Creation of a dataframe from scratch using pandas & save it as .csv on desktop.

In [3]:
```
import pandas as pd

# Create a list of dictionaries that represent the rows of the dataframe
data = [{'name': 'John Smith', 'age': 35, 'gender': 'male',
         'city': 'New York', 'income': 80000,
         'education': 'Bachelors', 'occupation': 'Engineer', 'children': 2},
        {'name': 'Jane Doe', 'age': 29, 'gender': 'female',
         'city': 'Los Angeles', 'income': 75000,
         'education': 'Masters', 'occupation': 'Teacher', 'children': 1},
        {'name': 'Bob Johnson', 'age': 42, 'gender': 'male',
         'city': 'Chicago', 'income': 60000,
         'education': 'High School', 'occupation': 'Construction', 'children': 3},
        {'name': 'Samantha Williams', 'age': 28, 'gender': 'female',
         'city': 'Houston', 'income': 72000,
         'education': 'Bachelors', 'occupation': 'Data Analyst', 'children': 0},
        {'name': 'Michael Brown', 'age': 45, 'gender': 'male',
         'city': 'Phoenix', 'income': 90000,
         'education': 'Masters', 'occupation': 'Manager', 'children': 2}]

# Create the dataframe
df = pd.DataFrame(data)
```

In [4]:
```
df
```

Out[4]:

	name	age	gender	city	income	education	occupation	children
0	John Smith	35	male	New York	80000	Bachelors	Engineer	2
1	Jane Doe	29	female	Los Angeles	75000	Masters	Teacher	1
2	Bob Johnson	42	male	Chicago	60000	High School	Construction	3
3	Samantha Williams	28	female	Houston	72000	Bachelors	Data Analyst	0
4	Michael Brown	45	male	Phoenix	90000	Masters	Manager	2

Adding new columns using df.apply function

In [13]:
```
#Add a new column 'is_home_owner'
df['is_home_owner'] = df.apply(
    lambda row: True if row['income'] > 75000 else False, axis=1)

#Add a new column 'age_range'
df['age_range'] = df.apply(
    lambda row: 'Young' if row['age'] < 35 else (
        'Middle' if row['age'] < 45 else 'Senior'), axis=1)

#Add a new column 'income_range'
df['income_range'] = df.apply(
    lambda row: 'Low' if row['income'] < 65000 else (
        'Medium' if row['income'] < 80000 else 'High'), axis=1)
```

In [18]:
```
print(df)
```

```
               name  age  gender         city  income    education  \
0        John Smith   35    male     New York   80000    Bachelors
1          Jane Doe   29  female  Los Angeles   75000      Masters
2       Bob Johnson   42    male      Chicago   60000  High School
3  Samantha Williams   28  female      Houston   72000    Bachelors
4      Michael Brown   45    male      Phoenix   90000      Masters

     occupation  children  is_home_owner age_range income_range
0      Engineer         2           True    Middle         High
1       Teacher         1          False     Young       Medium
2  Construction         3          False    Middle          Low
3  Data Analyst         0          False     Young       Medium
4       Manager         2           True    Senior         High
```

In [17]:
```
#export the dataframe to  csv and provide the path
df.to_csv('Z:/pandas/dfcreatedfromscratch.csv')
```

In [ ]:
```

```