In [1]:
```
import numpy                as        np
import pandas               as        pd
import matplotlib.pyplot    as        plt
from   scipy.stats          import    chi2_contingency
```

In [4]:
```
df = pd.DataFrame({'Promoted': [15, 16], 'Not-promoted': [9, 15]}, index = ['C
```

In [5]:
```
df
```

Out[5]:

	Promoted	Not-promoted
Company A	15	9
Company B	16	15

Step 1: Define null and alternative hypotheses

H0: Promotions are dependent on Company type H1: Promotions are independent of Company type

Step 2: Decide the significance level

Here we select α= 0.05 as per 95% Confidence Level requirement in the question.

Step 3: Identify the test statistic

This is a Chi-sq Test where categorical data has been reported in raw frequencies

Step 4: Calculate the p - value and test statistic

In [6]:
```
chi2, pval, dof, exp_freq = chi2_contingency(df, correction = False)
```

In [7]:
```
pval
```

Out[7]:
```
0.41943105261448455
```

Step 5: Decide to reject or accept null hypothesis

Since the pvalue is > 0.05, therefore, at 95% confidence we fail to reject the null hypothesis which implies the management is not biased in favor of employees originally belonging to company A

In [ ]: