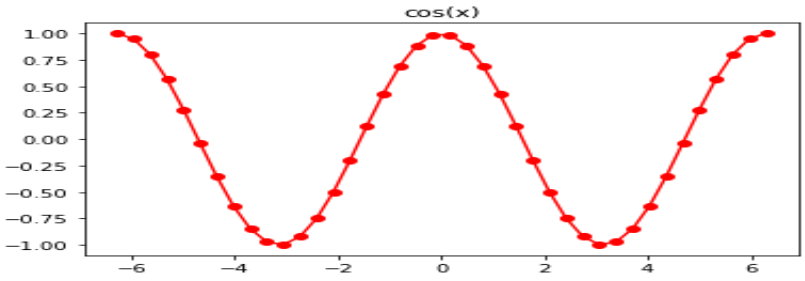
IOT LAB: 38

TASK 1: MAKE COS WAVE USING NUMPY AND MATPLOTLIB

```
import matplotlib.pylab as plt
import numpy as np
in_array=np.linspace(-(2*np.pi),2*np.pi,40)
out_array=np.cos(in_array)
print(in_array)
print(out_array)
plt.plot(in_array,out_array,color="red",marker='o')
plt.title('cos(x)')
plt.show()
```

OUTPUT:

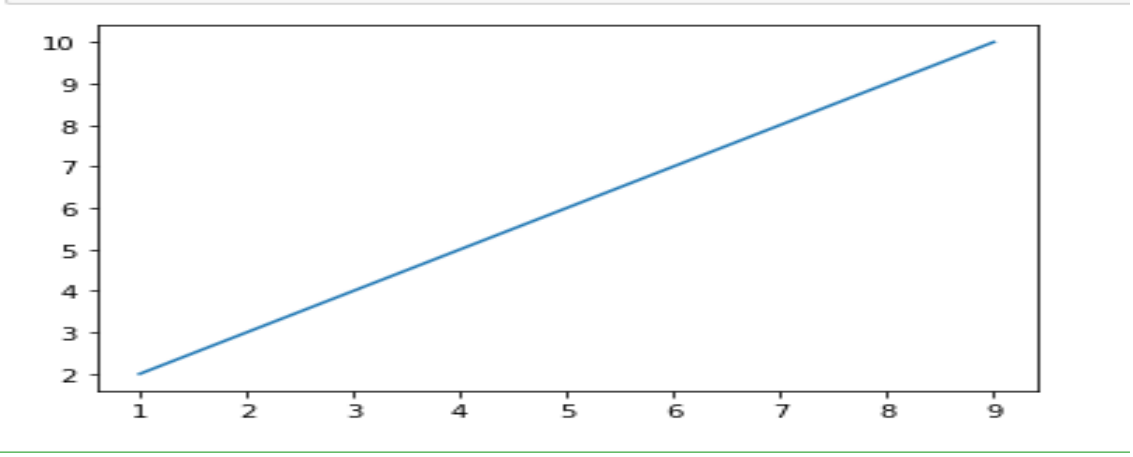
```
[-6.28318531 -5.96097068 -5.63875604 -5.31654141 -4.99432678 -4.67211215
 -4.34989752 -4.02768289 -3.70546826 -3.38325363 -3.061039   -2.73882436
 -2.41660973 -2.0943951  -1.77218047 -1.44996584 -1.12775121 -0.80553658
 -0.48332195 -0.16110732  0.16110732  0.48332195  0.80553658  1.12775121
  1.44996584  1.77218047  2.0943951   2.41660973  2.73882436  3.061039
  3.38325363  3.70546826  4.02768289  4.34989752  4.67211215  4.99432678
  5.31654141  5.63875604  5.96097068  6.28318531]
[ 1.          0.94853644  0.79944276  0.56806475  0.27821746 -0.04026594
 -0.35460489 -0.63244538 -0.84519009 -0.97094182 -0.99675731 -0.91997944
 -0.74851075 -0.5        -0.20002569  0.12053668  0.42869256  0.69272435
  0.88545603  0.98705026  0.98705026  0.88545603  0.69272435  0.42869256
  0.12053668 -0.20002569 -0.5        -0.74851075 -0.91997944 -0.99675731
 -0.97094182 -0.84519009 -0.63244538 -0.35460489 -0.04026594  0.27821746
  0.56806475  0.79944276  0.94853644  1.        ]
```



TASK 2: READ CSV FILE

```
import matplotlib.pyplot as plt
import csv
x=[]
y=[]
with open ('example .txt','r') as csvfile:
    plots = csv.reader(csvfile,delimiter=',')
    for row in plots:
        x.append (int(row[0]))
        y.append (int(row[1]))
plt.plot(x,y,label='Got from file')
plt.show()
```

OUTPUT:



TASK 3: ACCESS EXCEL SHEET USING PANDAS

```
import pandas as pd
df=pd.read_excel(r'C:\Users\Toufeer\Desktop\iot lab 38\Plain Toys.xlsx')
print(df.head())
```

OUTPUT:

	Toys Ordered	Price Each	Q. Ordered	Cost	Discount	Final Cost
0	BBQ Barbie Doll	12.99	2.0	NaN	10.0	20.0
1	Prince Eric Doll	8.99	3.0	NaN	10.0	7.0
2	Princess Jasmine Doll	9.99	1.0	NaN	10.0	8.0
3	Cinderella's Coach	19.99	1.0	NaN	10.0	16.0
4	Spiderman gloves	14.99	3.0	NaN	10.0	13.0

TASK 4: ACCESS DATA OF EXCEL SHEET USING PANDAS

```
import pandas as pd
df=pd.read_excel(r'C:\Users\Toufeer\Desktop\iot lab 38\Plain Toys.xlsx')
print(df.head(3))
```

OUTPUT:

	Toys Ordered	Price Each	Q. Ordered	Cost	Discount	Final Cost
0	BBQ Barbie Doll	12.99	2.0	NaN	10.0	20.0
1	Prince Eric Doll	8.99	3.0	NaN	10.0	7.0
2	Princess Jasmine Doll	9.99	1.0	NaN	10.0	8.0

TASK 5: CONVERT EXCEL TO CSV FILE

```
import pandas as pd
df=pd.read_excel(r'C:\Users\Toufeer\Desktop\iot lab 38\Plain Toys.xlsx')
df.to_csv('Plain Toys.csv',index=None,header=True)
df=pd.read_csv('Plain Toys.csv')
print(df.head(3))
```

OUTPUT:

```
            Toys Ordered  Price Each  Q. Ordered  Cost  Discount  Final Cost
0        BBQ Barbie Doll       12.99         2.0   NaN      10.0        20.0
1      Prince Eric Doll         8.99         3.0   NaN      10.0         7.0
2  Princess Jasmine Doll        9.99         1.0   NaN      10.0         8.0
```

TASK 6: ACCESS DATA OF CSV FILE

```
import pandas as pd
df=pd.read_excel(r'C:\Users\Toufeer\Desktop\iot lab 38\Plain Toys.xlsx')
df.to_csv('Plain Toys.csv',index=None,header=True)
df=pd.read_csv('Plain Toys.csv')
print(df.head(3))
print(df.shape)
print(df.columns)
print(df.dtypes)
```

OUTPUT:

```
            Toys Ordered  Price Each  Q. Ordered  Cost  Discount  Final Cost
0        BBQ Barbie Doll       12.99         2.0   NaN      10.0        20.0
1      Prince Eric Doll         8.99         3.0   NaN      10.0         7.0
2  Princess Jasmine Doll        9.99         1.0   NaN      10.0         8.0
(9, 6)
Index(['Toys Ordered', 'Price Each', 'Q. Ordered', 'Cost', 'Discount',
       'Final Cost'],
      dtype='object')
Toys Ordered     object
Price Each      float64
Q. Ordered      float64
Cost            float64
Discount        float64
Final Cost      float64
dtype: object
```