In [1]:
```
import pandas as pd
import datetime as dt
import matplotlib.pyplot as plt
```

In [2]:
```
df = pd.read_csv('Downloads/mylci_datadownload_20230222_234730.csv')
```

In [3]:
```
df.head()
```

Out[3]:

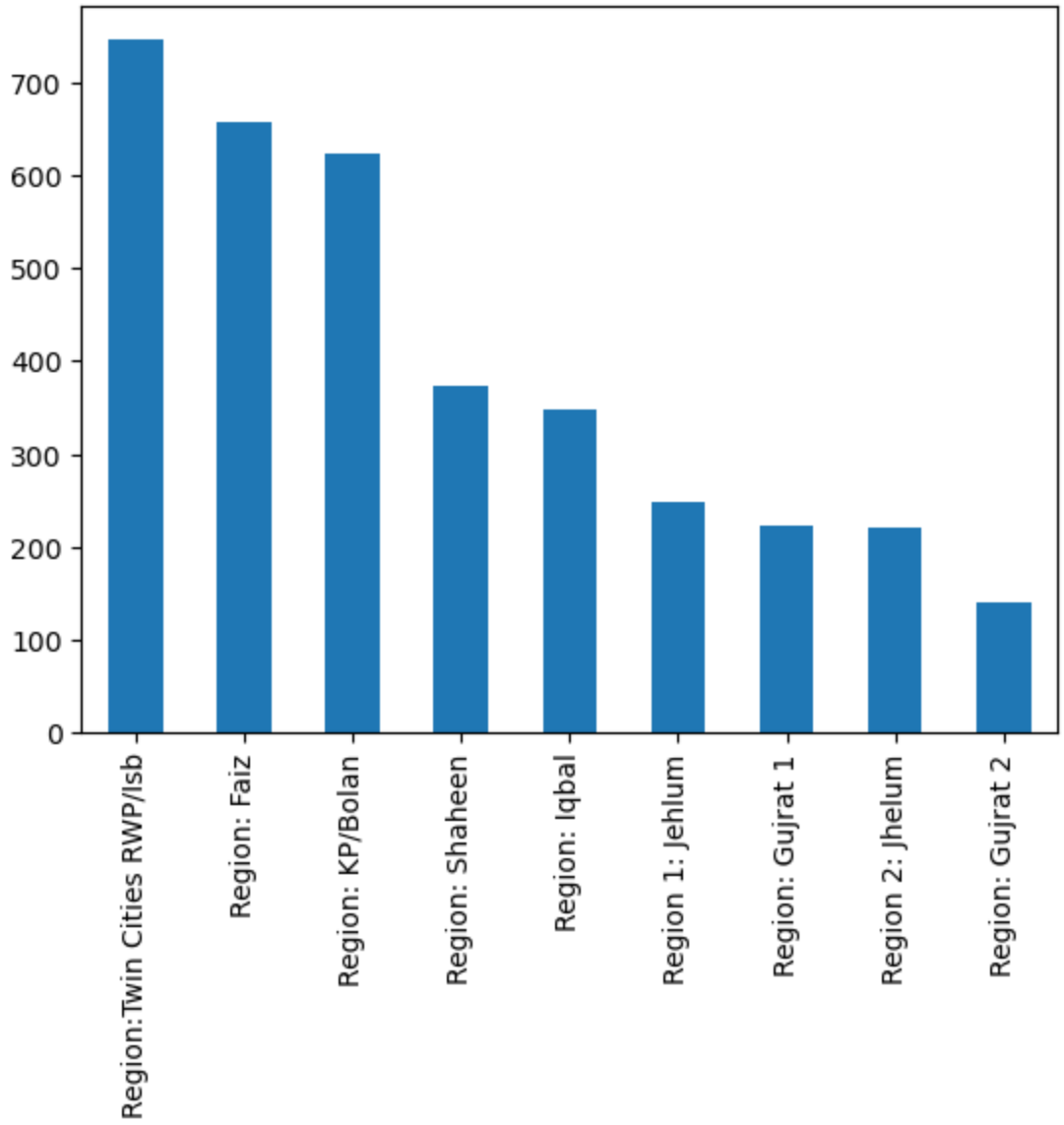
| | Region Name | Zone Name | Title | Club ID | Club Name | Member Address City | Spouse Name | Membership Type | Date of Birth | Gender | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Region: Shaheen | Zone:3 | Past District Governor-Guiding Lion-Club LCIF ... | 25553 | GUJRANWALA | Gujranwala | Nayyer Sultana | Regular Member | 12/31/1957 12:00:00 AM | Male | |
| **1** | Region: Shaheen | Zone:3 | Club Secretary | 25553 | GUJRANWALA | Gujranwala | feroza | Regular Member | 12/28/1968 12:00:00 AM | Male | |
| **2** | Region: Shaheen | Zone:3 | Club Treasurer | 25553 | GUJRANWALA | Gujranwala | TALAT | Regular Member | 12/30/1957 12:00:00 AM | Male | Manı |
| **3** | Region: Shaheen | Zone:3 | Club Director | 25553 | GUJRANWALA | Gujranwala | NaN | Regular Member | 12/30/1949 12:00:00 AM | Male | |
| **4** | Region: Shaheen | Zone:3 | NaN | 25553 | GUJRANWALA | Gujranwala | NaN | Regular Member | 03-02-71 0:00 | Male | |

# Q 1: How many Regions exists and membership distribution in each region?

In [4]:
```
print('Number of Regions: ', df['Region Name'].nunique())
print(df['Region Name'].value_counts())
df['Region Name'].value_counts().plot(kind = 'bar')
```

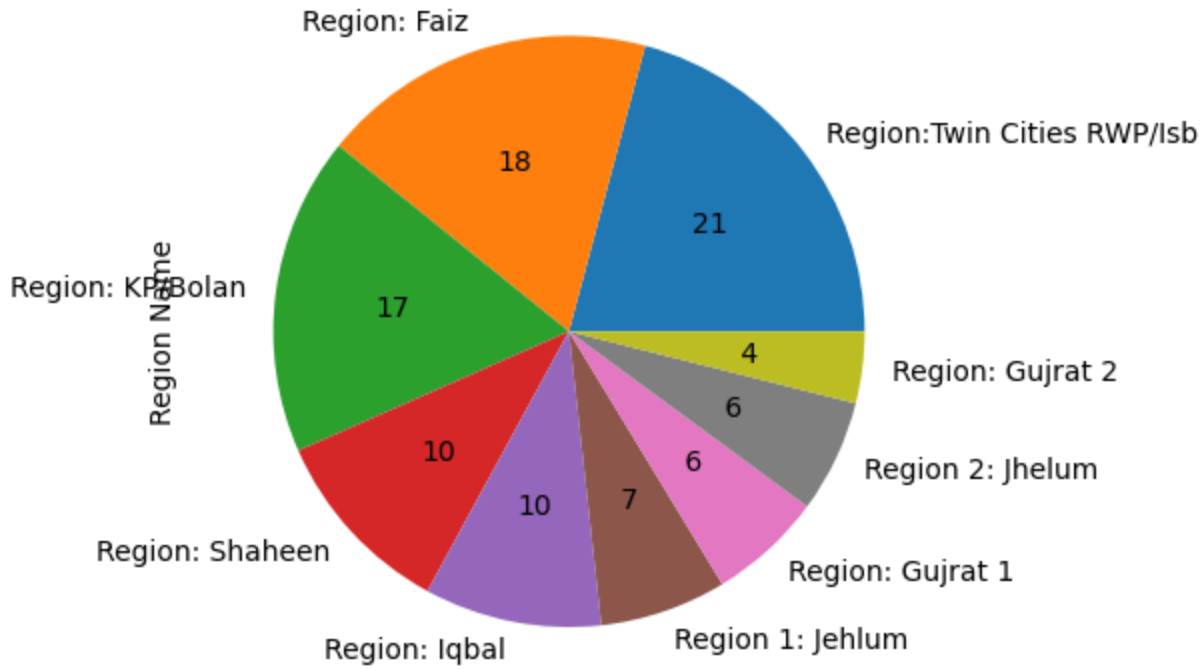
```
Number of Regions:  9
Region:Twin Cities RWP/Isb    746
Region: Faiz                  657
Region: KP/Bolan              623
Region: Shaheen               374
Region: Iqbal                 347
Region 1: Jehlum              248
Region: Gujrat 1              223
Region 2: Jhelum              221
Region: Gujrat 2              140
Name: Region Name, dtype: int64
<AxesSubplot:>
```

Out[4]:




In [5]:
```
df['Region Name'].value_counts().plot(kind = 'pie', autopct = '%2.f')
```

Out[5]:
```
<AxesSubplot:ylabel='Region Name'>
```

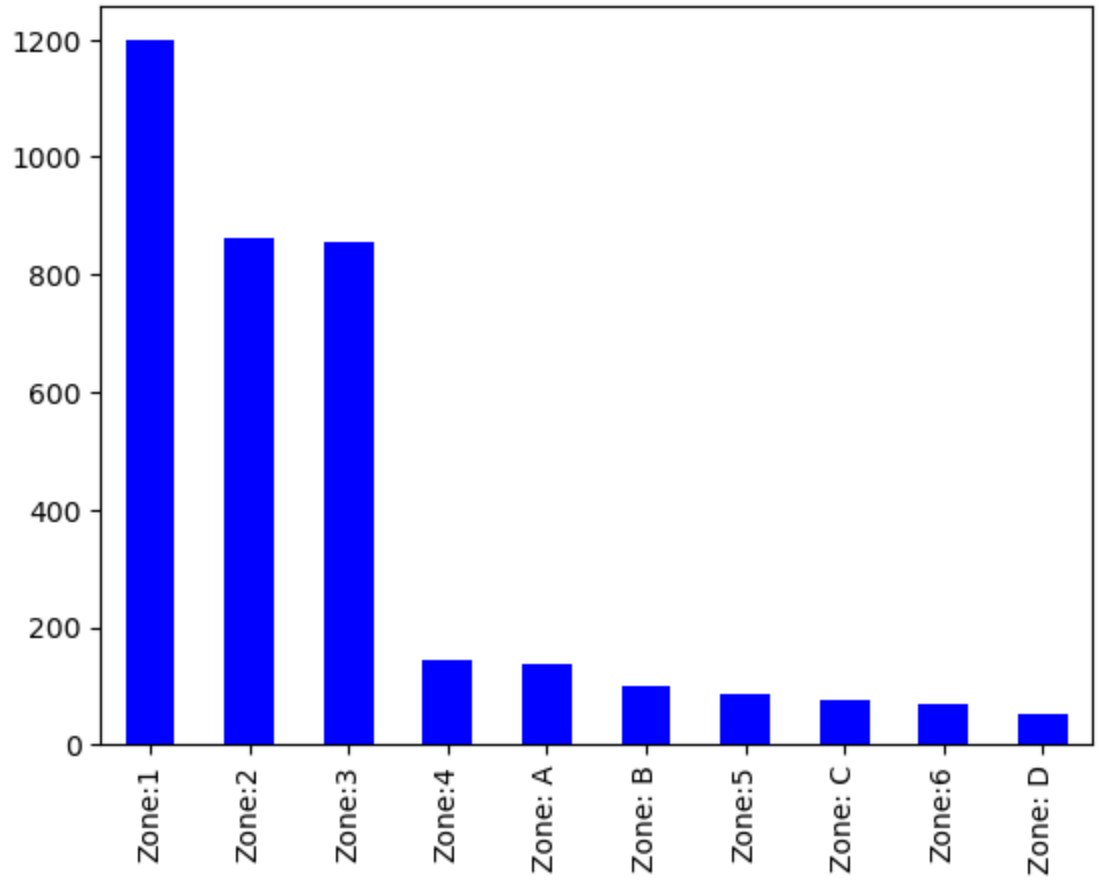


# Q 2: How many zones exist and membership distribution in each zone?

In [6]:
```
print('Number of Zones: ', df['Zone Name'].nunique())
print(df['Zone Name'].value_counts())
df['Zone Name'].value_counts().plot(kind = 'bar', color = 'blue')
```

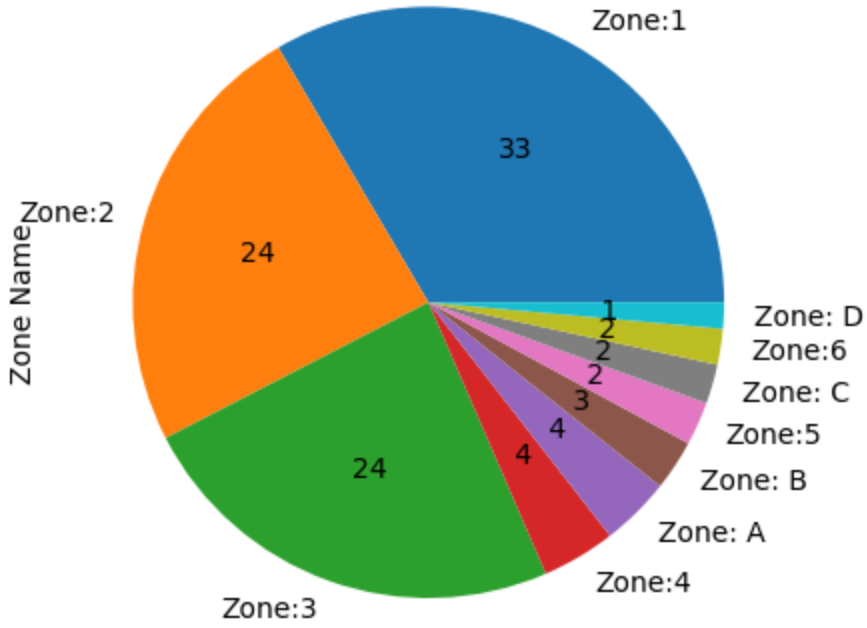
```
Number of Zones:  10
Zone:1     1198
Zone:2      863
Zone:3      856
Zone:4      144
Zone: A     136
Zone: B      99
Zone:5       85
Zone: C      77
Zone:6       70
Zone: D      51
Name: Zone Name, dtype: int64
```

Out[6]:
```
<AxesSubplot:>
```




In [7]:
```
df['Zone Name'].value_counts().plot(kind = 'pie', autopct = '%2.f')
```

Out[7]:
```
<AxesSubplot:ylabel='Zone Name'>
```



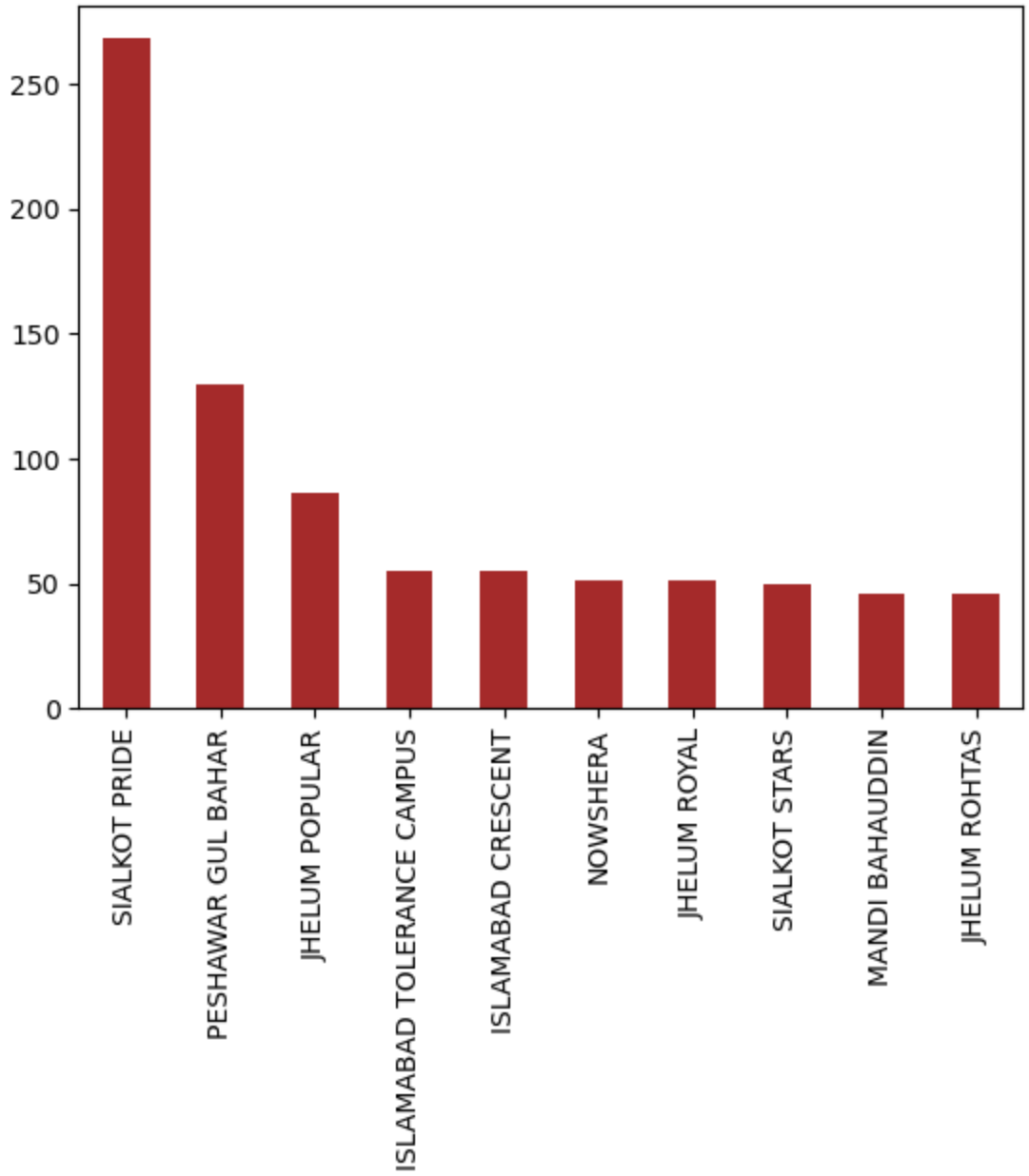

# Q 3: Top 10 Clubs according to Membership?

In [8]:
```
print('Total number of Clubs: ', df['Club Name'].nunique())
df['Club Name'].value_counts().head(10)
```

Out[8]:
```
Total number of Clubs:  143
SIALKOT PRIDE                  268
PESHAWAR GUL BAHAR             130
JHELUM POPULAR                  86
ISLAMABAD TOLERANCE CAMPUS      55
ISLAMABAD CRESCENT              55
NOWSHERA                        51
JHELUM ROYAL                    51
SIALKOT STARS                   50
MANDI BAHAUDDIN                 46
JHELUM ROHTAS                   46
Name: Club Name, dtype: int64
```

In [9]:
```
df['Club Name'].value_counts().head(10).plot(kind = 'bar', color = 'brown')
```

Out[9]:
```
<AxesSubplot:>
```




# Q 4: Clubs with Membership less than 20?

In [10]:
```
print('Total number of Clubs: ', df['Club Name'].nunique())
print("Number of Clubs with Membership less than 20: ", df['Club Name'].value_counts().t
df['Club Name'].value_counts().tail(56)
```

```
Total number of Clubs:  143
Number of Clubs with Membership less than 20:  56
```

Out[10]:

| | |
|---|---|
| SIALKOT ARIKBRO | 19 |
| JHELUM CHAMBERS | 18 |
| ISLAMABAD GALAXY | 18 |
| SAHOWALA | 18 |
| JHELUM DYNAMIC | 17 |
| SIALKOT ADAMS | 16 |
| ISLAMABAD CRESCENT STAR | 16 |
| ISLAMABAD GAZANIA ELITES | 16 |
| SAMBRIAL MEESAQ | 16 |
| ISLAMABAD DIAMOND CULTURAL AND TOURIST | 16 |
| SIALKOT CITY | 16 |
| GUJRAT CITY | 16 |
| SIALKOT VIBRANT | 15 |
| ISLAMABAD QUEENS | 15 |
| MANDI BAHAUDIN WELFARE | 15 |

```
GUJRANWALA EXECUTIVE                              15
ISLAMABAD ASPIRE                                  15
DASKA                                             15
ISLAMABAD BEACON                                  15
ALI PUR CHATTHA CHENAB                            15
ISLAMABAD CH. MUHAMMAD HUSSAIN NATT MEMORIAL      15
SIALKOT HELPING HANDS                             15
SIALKOT ICONIC                                    15
SIALKOT BEACON                                    15
KHARIAN NEW KHARIAN                               15
SAMBRIAL STALLIONS                                15
GUJRANWALA                                        15
ISLAMABAD PRIDE                                   15
SIALKOT ALMAS                                     15
SIALKOT THINKERS                                  15
GUJRAT LUCKY                                      15
SIALKOT PAK                                       15
SIALKOT COMET                                     15
SIALKOT THE LIGHT                                 15
SIALKOT MAJESTIC                                  15
SIALKOT ALLAMA IQBAL                              15
ISLAMABAD COUNTRYSIDE                             14
RAWALPINDI CITY                                   14
JHELUM MUAZZAM ALI SHAHEED                        14
JHELUM ROYAL GOLD                                 13
MARDAN                                            13
GUJRAT PROGRESSIVE                                12
GUJRANWALA ENTREPRENEUR                           12
JHELUM PUBLIC                                     11
JHELUM ROYAL DIAMOND                              11
NOWSHERA DAYBREAK                                 10
JHELUM INNOVATIVE                                 10
MANDI BAHAUDDIN MALAKWAL                           9
MANDI BAHAUDDIN GONDAL                             9
JHELUM SLS                                         9
JHELUM DEFENCE                                     9
PHALIA                                             8
KADHAR                                             8
GUJRAT CHENAB                                      8
JHELUM RADIANT                                     5
JHELUM ROYAL STARS                                 2
Name: Club Name, dtype: int64
```

# Q 5: Top 10 Cities with respect to membership?

In [11]:
```
print("Number of Cities members are from: ", df['Member Address City'].nunique())
print("Top 10 cities with maximum membership: ")
df['Member Address City'].value_counts().head(10)
```

```
Number of Cities members are from:  45
Top 10 cities with maximum membership:
```

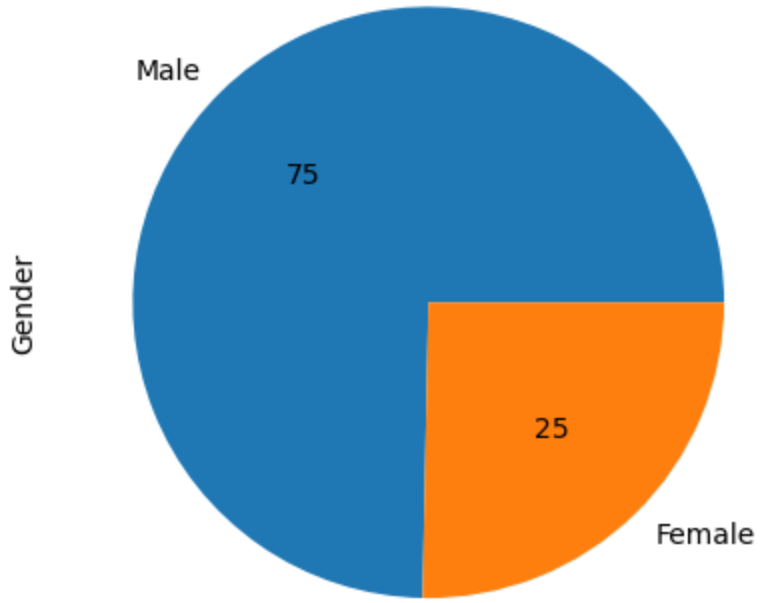
Out[11]:
```
Sialkot            1272
Islamabad           529
Jhelum              426
Peshawar            340
Gujrat              237
Rawalpindi          172
Gujranwala          103
Mandi Bahauddin      87
Nowshera             85
Quetta               53
Name: Member Address City, dtype: int64
```

# Q 6: Gender based Membership Distribution?

In [12]:
```
print('Total Members in District 305-N2: ', df['Gender'].count())
print(df['Gender'].value_counts())
df['Gender'].value_counts().plot(kind = 'pie', autopct = '%2.f')
```

```
Total Members in District 305-N2:  3579
Male      2673
Female     906
Name: Gender, dtype: int64
```

Out[12]:
```
<AxesSubplot:ylabel='Gender'>
```

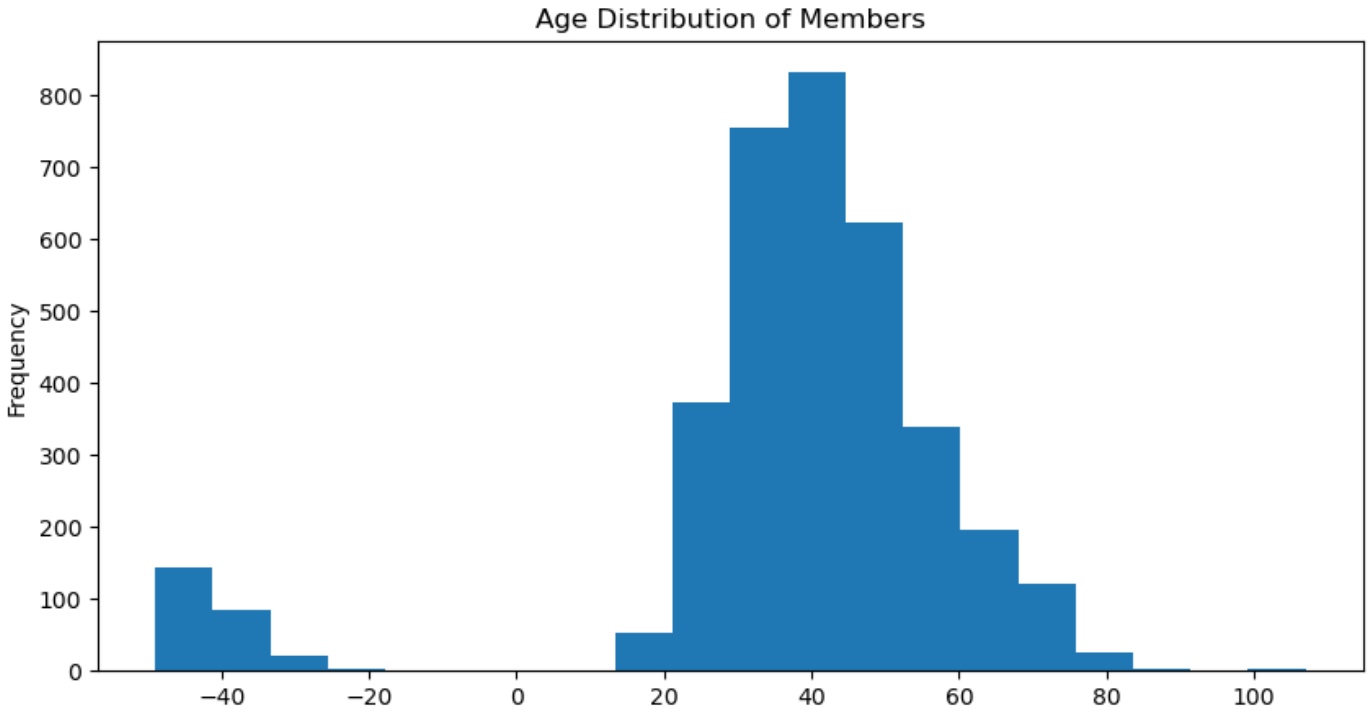



# Q 7: Members Age Distribution?

In [13]:
```
df['Date of Birth'] = pd.to_datetime(df['Date of Birth'])

current_year = dt.datetime.now().year

df['Age'] = current_year - df['Date of Birth'].dt.year
```

In [14]:
```
df['Age'].plot(kind='hist', bins=20, figsize=(10,5), xlabel='Age', ylabel='Number of Mem
               title='Age Distribution of Members')
```

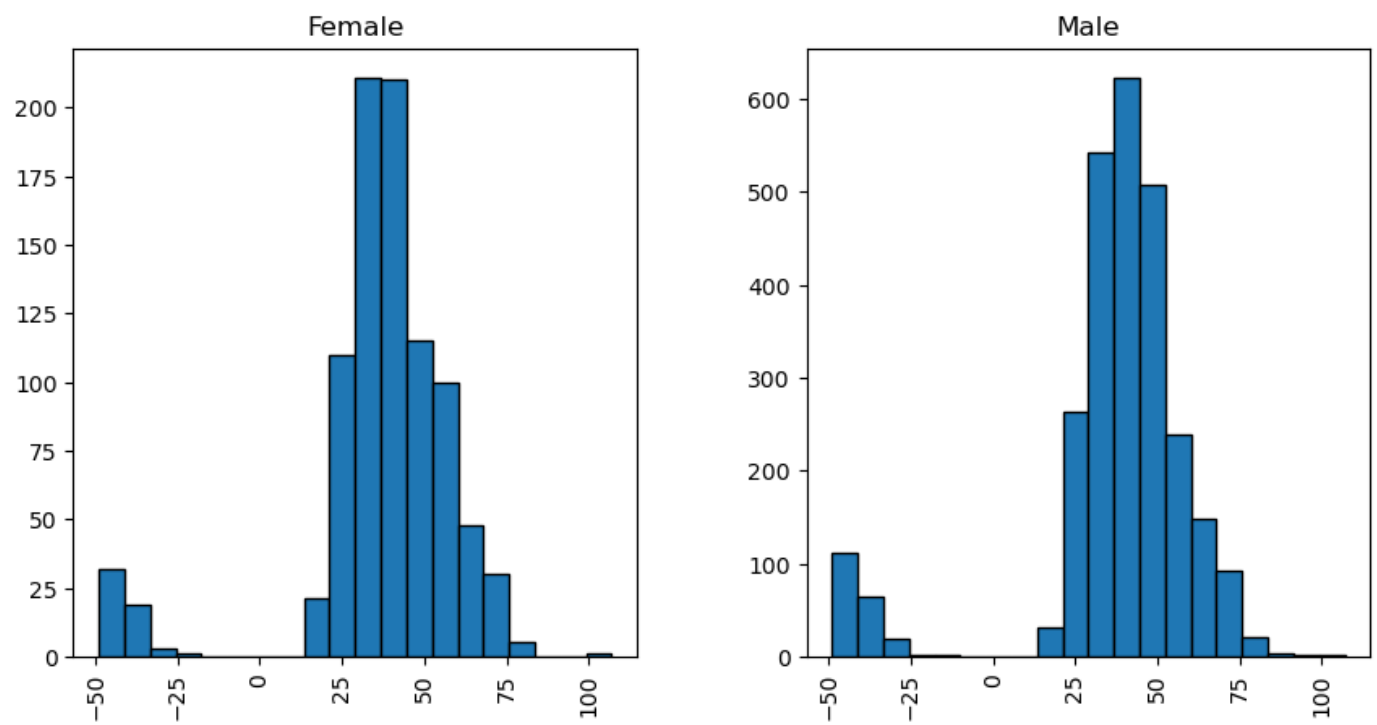
Out[14]:
```
<AxesSubplot:title={'center':'Age Distribution of Members'}, ylabel='Frequency'>
```




In [15]:

```
# create a figure and axis
fig, ax = plt.subplots(figsize=(10, 5))

# plot the histograms by gender
df.hist(column='Age', by='Gender', bins=20, ax=ax, edgecolor='black')

# set the x-axis label
ax.set_xlabel('Age')

# set the y-axis label
ax.set_ylabel('Number of Members')

# add a title
ax.set_title('Age Distribution of Members by Gender')

# show the plot
plt.show()
```

```
C:\Users\muham\AppData\Local\Temp\ipykernel_11552\1267726395.py:5: UserWarning: To outpu
t multiple subplots, the figure containing the passed axes is being cleared.
  df.hist(column='Age', by='Gender', bins=20, ax=ax, edgecolor='black')
```

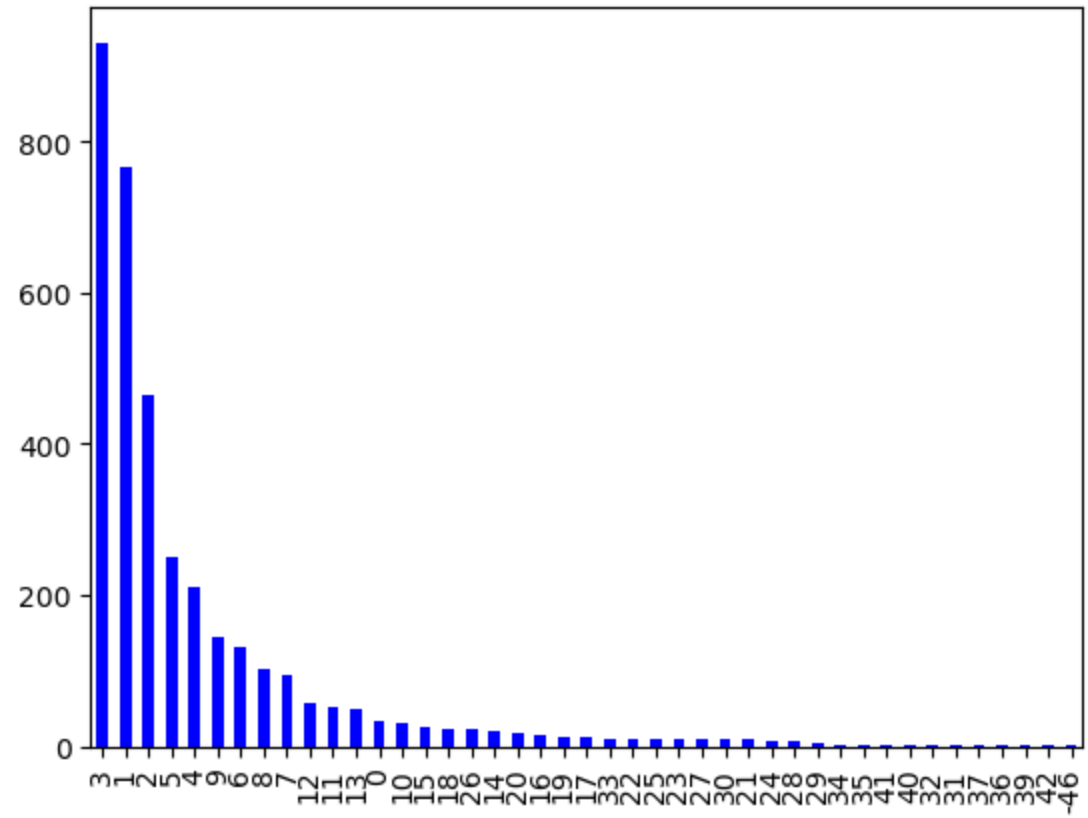



# Q 8: Tenure of a Member?

In [16]:
```
df['Join Date'] = pd.to_datetime(df['Join Date'])

current_date = dt.datetime.now().year

df['Join Year'] = current_date - df['Join Date'].dt.year
```

In [17]:
```
df['Join Year'].value_counts().plot(kind = 'bar', color = 'blue')
```

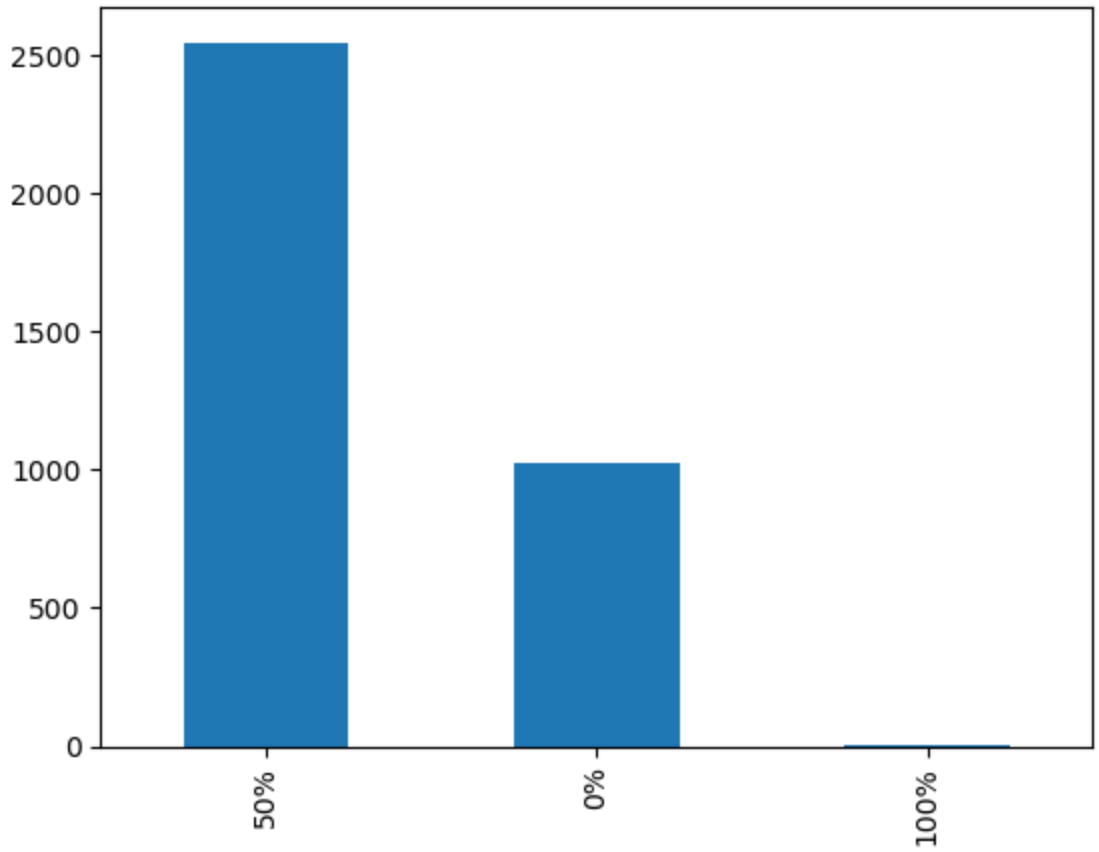
Out[17]:
```
<AxesSubplot:>
```



# Q 9: How many members availed 0%, 50%, 100% International Discount?

In [18]:
```
df['International Discount'].value_counts().plot(kind = 'bar')
```

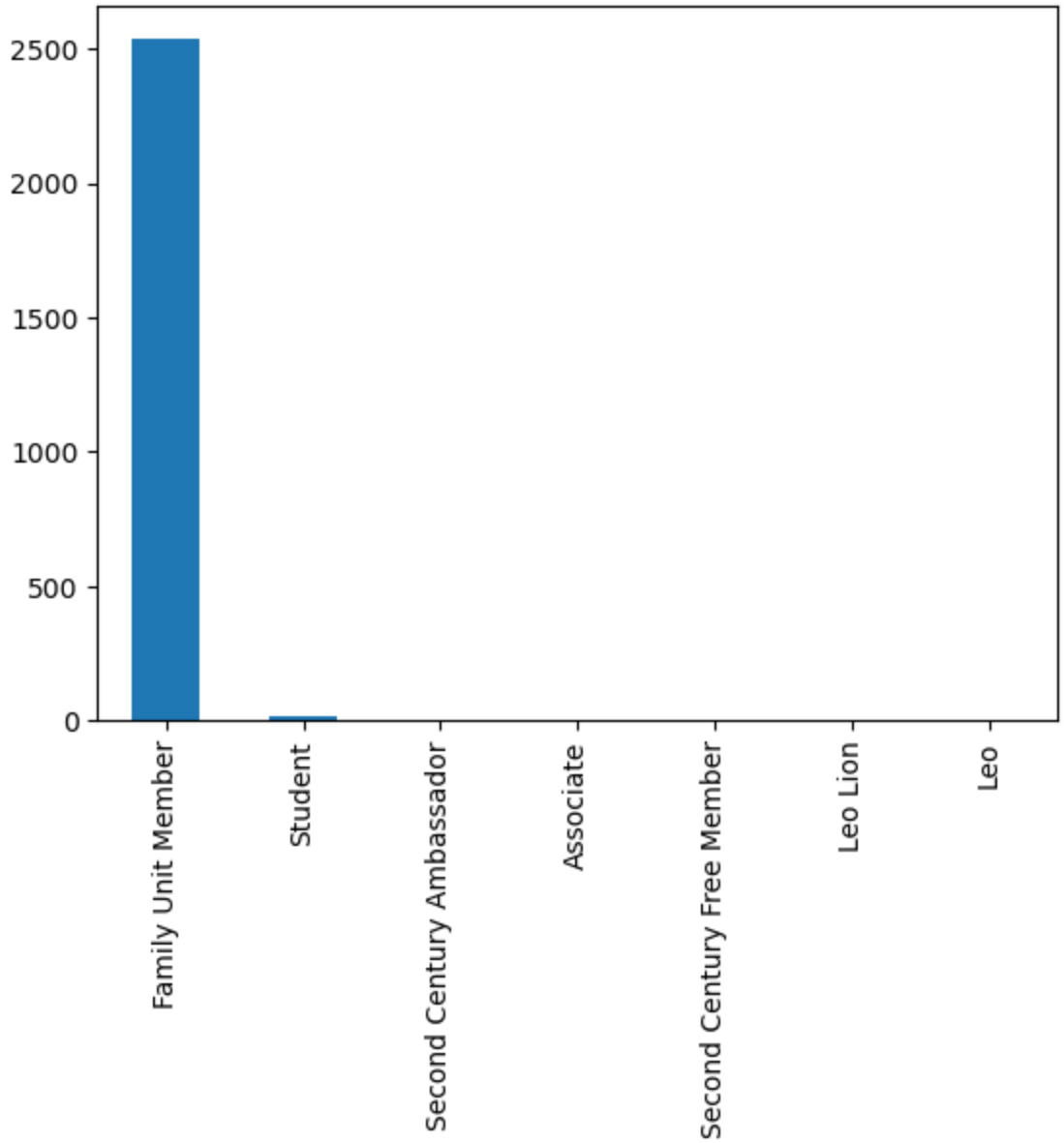
Out[18]:
```
<AxesSubplot:>
```




# Q 10: In which category the International Discount is being availed?

In [19]:
```
df['International Discount Reason'].value_counts().plot(kind = 'bar')
```

Out[19]:
```
<AxesSubplot:>
```




In [24]:
```
# df.to_excel('E:/District 305-N2/Administration/Database of Lions of District 305-N2/Me
```