

**We have the min and max temperatures in a city In India for each months of the year. We would like to find a function to describe this and show it graphically, the dataset given below**

Task:

1. fitting it to the periodic function
2. plot the fit

Data

Max = 39, 41, 43, 47, 49, 51, 45, 38, 37, 29, 27, 25

Min = 21, 23, 27, 28, 32, 35, 31, 28, 21, 19, 17, 18

In [67]:

```
%matplotlib inline
import numpy as np
import matplotlib.pyplot as plt
from scipy import optimize
```

In [68]:

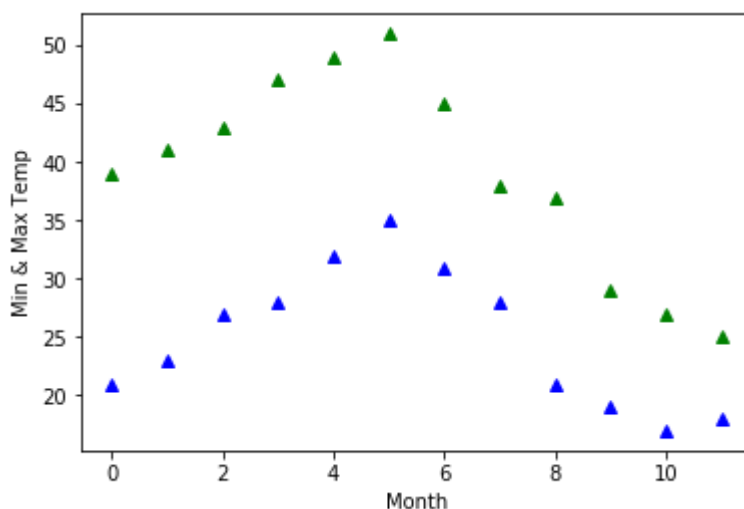
```
max_temp = np.array([39, 41, 43, 47, 49, 51, 45, 38, 37, 29, 27, 25])
min_temp = np.array([21, 23, 27, 28, 32, 35, 31, 28, 21, 19, 17, 18])
month = np.arange(12)
```

In [69]:

```
plt.plot(month, max_temp, 'g^')
plt.plot(month, min_temp, 'b^')
plt.xlabel('Month')
plt.ylabel('Min & Max Temp')
```

Out[69]:

Text(0,0.5,'Min & Max Temp')



In [91]:

```
def f(d, a, b, c):
    return (a + b * np.cos((d + c) * 2 * np.pi / d.max()))
```

In [99]:

```
outmax, cov_max = optimize.curve_fit(f, month,
                                     max_temp)
outmin, cov_min = optimize.curve_fit(f, month,
                                     min_temp)

days = np.linspace(0, 12, 365)
```

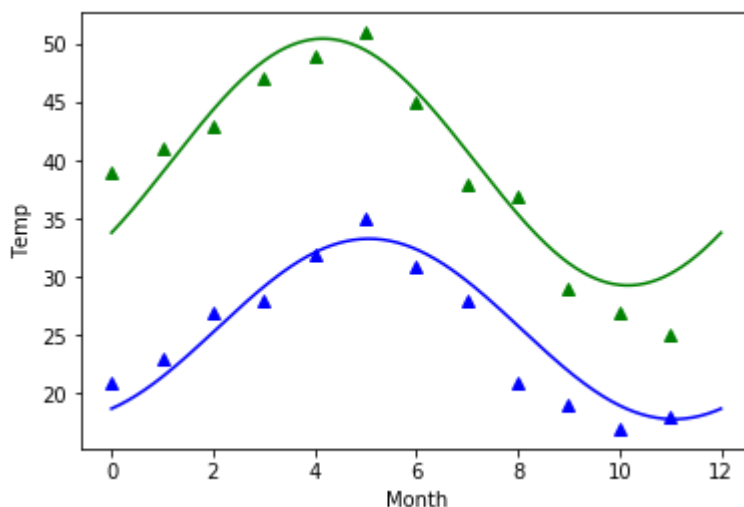
In [100]:

```
plt.figure()
plt.plot(month, temp_max, 'g^')
plt.plot(month, temp_min, 'b^')

plt.plot(days, f(days, *outmax), 'g')
plt.plot(days, f(days, *outmin), 'b')

plt.xlabel('Month')
plt.ylabel('Temp')

plt.show()
```



## Matplotlib:

This assignment is for visualization using matplotlib:

data to use: url= [https://raw.githubusercontent.com/Geoyi/Cleaning-Titanic-Data/master/titanic\\_original.csv](https://raw.githubusercontent.com/Geoyi/Cleaning-Titanic-Data/master/titanic_original.csv)  
([https://raw.githubusercontent.com/Geoyi/Cleaning-Titanic-Data/master/titanic\\_original.csv](https://raw.githubusercontent.com/Geoyi/Cleaning-Titanic-Data/master/titanic_original.csv))

```
titanic = pd.read_csv(url)
```

Charts to plot:

1. Create a pie chart presenting the male/female proportion
2. Create a scatterplot with the Fare paid and the Age, differ the plot color by gender

In [102]:

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

In [105]:

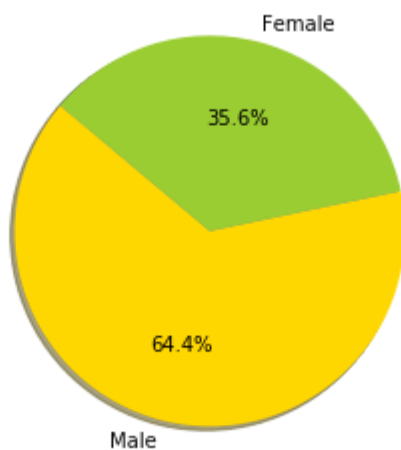
```
url= 'https://raw.githubusercontent.com/Geoyi/Cleaning-Titanic-Data/master/titanic_original'
df = pd.read_csv(url)
```

In [178]:

```
# Data to plot
male=df[df['sex'] == 'male'].shape[0]
female=df[df['sex'] == 'female'].shape[0]
labels = 'Male', 'Female'
sizes = [male, female]
colors = ['gold', 'yellowgreen']

# Plot
plt.pie(sizes, labels=labels, colors=colors,
        autopct='%1.1f%%', shadow=True, startangle=140)

plt.axis('equal')
plt.show()
```



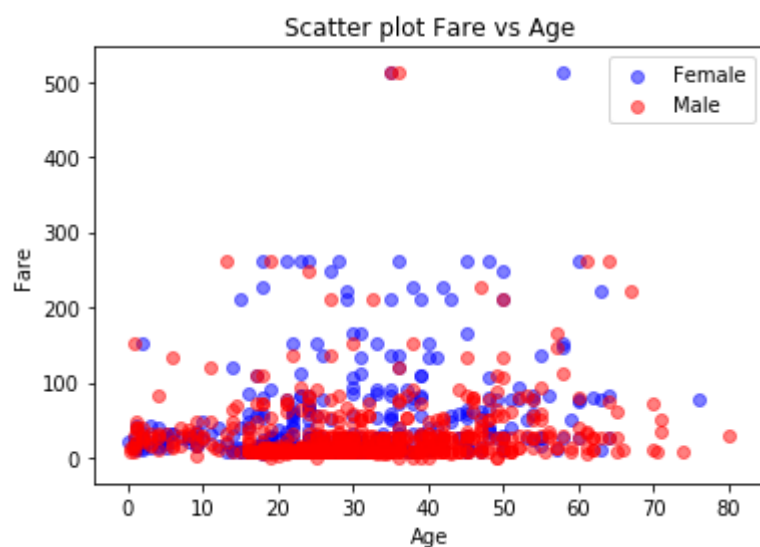
In [179]:

```
f_fare=df[df['sex'] == 'female'].fare
f_age=df[df['sex'] == 'female'].age
m_fare=df[df['sex'] == 'male'].fare
m_age=df[df['sex'] == 'male'].age
```

In [180]:

```
plt.scatter(f_age, f_fare, c='b', alpha=0.5, label='Female')
plt.scatter(m_age, m_fare, c='r', alpha=0.5, label='Male')

plt.title('Scatter plot Fare vs Age')
plt.xlabel('Age')
plt.ylabel('Fare')
plt.legend()
plt.show()
```



In [ ]: