

```
In [ ]: # Scipy:
# 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
```

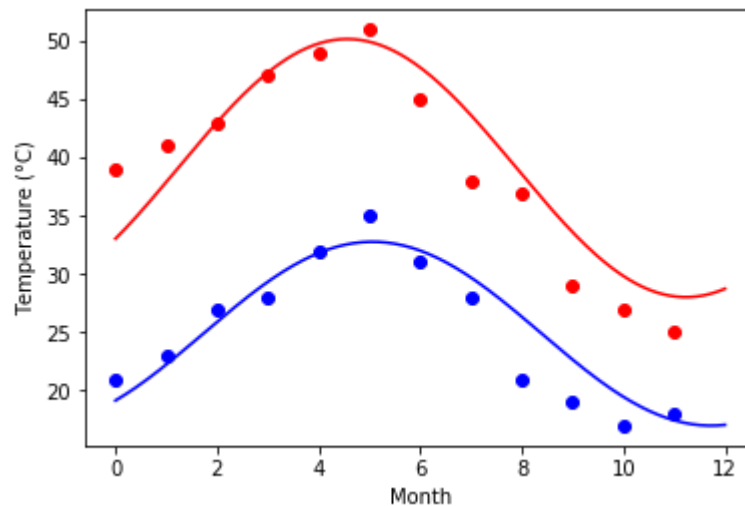
```
In [37]: # 1. fitting it to the periodic function
#defining periodic function
def yearly_temps(times, avg, ampl, time_offset):
    return (avg + ampl * np.cos((times + time_offset) * 1.8 * np.pi / times.max()))

#identifying the curve for plot using scipy
res_max, cov_max = optimize.curve_fit(yearly_temps, months,temp_max, [40, 20, 0])
res_min, cov_min = optimize.curve_fit(yearly_temps, months,temp_min, [-40, 20, 0])
print(res_max)
print(res_min)

[ 39.10062829 -11.0872493    2.10332481]
[24.87112259 -7.89899664  1.60673368]
```

In [31]: *#2. plot the fit*

```
days = np.linspace(0, 12, num=365)
plt.figure()
plt.plot(months, Max, 'ro')
plt.plot(days, yearly_temps(days, *res_max), 'r-')
plt.plot(months, Min, 'bo')
plt.plot(days, yearly_temps(days, *res_min), 'b-')
plt.xlabel('Month')
plt.ylabel('Temperature (°C)')
plt.show()
```



In [ ]: *# 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)*  
*# 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 [38]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
data = pd.read_csv('https://raw.githubusercontent.com/Geoyi/Cleaning-Titanic-Data/master/titanic_original.csv')
data.head(5)
```

Out[38]:

	pclass	survived	name	sex	age	sibsp	parch	ticket	fare	cabin	embarked
0	1.0	1.0	Allen, Miss. Elisabeth Walton	female	29.0000	0.0	0.0	24160	211.3375	B5	S
1	1.0	1.0	Allison, Master. Hudson Trevor	male	0.9167	1.0	2.0	113781	151.5500	C22 C26	S
2	1.0	0.0	Allison, Miss. Helen Loraine	female	2.0000	1.0	2.0	113781	151.5500	C22 C26	S
3	1.0	0.0	Allison, Mr. Hudson Joshua Creighton	male	30.0000	1.0	2.0	113781	151.5500	C22 C26	S
4	1.0	0.0	Allison, Mrs. Hudson J C (Bessie Waldo Daniels)	female	25.0000	1.0	2.0	113781	151.5500	C22 C26	S

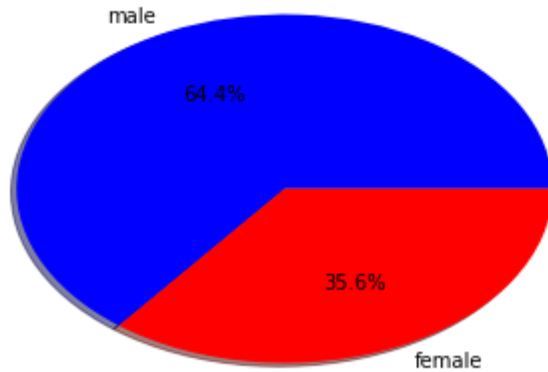
In [39]: #1. Create a pie chart presenting the male/female proportion

```
s=round((data['sex'].value_counts())/len(data)*100,2)
pd.DataFrame(s)
```

Out[39]:

	sex
male	64.35
female	35.57

```
In [48]: labels = ['male','female']
        sizes = data.sex.value_counts()
        fig1, ax1 = plt.subplots()
        ax1.pie(sizes, labels=labels, autopct='%1.1f%%', shadow=True, colors = ['Blue',
        , 'Red'])
        #ax1.axis('equal')
        plt.show()
```



```
In [47]: # 2. Create a scatterplot with the Fare paid and the Age, differ the plot color by gender
```

```
plt.figure()
category1 = data[data.sex=='male'].plot.scatter('age', 'fare', color='blue', label='male')
data[data.sex=='female'].plot.scatter('age', 'fare', color='red', label='female', ax=category1)
```

Out[47]: <matplotlib.axes.\_subplots.AxesSubplot at 0xbf21970>

<Figure size 432x288 with 0 Axes>

