase channel.")
```

```
else:
```

```
    print("Fail to reject the null hypothesis. There is no significant association between region and purchase channel.")
```