In [1]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

In [3]:
```
df = pd.read_csv(r"C:\Users\mohap\Downloads\11thApril\Inc_Exp_Data.csv")
```

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

Out[5]:

	Mthly_HH_Income	Mthly_HH_Expense	No_of_Fly_Members	Emi_or_Rent_Amt	Annual_H
0	5000	8000	3	2000	
1	6000	7000	2	3000	
2	10000	4500	2	0	
3	10000	2000	1	0	
4	12500	12000	2	3000	
5	14000	8000	2	0	
6	15000	16000	3	35000	
7	18000	20000	5	8000	
8	19000	9000	2	0	
9	20000	9000	4	0	
10	20000	18000	4	8000	
11	22000	25000	6	12000	
12	23400	5000	3	0	
13	24000	10500	6	0	
14	24000	10000	4	0	
15	25000	12300	3	0	
16	25000	20000	3	3500	
17	25000	10000	6	0	
18	29000	6600	2	2000	
19	30000	13000	4	0	
20	30500	25000	5	5000	
21	32000	15000	4	0	
22	34000	19000	6	0	
23	34000	25000	3	4000	
24	35000	12000	3	0	
25	35000	25000	4	0	
26	39000	8000	4	0	
27	40000	10000	4	0	
28	42000	15000	4	0	
29	43000	12000	4	0	

	Mthly_HH_Income	Mthly_HH_Expense	No_of_Fly_Members	Emi_or_Rent_Amt	Annual_H
30	45000	25000	6	0	
31	45000	40000	6	3500	
32	45000	10000	2	1000	
33	45000	22000	4	2500	
34	46000	25000	5	3500	
35	47000	15000	7	0	
36	50000	20000	4	0	
37	50500	20000	3	0	
38	55000	45000	6	12000	
39	60000	10000	3	0	
40	60000	50000	6	10000	
41	65000	20000	4	5000	
42	70000	9000	2	0	
43	80000	20000	4	0	
44	85000	25000	5	0	
45	90000	48000	7	0	
46	98000	25000	5	0	
47	100000	30000	6	0	
48	100000	50000	4	20000	
49	100000	40000	6	10000	

In [7]:
```
df.head()
```

Out[7]:

	Mthly_HH_Income	Mthly_HH_Expense	No_of_Fly_Members	Emi_or_Rent_Amt	Annual_HH
0	5000	8000	3	2000	
1	6000	7000	2	3000	
2	10000	4500	2	0	
3	10000	2000	1	0	
4	12500	12000	2	3000	

In [13]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 50 entries, 0 to 49
Data columns (total 7 columns):
 #   Column                   Non-Null Count  Dtype
---  ------                   --------------  -----
 0   Mthly_HH_Income          50 non-null     int64
 1   Mthly_HH_Expense         50 non-null     int64
 2   No_of_Fly_Members        50 non-null     int64
 3   Emi_or_Rent_Amt          50 non-null     int64
 4   Annual_HH_Income         50 non-null     int64
 5   Highest_Qualified_Member 50 non-null     object
 6   No_of_Earning_Members    50 non-null     int64
dtypes: int64(6), object(1)
memory usage: 2.9+ KB
```

In [15]:
```
df.shape
```

Out[15]: (50, 7)

In [17]:
```
df.describe()
```

Out[17]:

	Mthly_HH_Income	Mthly_HH_Expense	No_of_Fly_Members	Emi_or_Rent_Amt	Annua
count	50.000000	50.000000	50.000000	50.000000	
mean	41558.000000	18818.000000	4.060000	3060.000000	
std	26097.908979	12090.216824	1.517382	6241.434948	
min	5000.000000	2000.000000	1.000000	0.000000	
25%	23550.000000	10000.000000	3.000000	0.000000	
50%	35000.000000	15500.000000	4.000000	0.000000	
75%	50375.000000	25000.000000	5.000000	3500.000000	
max	100000.000000	50000.000000	7.000000	35000.000000	

In [19]:
```
df.describe().T
```

Out[19]:

	count	mean	std	min	25%	50%	
Mthly_HH_Income	50.0	41558.00	26097.908979	5000.0	23550.0	35000.0	50
Mthly_HH_Expense	50.0	18818.00	12090.216824	2000.0	10000.0	15500.0	25
No_of_Fly_Members	50.0	4.06	1.517382	1.0	3.0	4.0	
Emi_or_Rent_Amt	50.0	3060.00	6241.434948	0.0	0.0	0.0	3
Annual_HH_Income	50.0	490019.04	320135.792123	64200.0	258750.0	447420.0	594
No_of_Earning_Members	50.0	1.46	0.734291	1.0	1.0	1.0	

In [21]:
```
df.isnull().any()
```

Out[21]:
```
Mthly_HH_Income             False
Mthly_HH_Expense            False
No_of_Fly_Members           False
Emi_or_Rent_Amt             False
Annual_HH_Income            False
Highest_Qualified_Member    False
No_of_Earning_Members       False
dtype: bool
```

In [27]:
```
df["Mthly_HH_Expense"].median()
```

Out[27]:
```
15500.0
```

In [29]:
```
df["Mthly_HH_Expense"].mean()
```

Out[29]:
```
18818.0
```

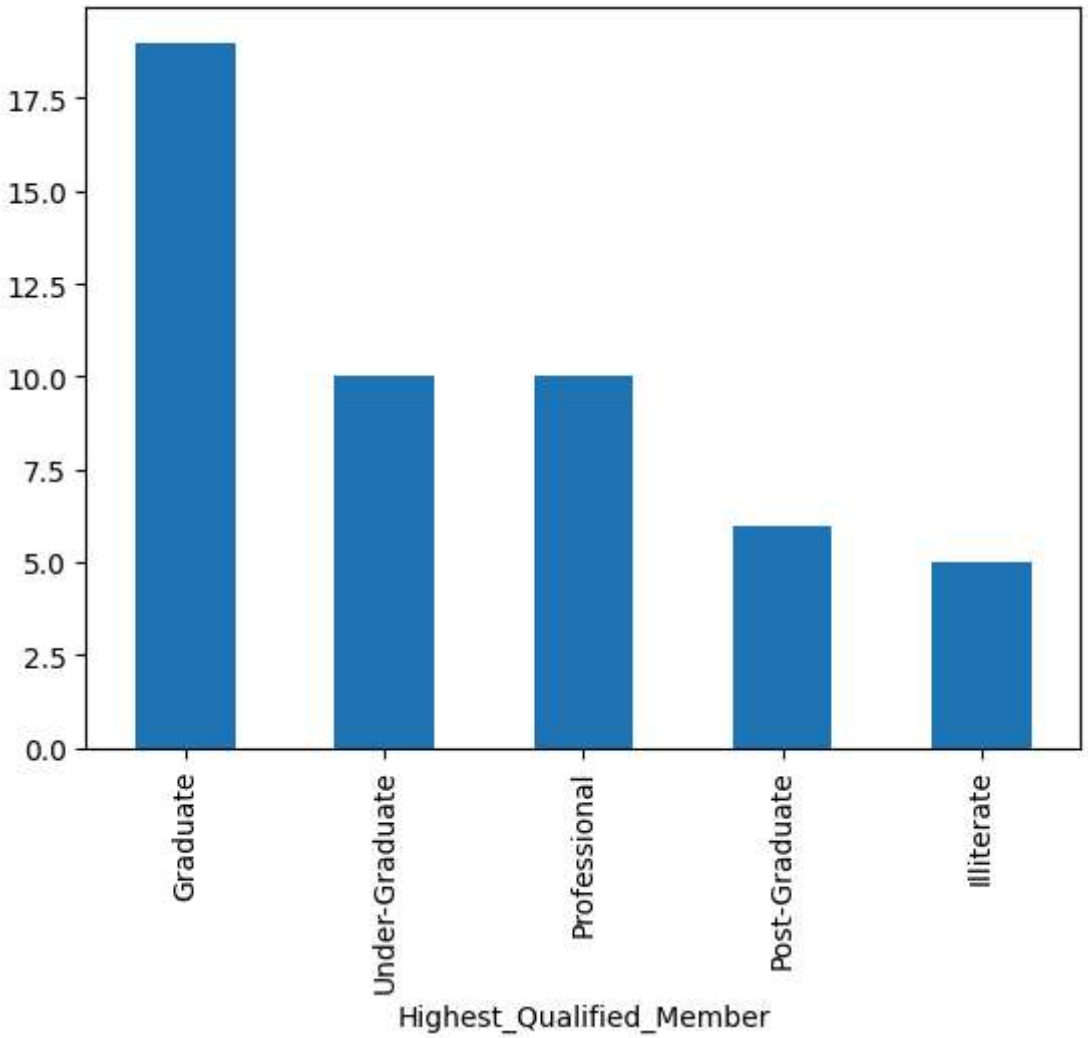
In [37]:
```
mth_ex_tmp = pd.crosstab(index=df["Mthly_HH_Expense"], columns='count')
mth_ex_tmp.reset_index(inplace=True)
mth_ex_tmp[mth_ex_tmp ['count'] == df.Mthly_HH_Expense.value_counts().max()]
```

Out[37]:

col_0	Mthly_HH_Expense	count
18	25000	8

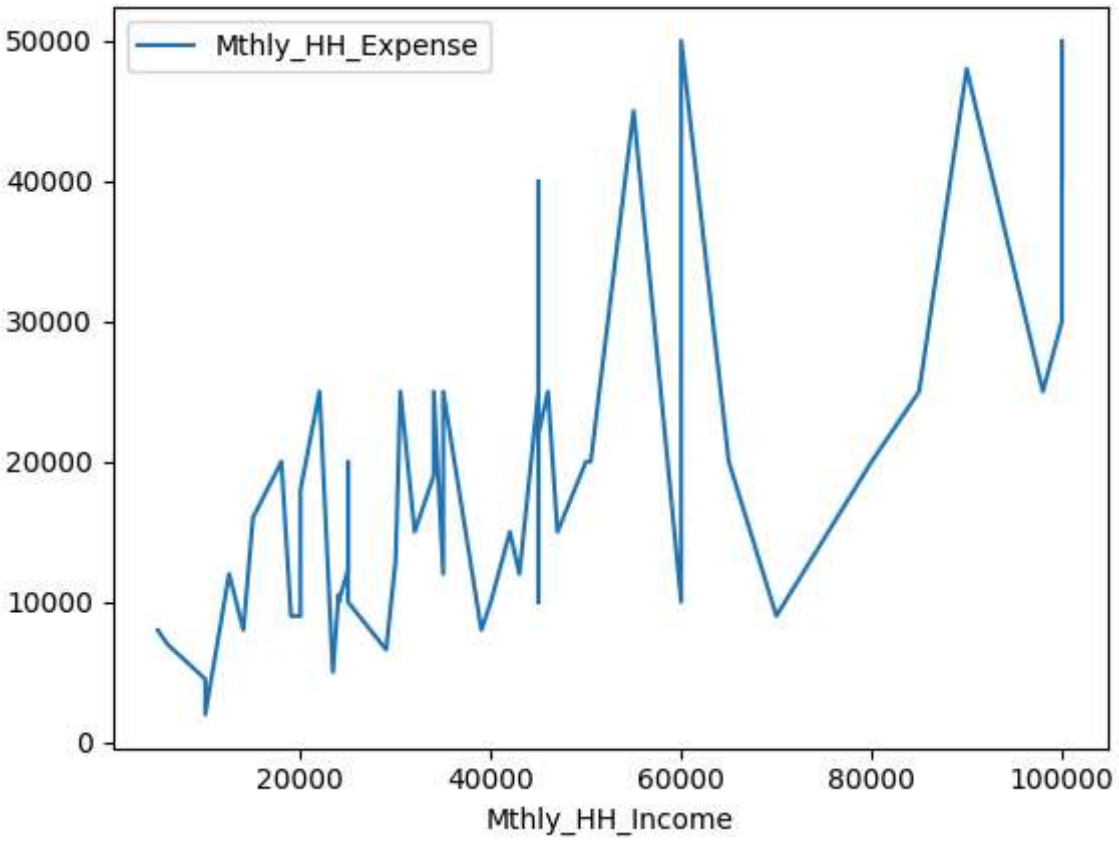
In [39]:
```
df["Highest_Qualified_Member"].value_counts().plot(kind='bar')
```

Out[39]:
```
<Axes: xlabel='Highest_Qualified_Member'>
```



In [41]:
```
df.plot(x="Mthly_HH_Income", y = "Mthly_HH_Expense")
IQR = df["Mthly_HH_Expense"].quantile(0.75)-df["Mthly_HH_Expense"].quantile(0.25)
IQR
```

Out[41]: 15000.0



In [47]:
```
import pandas as pd
pd.DataFrame(df.iloc[:,0:5].std().to_frame()).T
```

Out[47]:

	Mthly_HH_Income	Mthly_HH_Expense	No_of_Fly_Members	Emi_or_Rent_Amt	Annual_HH
0	26097.908979	12090.216824	1.517382	6241.434948	3201

In [ ]:
```
i
```