In [1]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

%matplotlib inline
import warnings
warnings.filterwarnings('ignore')
```

In [2]:

```
= pd.read_csv(r'C:\Users\LENOVO\Desktop\Monty Datascien\16th,17th\16th,17th\Descriptive stats code- practivle\Inc_Exp_Data.csv')
4
```

In [3]:

df

Out[3]:

0 0 0 0 0 0 0 0 0 0		Mthly_HH_Income	Mthly_HH_Expense	No_of_Fly_Members	Emi_or_Rent_Amt	Annual_HH_Income	Highest_Qualified_Member	No_of_Earning
2 10000 4500 2 0 112800 Unose-Orientate literate 3 10000 2000 1 0 97200 Illiserate 4 12500 12000 2 3000 147000 Graduate 5 14000 19000 2 0 116580 Graduate 6 15000 20000 3 35000 116700 Pea-Graduate 8 15000 20000 4 0 221880 Under-Graduate 9 20000 18000 4 0 228800 Under-Graduate 11 22000 18000 3 12000 278840 Under-Graduate 12 22400 15000 3 0 228003 Illisarte 12 22400 15000 4 0 228003 Illisarte 13 24000 10000 4 0 24400 Graduate 14 24000 10000 4	0	5000	8000	3	2000	64200	Under-Graduate	
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Understanding About Dataset

```
In [5]:
df.columns
Out[5]:
dtype='object')
In [7]:
df.shape
Out[7]:
(50, 7)
In [8]:
df.size
Out[8]:
350
In [9]:
df.info()
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 50 entries, 0 to 49
Data columns (total 7 columns):
# Column
                           Non-Null Count Dtype
    Mthly_HH_Income
0
                           50 non-null
                                         int64
    Mthly_HH_Expense
1
                           50 non-null
                                         int64
    No_of_Fly_Members
                           50 non-null
                                         int64
3
    Emi_or_Rent_Amt
                           50 non-null
                                         int64
    Annual_HH_Income
                           50 non-null
4
                                         int64
    Highest_Qualified_Member
                           50 non-null
5
                                         object
                           50 non-null
6
   No_of_Earning_Members
                                          int64
dtypes: int64(6), object(1)
memory usage: 2.9+ KB
In [10]:
```

df.describe()

Out[10]:

	Mthly_HH_Income	Mthly_HH_Expense	No_of_Fly_Members	Emi_or_Rent_Amt	Annual_HH_Income	No_of_Earning_Members
count	50.000000	50.000000	50.000000	50.000000	5.000000e+01	50.000000
mean	41558.000000	18818.000000	4.060000	3060.000000	4.900190e+05	1.460000
std	26097.908979	12090.216824	1.517382	6241.434948	3.201358e+05	0.734291
min	5000.000000	2000.000000	1.000000	0.000000	6.420000e+04	1.000000
25%	23550.000000	10000.000000	3.000000	0.000000	2.587500e+05	1.000000
50%	35000.000000	15500.000000	4.000000	0.000000	4.474200e+05	1.000000
75%	50375.000000	25000.000000	5.000000	3500.000000	5.947200e+05	2.000000
max	100000.000000	50000.000000	7.000000	35000.000000	1.404000e+06	4.000000

In [11]:

```
df.describe().T # by using .T it will transpose rows into column and vice versa.
```

Out[11]:

	count	mean	std	min	25%	50%	75%	max
Mthly_HH_Income	50.0	41558.00	26097.908979	5000.0	23550.0	35000.0	50375.0	100000.0
Mthly_HH_Expense	50.0	18818.00	12090.216824	2000.0	10000.0	15500.0	25000.0	50000.0
No_of_Fly_Members	50.0	4.06	1.517382	1.0	3.0	4.0	5.0	7.0
Emi_or_Rent_Amt	50.0	3060.00	6241.434948	0.0	0.0	0.0	3500.0	35000.0
Annual_HH_Income	50.0	490019.04	320135.792123	64200.0	258750.0	447420.0	594720.0	1404000.0
No_of_Earning_Members	50.0	1.46	0.734291	1.0	1.0	1.0	2.0	4.0

Checking For Missing values or NAN

In [13]:

```
df.isna().any()
```

Out[13]:

Mthly_HH_Income	False
Mthly_HH_Expense	False
No_of_Fly_Members	False
Emi_or_Rent_Amt	False
Annual_HH_Income	False
<pre>Highest_Qualified_Member</pre>	False
No_of_Earning_Members	False
dtype: bool	

In [14]:

```
df.isnull().sum()
```

Out[14]:

Mthly_HH_Income	0
Mthly_HH_Expense	0
No_of_Fly_Members	0
Emi_or_Rent_Amt	0
Annual_HH_Income	0
<pre>Highest_Qualified_Member</pre>	0
No_of_Earning_Members	0
dtype: int64	

There are no missing values or nan in our dataset

Checkings For Outliers

Mthly_HH_Expense

Mthly HH Income

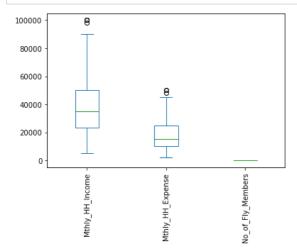
No_of_Fly_Members

```
In [30]:
```

In [31]:

0.2

```
df[['Mthly_HH_Income', 'Mthly_HH_Expense', 'No_of_Fly_Members']].plot(kind='box')
plt.xticks(rotation = 90)
plt.show()
```



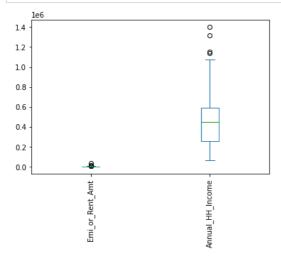
Annual_HH_Income

Emi_or_Rent_Amt

```
In [32]:
```

18818.0

```
df[['Emi_or_Rent_Amt', 'Annual_HH_Income', 'Highest_Qualified_Member']].plot(kind='box')
plt.xticks(rotation = 90)
plt.show()
```



From the above graphs it is clear that we have outliers in data

Finding Mean Expense of a Household

```
In [33]:

df["Mthly_HH_Expense"].mean()

Out[33]:
```

Finding Median Expense of a Household

```
In [34]:

df["Mthly_HH_Expense"].median()

Out[34]:

15500.0

In [36]:

df_exp = pd.crosstab(index=df["Mthly_HH_Expense"], columns="count")
 df_exp.reset_index(inplace=True)
 df_exp[df_exp['count'] == df.Mthly_HH_Expense.value_counts().max()]

Out[36]:
```

```
        col_0
        Mthly_HH_Expense
        count

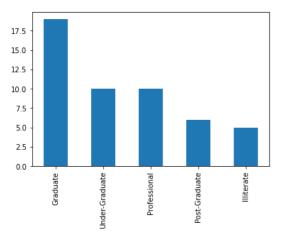
        18
        25000
        8
```

```
In [37]:
```

```
df["Highest_Qualified_Member"].value_counts().plot(kind="bar")
```

Out[37]:

<AxesSubplot:>

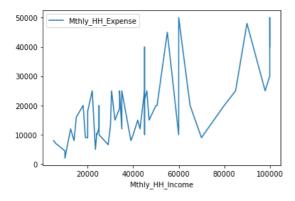


In [38]:

```
df.plot(x="Mthly_HH_Income", y="Mthly_HH_Expense")
```

Out[38]:

<AxesSubplot:xlabel='Mthly_HH_Income'>



Higher the income Higher is the expense

```
In [39]:
```

```
IQR=df["Mthly_HH_Expense"].quantile(0.75)- df["Mthly_HH_Expense"].quantile(0.25)
IQR
```

Out[39]:

15000.0

Finding Standard Deviation(std) for first 4 columns

In [40]:

```
pd.DataFrame(df.iloc[:,0:5].std().to_frame())
```

Out[40]:

	0
Mthly_HH_Income	26097.908979
Mthly_HH_Expense	12090.216824
No_of_Fly_Members	1.517382
Emi_or_Rent_Amt	6241.434948
Annual_HH_Income	320135.792123

```
5/18/23, 12:50 PM
                                                                  Family Income Expense - Jupyter Notebook
  In [41]:
  pd.DataFrame(df.iloc[:,0:5].std().to_frame()).T
  Out[41]:
     Mthly_HH_Income Mthly_HH_Expense No_of_Fly_Members Emi_or_Rent_Amt Annual_HH_Income
         26097.908979
                            12090.216824
                                                  1.517382
                                                                6241.434948
                                                                                 320135.792123
  Finding Variance(var) for first 3 columns
  In [42]:
  pd.DataFrame(df.iloc[:,0:4].var().to_frame())
  Out[42]:
     Mthly_HH_Income 6.811009e+08
   Mthly_HH_Expense 1.461733e+08
   No_of_Fly_Members 2.302449e+00
     Emi_or_Rent_Amt 3.895551e+07
  In [43]:
  pd.DataFrame(df.iloc[:,0:4].var().to_frame()).T
  Out[43]:
     {\bf Mthly\_HH\_Income} \quad {\bf Mthly\_HH\_Expense} \quad {\bf No\_of\_Fly\_Members} \quad {\bf Emi\_or\_Rent\_Amt}
         6.811009e+08
                           1.461733e+08
                                                  2.302449
                                                               3.895551e+07
  Finding the values count of Highest qualified member
  In [44]:
  df["Highest_Qualified_Member"].value_counts().to_frame()
  Out[44]:
                  Highest Qualified Member
```

	riigiiest_Quaiirieu_ineiribei
Graduate	19
Under-Graduate	10
Professional	10
Post-Graduate	6
Illiterate	5

In [45]:

```
df["Highest_Qualified_Member"].value_counts().to_frame().T
```

Out[45]:

	Graduate	Under-Graduate	Professional	Post-Graduate	IIIIterate
Highest_Qualified_Member	19	10	10	6	5

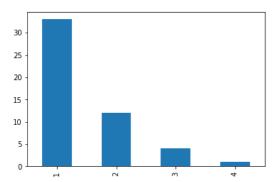
Plot of No_of_Earning_Members

In [53]:

```
df["No_of_Earning_Members"].value_counts().plot(kind="bar")
```

Out[53]:

<AxesSubplot:>

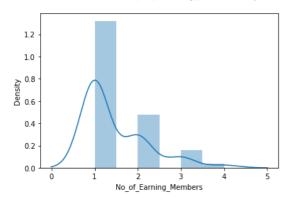


In [47]:

```
sns.distplot(df['No_of_Earning_Members'])
```

Out[47]:

<AxesSubplot:xlabel='No_of_Earning_Members', ylabel='Density'>



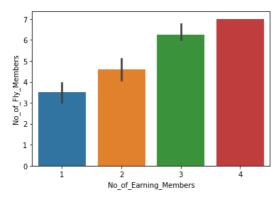
From these 2 graphs we understood that most of the family only have 1 person who is earing

In [59]:

```
sns.barplot('No_of_Earning_Members','No_of_Fly_Members',data=df)
```

Out[59]

<AxesSubplot:xlabel='No_of_Earning_Members', ylabel='No_of_Fly_Members'>



From here we understand that families having more than 6 members have more earning members (Almost half the size of familymembers)

In []: