

In [1]:

```
import pandas as pd
import numpy as np
from apyori import apriori
```

In [2]:

```
df = pd.read_csv('customer.csv')
```

In [3]:

```
backup_df = df
```

In [4]:

```
df.head(3)
```

Out[4]:

	CustomerID	Gender	Age	Annual Income (\$)	Spending Score (1- 100)	Profession	Work Experience	Family Size	Graduated
0	1	Male	19	15000	39	Healthcare	1	4	Yes
1	2	Male	21	35000	81	Engineer	3	3	Yes
2	3	Female	20	86000	6	Engineer	1	1	No

In [5]:

```
# df.drop(['Profession', 'Graduated', 'Gender'], axis=1, inplace=True)
```

In [6]:

```
df.shape
```

Out[6]:

```
(2000, 9)
```

In [7]:

```
df.values[1,2]
```

Out[7]:

```
21
```

In [7]:

```
records = []
for i in range(0,2000):
    records.append([str(df.values[i,j]) for j in range(0,9)])
```

In [8]:

```
# Build Apriori model
association_rules = apriori(records, min_support = 0.003, min_confidence = 1)
association_results = list(association_rules)
```

In [9]:

```
len(association_results)
```

Out[9]:

78

In [10]:

```
print(association_results)
```

```
[RelationRecord(items=frozenset({'Male', '89000'}), support=0.003, ordered_statistics=[OrderedStatistic(items_base=frozenset({'89000'}), items_add=frozenset({'Male'}), confidence=1.0, lift=2.4570024570024573)]), RelationRecord(items=frozenset({'21', 'Female', '0'}), support=0.0035, ordered_statistics=[OrderedStatistic(items_base=frozenset({'21', '0'}), items_add=frozenset({'Female'}), confidence=1.0, lift=1.6863406408094437)]), RelationRecord(items=frozenset({'Yes', '73', '0'}), support=0.003, ordered_statistics=[OrderedStatistic(items_base=frozenset({'73', '0'}), items_add=frozenset({'Yes'}), confidence=1.0, lift=1.657000828500414)]), RelationRecord(items=frozenset({'75', 'Male', '0'}), support=0.0035, ordered_statistics=[OrderedStatistic(items_base=frozenset({'75', '0'}), items_add=frozenset({'Male'}), confidence=1.0, lift=2.4570024570024573)]), RelationRecord(items=frozenset({'50', 'Female', '1'}), support=0.0075, ordered_statistics=[OrderedStatistic(items_base=frozenset({'50', '1'}), items_add=frozenset({'Female'}), confidence=1.0, lift=1.6863406408094437)]), RelationRecord(items=frozenset({'72', 'No', '1'}), support=0.005, ordered_statistics=[OrderedStatistic(items_base=frozenset({'72', '1'}), items_add=frozenset({'No'}), confidence=1.0, lift=2.5773195876288657)]), RelationRecord(items=frozenset({'10', 'Engineer', 'Yes'}), support=0.003, ordered_statistics=[OrderedStatistic(items_base=frozenset({'10', 'Engineer'}), items_add=frozenset({'Yes'}), confidence=1.0, lift=1.657000828500414)])]
```

In []: