

In [1]:

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

In [2]:

```
df=pd.read_csv("weatherhistory.csv")
```

In [3]:

```
df.head()
```

Out[3]:

	Formatted Date	Summary	Precip Type	Temperature (C)	Apparent Temperature (C)	Humidity	Wind Speed (km/h)	Wind Bearing (degrees)	Vis
0	2006-04-01 00:00:00.000 +0200	Partly Cloudy	rain	9.472222	7.388889	0.89	14.1197	251.0	15
1	2006-04-01 01:00:00.000 +0200	Partly Cloudy	rain	9.355556	7.227778	0.86	14.2646	259.0	15
2	2006-04-01 02:00:00.000 +0200	Mostly Cloudy	rain	9.377778	9.377778	0.89	3.9284	204.0	14
3	2006-04-01 03:00:00.000 +0200	Partly Cloudy	rain	8.288889	5.944444	0.83	14.1036	269.0	15
4	2006-04-01 04:00:00.000 +0200	Mostly Cloudy	rain	8.755556	6.977778	0.83	11.0446	259.0	15



In [4]:

```
df.shape
```

Out[4]:

```
(96453, 12)
```

In [5]:

```
df.describe()
```

Out[5]:

	Temperature (C)	Apparent Temperature (C)	Humidity	Wind Speed (km/h)	Wind Bearing (degrees)	Visibility (km)	
count	96453.000000	96453.000000	96453.000000	96453.000000	96453.000000	96453.000000	96
mean	11.932678	10.855029	0.734899	10.810640	187.509232	10.347325	
std	9.551546	10.696847	0.195473	6.913571	107.383428	4.192123	
min	-21.822222	-27.716667	0.000000	0.000000	0.000000	0.000000	
25%	4.688889	2.311111	0.600000	5.828200	116.000000	8.339800	
50%	12.000000	12.000000	0.780000	9.965900	180.000000	10.046400	
75%	18.838889	18.838889	0.890000	14.135800	290.000000	14.812000	
max	39.905556	39.344444	1.000000	63.852600	359.000000	16.100000	

In [6]:

```
df = df.drop(['Daily Summary', 'Wind Bearing (degrees)', 'Summary', 'Precip Type', 'Temperature', 'Loud Cover', 'Wind Speed (km/h)', 'Visibility (km)', 'Pressure (millibars)'], axis=1)
df.head()
```

Out[6]:

	Formatted Date	Apparent Temperature (C)	Humidity
0	2006-04-01 00:00:00.000 +0200	7.388889	0.89
1	2006-04-01 01:00:00.000 +0200	7.227778	0.86
2	2006-04-01 02:00:00.000 +0200	9.377778	0.89
3	2006-04-01 03:00:00.000 +0200	5.944444	0.83
4	2006-04-01 04:00:00.000 +0200	6.977778	0.83

In [7]:

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

Out[7]:

```
Formatted Date      0
Apparent Temperature (C)  0
Humidity            0
dtype: int64
```

In [8]:

```
df['Formatted Date'] = pd.to_datetime(df['Formatted Date'],utc=True)
df = df.set_index('Formatted Date')
data = df[['Apparent Temperature (C)', 'Humidity']].resample('MS').mean()
data
```

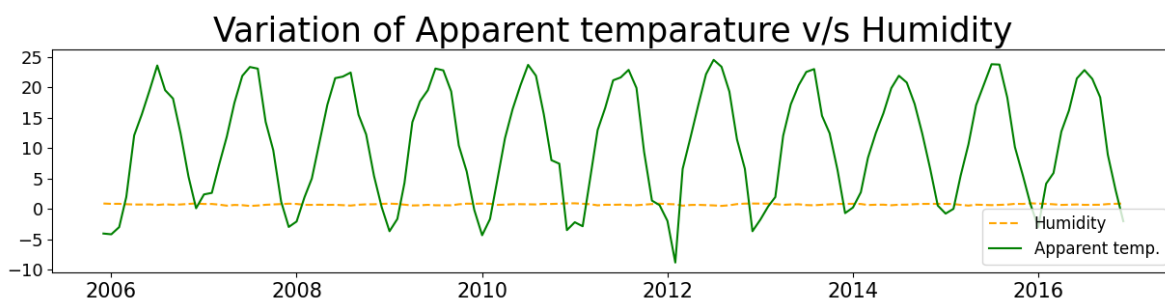
Out[8]:

	Apparent Temperature (C)	Humidity
Formatted Date		
2005-12-01 00:00:00+00:00	-4.050000	0.890000
2006-01-01 00:00:00+00:00	-4.173708	0.834610
2006-02-01 00:00:00+00:00	-2.990716	0.843467
2006-03-01 00:00:00+00:00	1.969780	0.778737
2006-04-01 00:00:00+00:00	12.098827	0.728625
...
2016-08-01 00:00:00+00:00	21.383094	0.674046
2016-09-01 00:00:00+00:00	18.355833	0.688833
2016-10-01 00:00:00+00:00	8.923947	0.799906
2016-11-01 00:00:00+00:00	3.048627	0.848472
2016-12-01 00:00:00+00:00	-2.017272	0.887981

133 rows × 2 columns

In [9]:

```
plt.figure(figsize=(15,3));
plt.plot(data['Humidity'], label = 'Humidity', color = 'orange',linestyle='dashed');
plt.plot(data['Apparent Temperature (C)'], label = 'Apparent temp.',color = 'green');
plt.title('Variation of Apparent temperature v/s Humidity', fontsize= 25);
plt.legend(loc = 0, fontsize = 12);
plt.xticks(fontsize = 15);
plt.yticks(fontsize = 13);
```



In [11]:

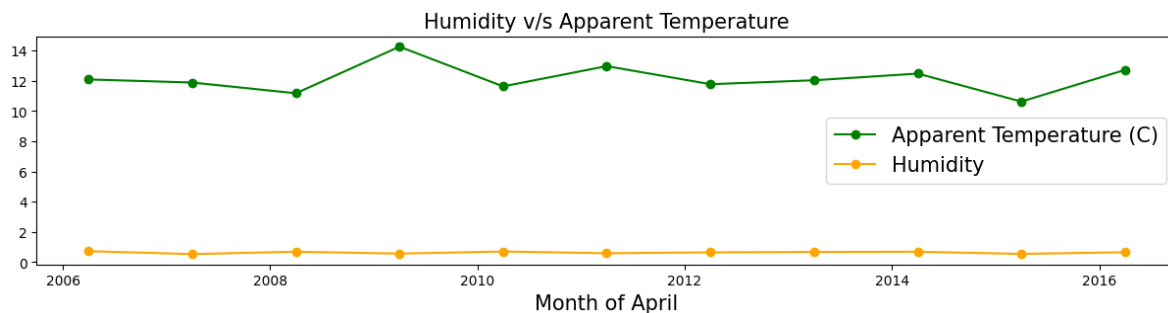
```

april = data[data.index.month==4]
plt.figure(figsize=(15,3))
plt.plot(april.loc['2006-04-01':'2016-04-01', 'Apparent Temperature (C)'], marker='o', line
plt.plot(april.loc['2006-04-01':'2016-04-01', 'Humidity'], marker='o', linestyle='--',label=
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of April', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)

```

Out[11]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')



In [12]:

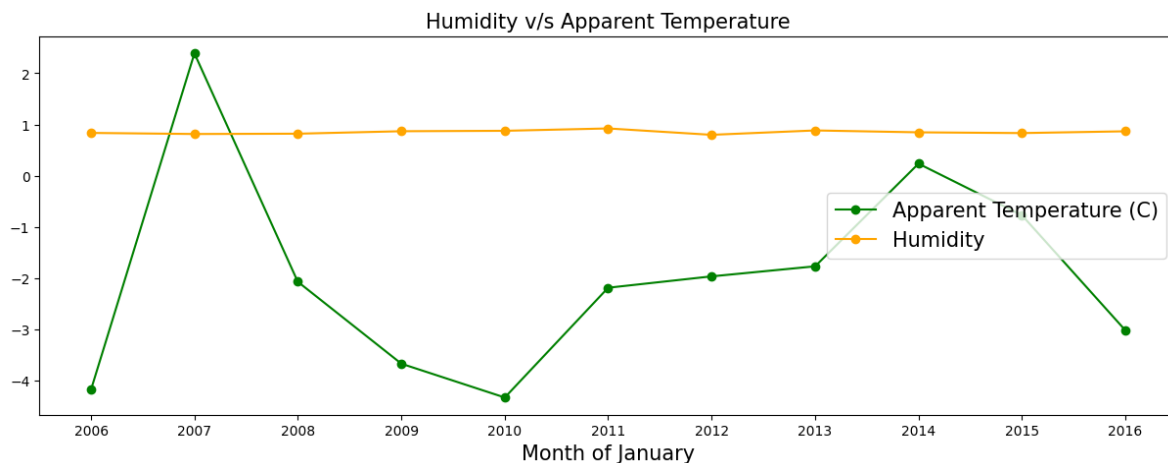
```

jan = data[data.index.month==1]
plt.figure(figsize=(15,5))
plt.plot(jan.loc['2006-01-01':'2016-01-01', 'Apparent Temperature (C)'], marker='o', line
plt.plot(jan.loc['2006-01-01':'2016-01-01', 'Humidity'], marker='o', linestyle='--',label='H
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of January', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)

```

Out[12]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')



In [13]:

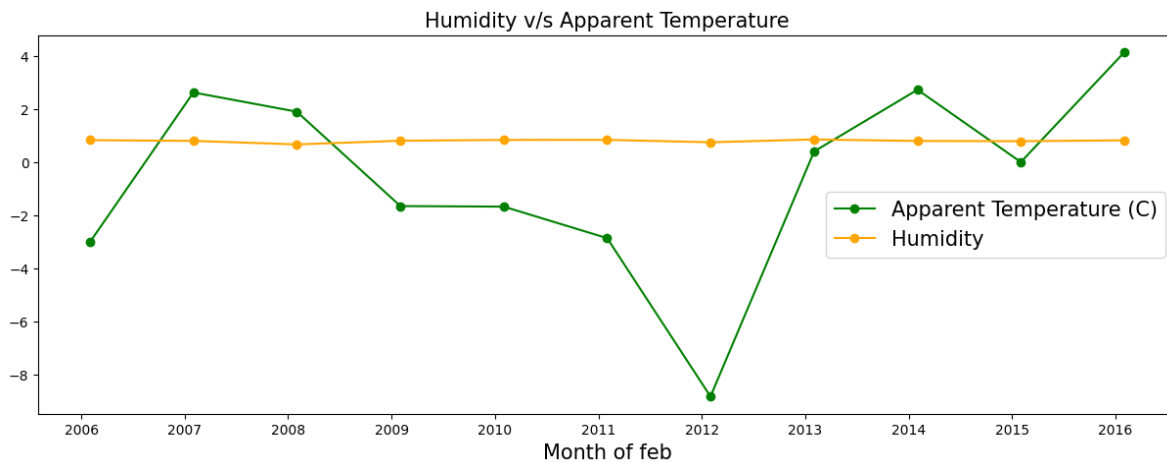
```

feb = data[data.index.month==2]
plt.figure(figsize=(15,5))
plt.plot(feb.loc['2006-02-01':'2016-02-01', 'Apparent Temperature (C)'], marker='o', linestyle='-',label='H
plt.plot(feb.loc['2006-02-01':'2016-02-01', 'Humidity'], marker='o', linestyle='-',label='H
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of feb', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)

```

Out[13]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')



In [14]:

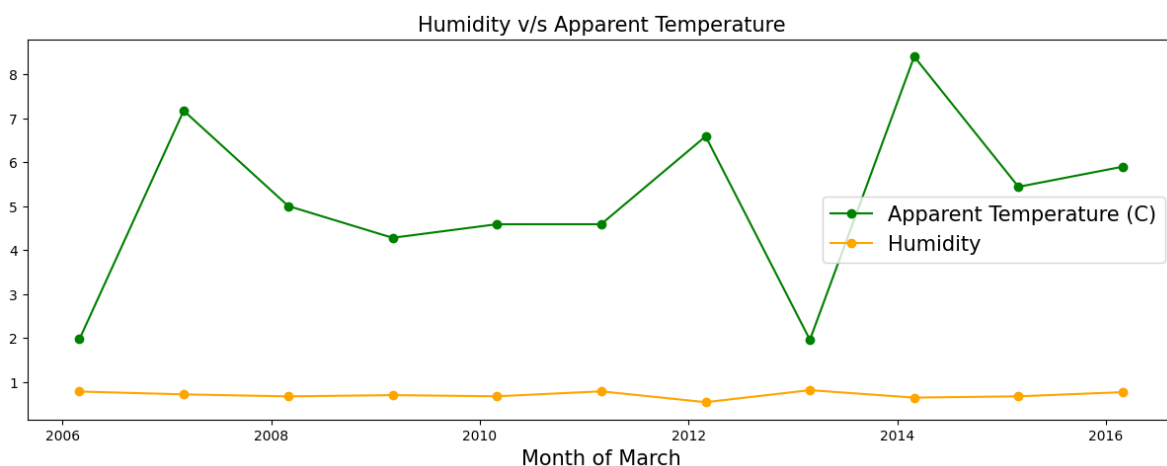
```

march = data[data.index.month==3]
plt.figure(figsize=(15,5))
plt.plot(march.loc['2006-03-01':'2016-03-01', 'Apparent Temperature (C)'], marker='o', line
plt.plot(march.loc['2006-03-01':'2016-03-01', 'Humidity'], marker='o', linestyle='-',label=
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of March', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)

```

Out[14]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')

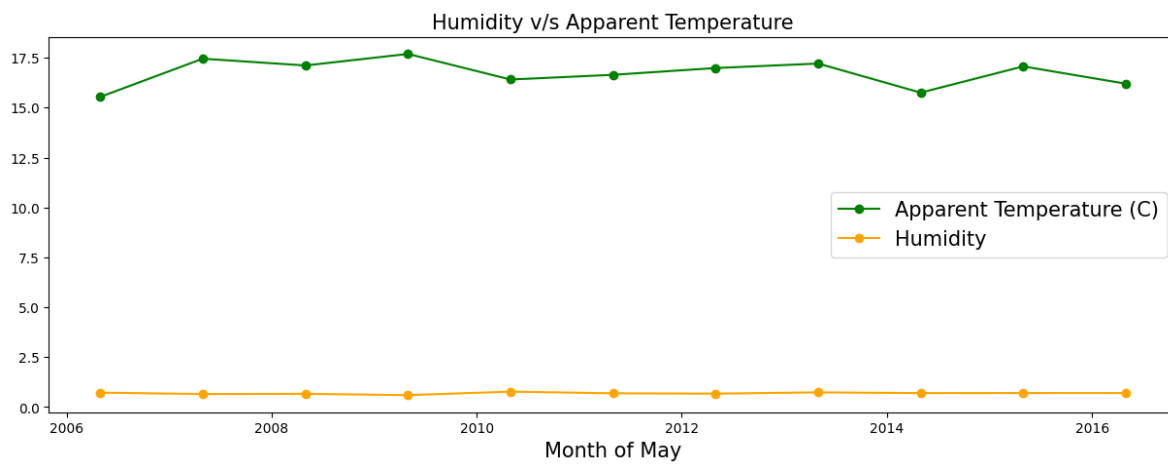


In [15]:

```
may = data[data.index.month==5]
plt.figure(figsize=(15,5))
plt.plot(may.loc['2006-05-01':'2016-05-01', 'Apparent Temperature (C)'], marker='o', linestyle='-', label='Apparent Temperature (C)')
plt.plot(may.loc['2006-05-01':'2016-05-01', 'Humidity'], marker='o', linestyle='-', label='Humidity')
plt.legend(loc = 'center right', fontsize = 15);
plt.xlabel('Month of May', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature', fontsize = 15)
```

Out[15]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')

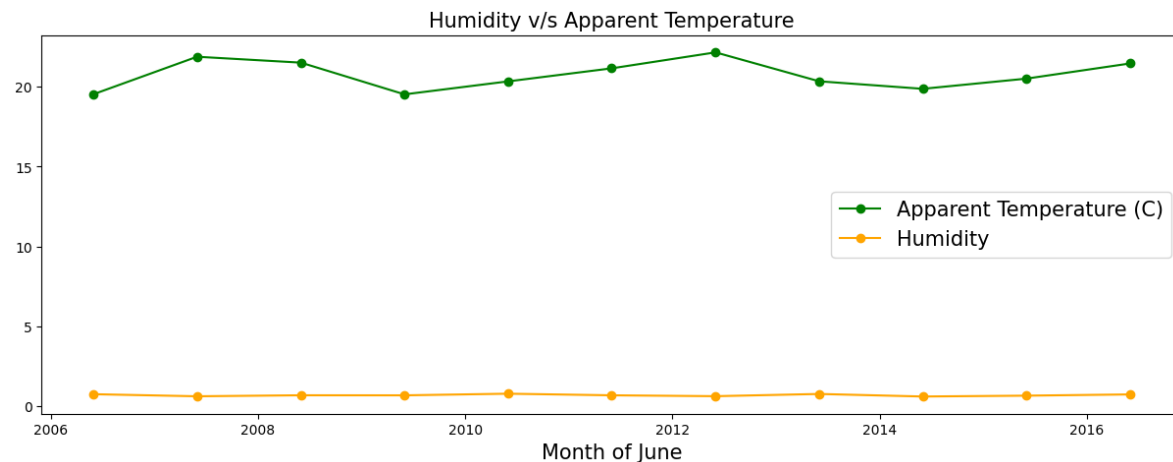


In [16]:

```
june = data[data.index.month==6]
plt.figure(figsize=(15,5))
plt.plot(june.loc['2006-06-01':'2016-06-01', 'Apparent Temperature (C)'], marker='o', lines
plt.plot(june.loc['2006-06-01':'2016-06-01', 'Humidity'], marker='o', linestyle='-',label='
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of June', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)
```

Out[16]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')

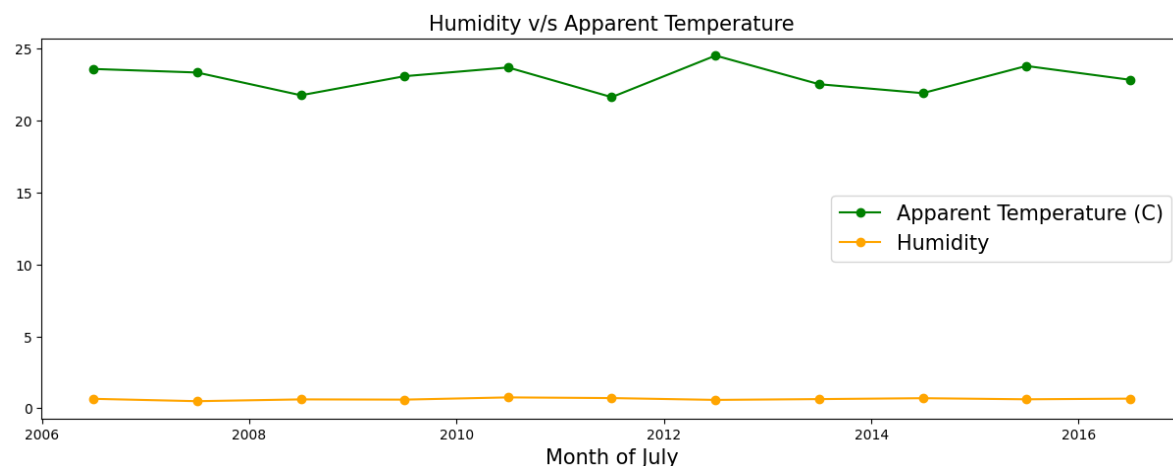


In [17]:

```
july = data[data.index.month==7]
plt.figure(figsize=(15,5))
plt.plot(july.loc['2006-07-01':'2016-07-01', 'Apparent Temperature (C)'], marker='o', lines
plt.plot(july.loc['2006-07-01':'2016-07-01', 'Humidity'], marker='o', linestyle='-',label='
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of July', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)
```

Out[17]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')



In [18]:

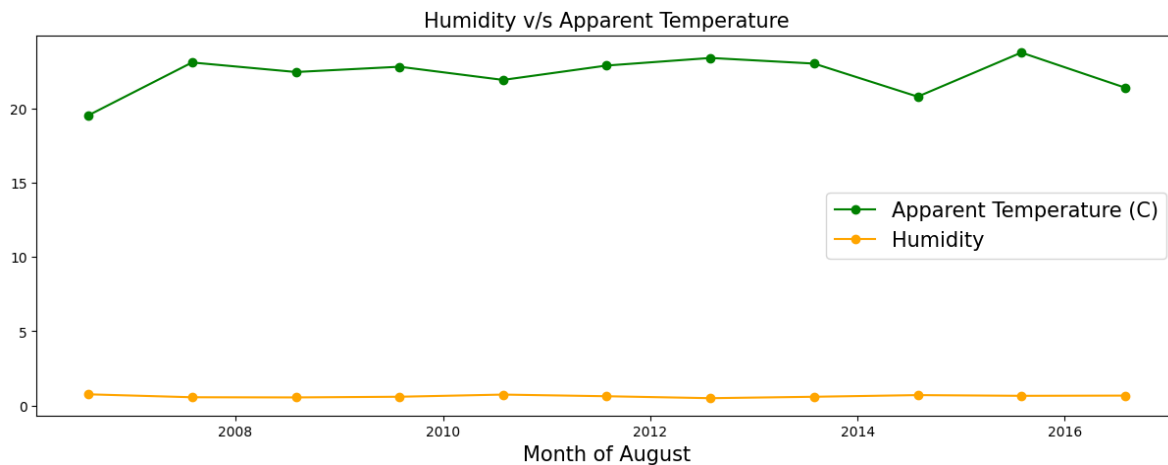
```

aug = data[data.index.month==8]
plt.figure(figsize=(15,5))
plt.plot(aug.loc['2006-08-01':'2016-08-01', 'Apparent Temperature (C)'], marker='o', linestyle='-',label='Apparent Temperature (C)')
plt.plot(aug.loc['2006-08-01':'2016-08-01', 'Humidity'], marker='o', linestyle='-',label='Humidity')
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of August', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)

```

Out[18]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')



In [19]:

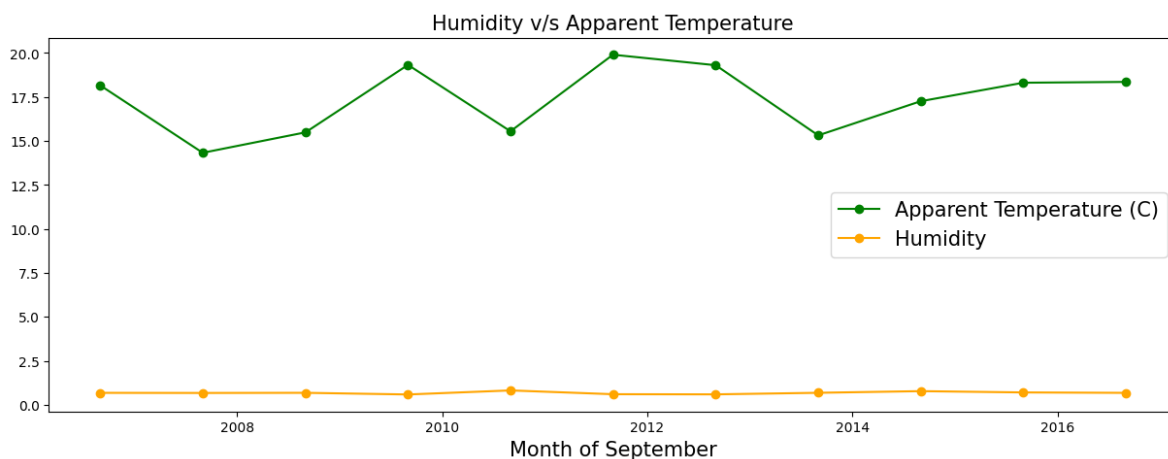
```

sept = data[data.index.month==9]
plt.figure(figsize=(15,5))
plt.plot(sept.loc['2006-09-01':'2016-09-01', 'Apparent Temperature (C)'], marker='o', lines='-',label='Apparent Temperature (C)')
plt.plot(sept.loc['2006-09-01':'2016-09-01', 'Humidity'], marker='o', linestyle='-',label='Humidity')
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of September', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)

```

Out[19]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')



In [20]:

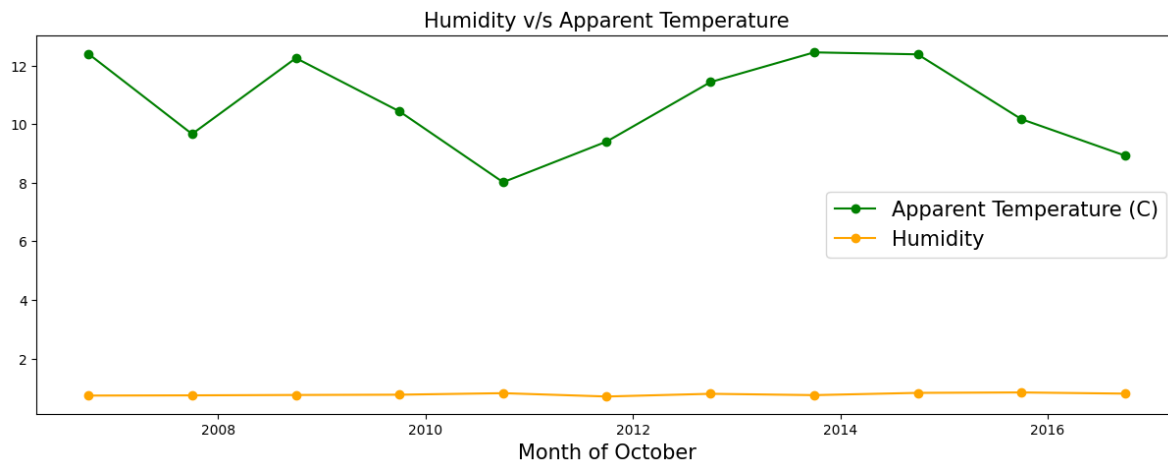
```

octo = data[data.index.month==10]
plt.figure(figsize=(15,5))
plt.plot(octo.loc['2006-10-01':'2016-10-01', 'Apparent Temperature (C)'], marker='o', lines
plt.plot(octo.loc['2006-10-01':'2016-10-01', 'Humidity'], marker='o', linestyle='-',label='
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of October', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)

```

Out[20]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')



In [21]:

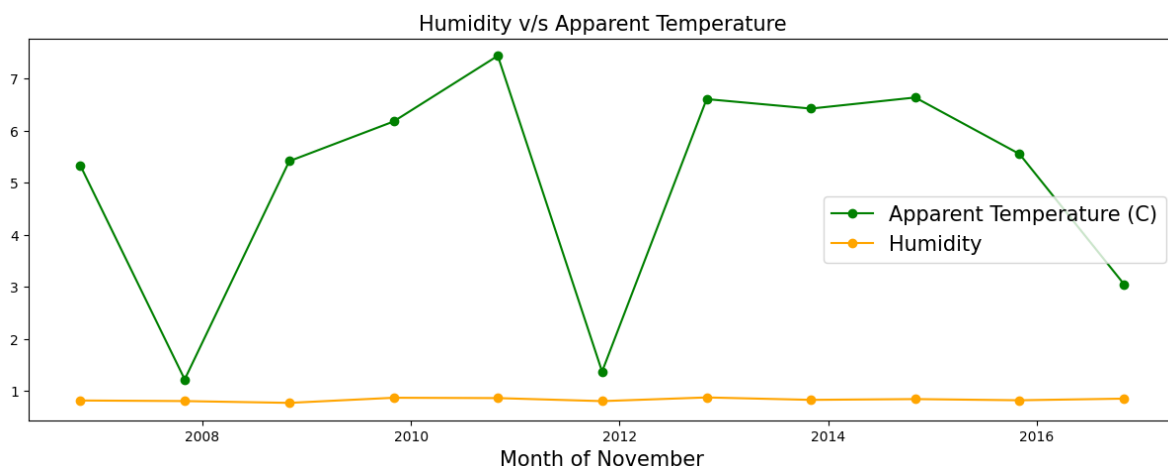
```

nov = data[data.index.month==11]
plt.figure(figsize=(15,5))
plt.plot(nov.loc['2006-11-01':'2016-11-01', 'Apparent Temperature (C)'], marker='o', linest
plt.plot(nov.loc['2006-11-01':'2016-11-01', 'Humidity'], marker='o', linestyle='-',label='H
plt.legend(loc = 'center right',fontsize = 15);
plt.xlabel('Month of November', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature',fontsize = 15)

```

Out[21]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')

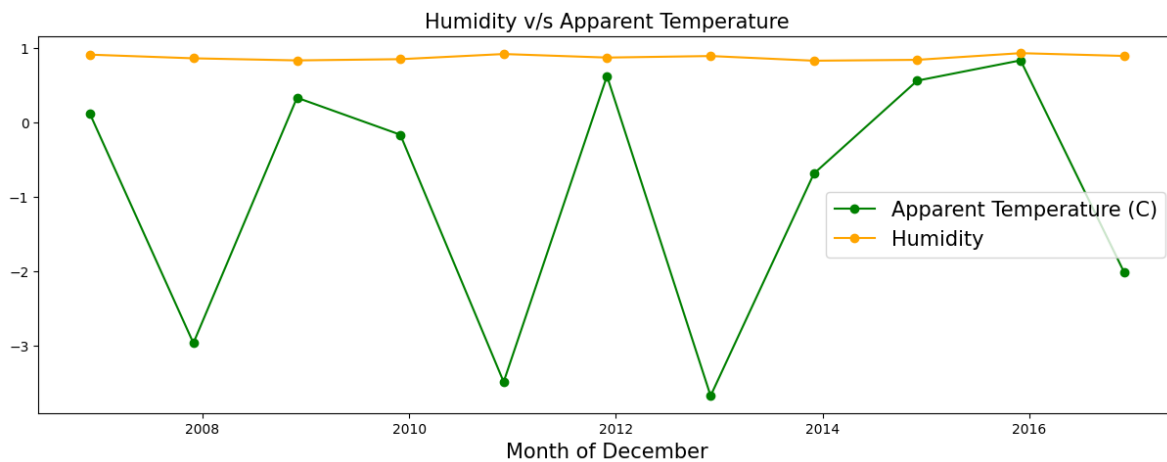


In [22]:

```
dec = data[data.index.month==12]
plt.figure(figsize=(15,5))
plt.plot(dec.loc['2006-12-01':'2016-12-01', 'Apparent Temperature (C)'], marker='o', linestyle='-', label='Apparent Temperature (C)')
plt.plot(dec.loc['2006-12-01':'2016-12-01', 'Humidity'], marker='o', linestyle='-', label='Humidity')
plt.legend(loc = 'center right', fontsize = 15);
plt.xlabel('Month of December', fontsize = 15);
plt.title('Humidity v/s Apparent Temperature', fontsize = 15)
```

Out[22]:

Text(0.5, 1.0, 'Humidity v/s Apparent Temperature')



In []:

from the month of april to the month of august there is slightly change in temperature but for the 10 years(2006-2010) . Whereas for the month from september to march there is a vast again humidity remains unchanged.