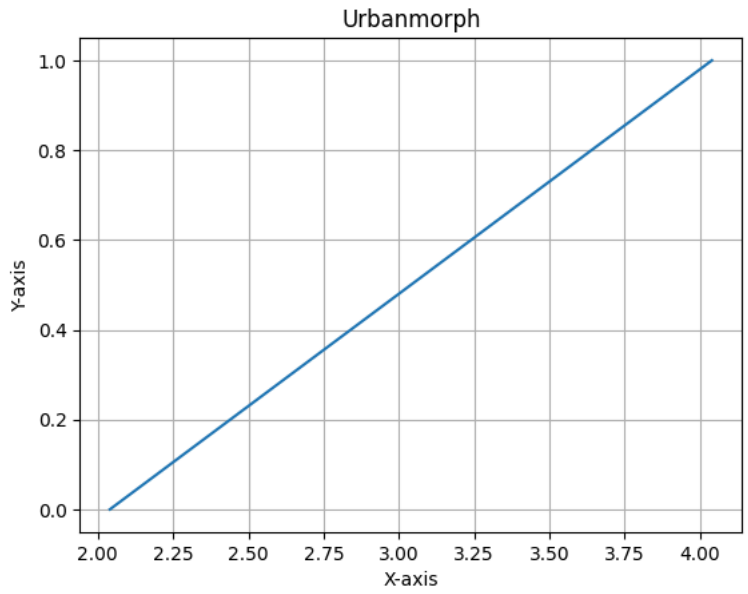
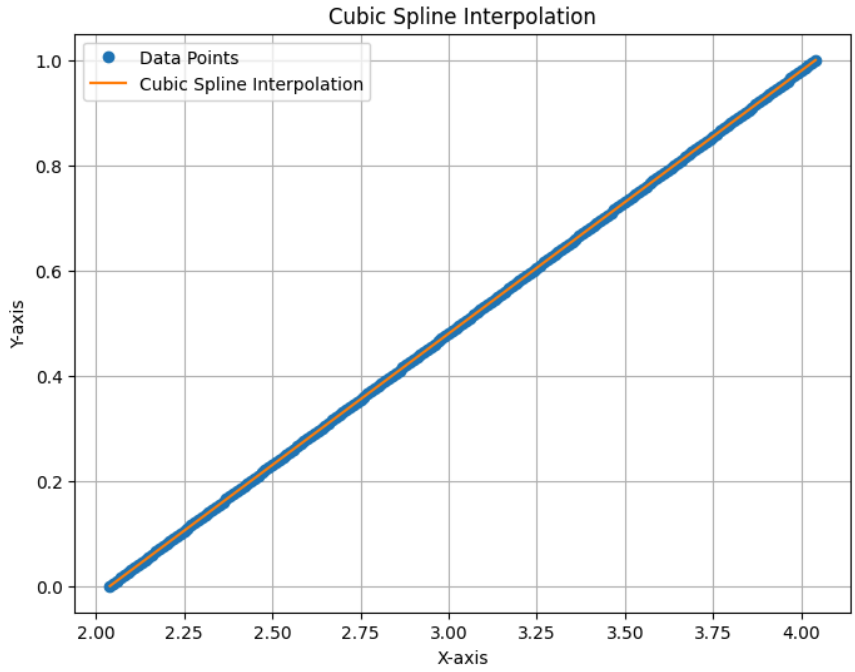
```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

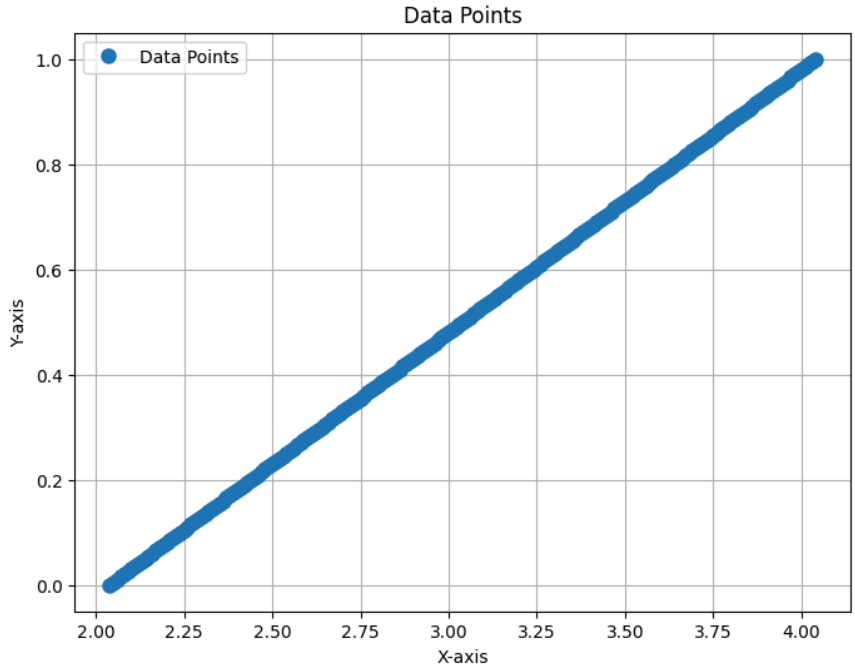
```
import pandas as pd
import matplotlib.pyplot as plt

file_path = '/content/drive/MyDrive/timepass/Data sets/Data points.xlsx'

df = pd.read_excel(file_path)

x_values = df['X-axis']
y_values = df['Y-axis']

plt.plot(x_values, y_values)
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Urbanmorph')
plt.grid(True)
plt.show()
```




```
import numpy as np
from scipy.interpolate import CubicSpline

cs = CubicSpline(x_values, y_values)

x_interp = np.linspace(min(x_values), max(x_values), 100)
y_interp = cs(x_interp)

plt.figure(figsize=(8, 6))
plt.plot(x_values, y_values, 'o', label='Data Points')
plt.plot(x_interp, y_interp, label='Cubic Spline Interpolation')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Cubic Spline Interpolation')
plt.legend()
plt.grid(True)
plt.show()
```




```
plt.figure(figsize=(8, 6))
plt.plot(x_values, y_values, 'o', label='Data Points', markersize=8)
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Data Points')
plt.legend()
plt.grid(True)
plt.show()
```




```
def f_x(x):
    return cs(x)

x_input = float(input("Enter the value of x: "))

fx = f_x(x_input)
print(f"When x = {x_input} V, then f({x_input}) = {fx:.2f}")
```

```
Enter the value of x: 15.96
When x = 15.96 V, then f(15.96) = 6.96
```

```
Start coding or generate with AI.
```