In [1]:
```python
import matplotlib.pyplot as plt
from mpl_toolkits.mplot3d import Axes3D
import pandas as pd
import numpy as np

import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

In [49]:
```python
raw_dataset=pd.read_csv("DadasB3D.csv",sep=",")
```

In [50]:
```python
DadasB3D = raw_dataset.copy()
DadasB3D.head()
```

Out[50]:

	Well	Altitude	Longitude	Depth_m	BI
0	ABDULAZIZ-1	38.345084	39.805726	2740.0	0.27
1	ABDULAZIZ-1	38.345084	39.805726	2750.0	0.49
2	ABDULAZIZ-1	38.345084	39.805726	2760.0	0.47
3	ABDULAZIZ-1	38.345084	39.805726	2780.0	0.56
4	ABDULAZIZ-1	38.345084	39.805726	2790.0	0.23

In [51]:
```python
DadasB3D.shape
```

Out[51]: (165, 5)

In [52]:
```python
x= DadasB3D.iloc[:, 1].values
```

In [53]:
```python
y=DadasB3D.iloc[:, 2].values
```

In [54]:
```python
z = DadasB3D.iloc[:, 3].values
```

```
In [55]: colors= DadasB3D.iloc[:, 4].values
```

```
In [56]: x
```

```
Out[56]: array([38.345084, 38.345084, 38.345084, 38.345084, 38.345084, 38.345084,
                 38.345084, 38.345084, 38.345084, 38.345084, 38.345084, 38.345084,
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                 37.892258, 37.892258, 37.892258])
```

In [57]: y

Out[57]: array([39.805726, 39.805726, 39.805726, 39.805726, 39.805726, 39.805726,
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                40.818528, 40.818528, 40.818528, 40.818528, 40.818528, 40.818528,
                40.818528, 40.818528, 40.818528])

In [58]: `colors`

Out[58]:
```
array([0.27, 0.49, 0.47, 0.56, 0.23, 0.56, 0.23, 0.58, 0.6 , 0.56, 0.54,
       0.56, 0.54, 0.46, 0.51, 0.6 , 0.36, 0.69, 0.89, 0.58, 0.72, 0.72,
       0.58, 0.57, 0.73, 0.48, 0.59, 0.53, 0.63, 0.65, 0.69, 0.58, 0.48,
       0.58, 0.53, 0.48, 0.56, 0.61, 0.49, 0.56, 0.51, 0.66, 0.49, 0.45,
       0.54, 0.57, 0.55, 0.56, 0.49, 0.49, 0.62, 0.82, 0.78, 0.68, 0.62,
       0.67, 0.72, 0.66, 0.76, 0.76, 0.81, 0.86, 0.91, 0.84, 0.75, 0.9 ,
       0.91, 0.88, 0.77, 0.69, 0.33, 0.27, 0.81, 0.83, 0.34, 0.73, 0.77,
       0.73, 0.56, 0.74, 0.73, 0.27, 0.59, 0.31, 0.26, 0.24, 0.33, 0.72,
       0.38, 0.61, 0.55, 0.52, 0.52, 0.78, 0.34, 0.61, 0.33, 0.6 , 0.52,
       0.59, 0.65, 0.59, 0.8 , 0.5 , 0.63, 0.41, 0.41, 0.88, 0.9 , 0.67,
       0.97, 0.93, 0.72, 0.53, 0.38, 0.41, 0.39, 0.39, 0.49, 0.67, 0.44,
       0.47, 0.43, 0.42, 0.51, 0.37, 0.36, 0.46, 0.41, 0.34, 0.41, 0.43,
       0.42, 0.43, 0.62, 0.23, 0.63, 0.36, 0.49, 0.57, 0.78, 0.75, 0.59,
       0.56, 0.53, 0.57, 0.61, 0.6 , 0.58, 0.57, 0.75, 0.67, 0.97, 1.  ,
       0.65, 0.6 , 0.55, 0.42, 0.33, 0.61, 0.62, 0.31, 0.53, 0.41, 0.46])
```

In [63]:
```python
# 3D scatter plot oluşturun
fig = plt.figure(figsize=(35, 10))
ax = fig.add_subplot(111, projection='3d')
ax.scatter(x, y, z, c=colors, cmap='jet')

# Renk çubuğunu ekleyin
cbar = plt.colorbar(ax.scatter(x, y, z, c=colors, cmap='jet'))
cbar.set_label('Kırılganlık İndeksi')

# Eksen etiketlerini ayarlayın
ax.set_xlabel('Enlem')
ax.set_ylabel('Boylam')
ax.set_zlabel('Derinlik')
font_size = 34



# Grafiği gösterin
plt.show()
```
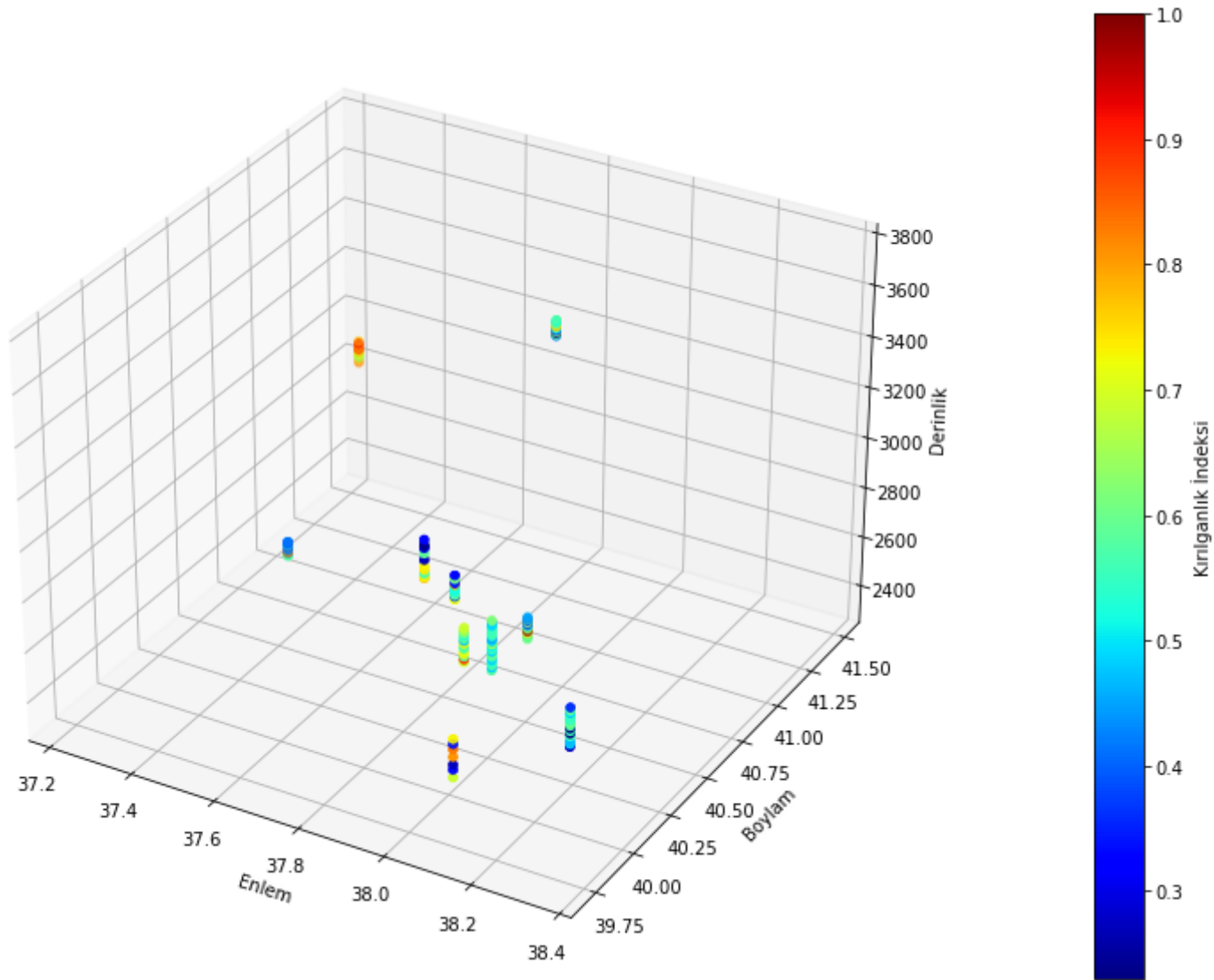
```python
In [23]: import matplotlib.pyplot as plt
         import numpy as np

         # Verileri oluştur


         Data = [
                 [38.345084, 39.805726,  2.74    ,  0.27    ],
                 [38.345084, 39.805726,  2.75    ,  0.49    ],
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                 [38.345084, 39.805726,  2.844   ,  0.54    ],
                 [38.345084, 39.805726,  2.85    ,  0.56    ],
                 [38.345084, 39.805726,  2.86    ,  0.54    ],
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                 [38.120595, 39.765326,  3.01    ,  0.72    ],
                 [38.120595, 39.765326,  3.02    ,  0.58    ],
                 [38.120595, 39.765326,  3.03    ,  0.57    ],
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                 [38.120595, 39.765326,  3.05    ,  0.48    ],
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                 [38.120595, 39.765326,  3.09    ,  0.65    ],
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                 [38.149422, 39.858795,  2.91    ,  0.48    ],
                 [38.149422, 39.858795,  2.92    ,  0.58    ],
```

```
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[38.086555, 39.790732,  2.64    ,  0.73    ],
```

```
        [38.137136, 39.803005,  3.216   ,  0.77     ],
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```

```
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        [37.892258, 40.818528,  2.425  ,  0.31    ],
        [37.892258, 40.818528,  2.43   ,  0.53    ],
        [37.892258, 40.818528,  2.435  ,  0.41    ],
        [37.892258, 40.818528,  2.44   ,  0.46    ],
      ]


data = np.array(data)
longitude = data[:, 1]
latitude = data[:, 0]
depth = data[:, 2]
bi = data[:, 3]


fig = plt.figure(figsize=(25, 10))
ax = fig.add_subplot(111, projection='3d')
scatter = ax.scatter(longitude, latitude, depth, c=bi, cmap='jet')


cbar = plt.colorbar(scatter)
cbar.set_label('BI')

# Eksen etiketlerini ve başlığı ekle
ax.set_xlabel('Longitude')
ax.set_ylabel('Latitude')
ax.set_zlabel('Depth (km)')
plt.title('3D Scatter Plot with Color Bar')


plt.show()
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-23-2f4fff375dc4> in <module>
    175
    176
--> 177 data = np.array(data)
    178 longitude = data[:, 1]
    179 latitude = data[:, 0]

NameError: name 'data' is not defined
```

In [ ]:

In [ ]:
```python
import matplotlib.pyplot as plt
import numpy as np


# Verileri oluştur



data = np.array(data)
longitude = data[:, 1]
latitude = data[:, 0]
depth = data[:, 2]
bi = data[:, 3]

# 3D scatter plot ve color bar plot'u oluştur
fig = plt.figure(figsize=(25, 10))
ax = fig.add_subplot(111, projection='3d')
scatter = ax.scatter(longitude, latitude, depth, c=bi, cmap='jet')

# Renk barını ekle
cbar = plt.colorbar(scatter)
cbar.set_label('BI')

# Eksen etiketlerini ve başlığı ekle
ax.set_xlabel('Longitude')
ax.set_ylabel('Latitude')
ax.set_zlabel('Depth (km)')
plt.title('3D Scatter Plot with Color Bar')

# Grafiği göster
plt.show()
```

In [108]:
```python
import matplotlib.pyplot as plt

# 'hsv' renk haritasını elde etme
my_cmap = plt.get_cmap('hsv')

# Renk haritasını bir grafiğe uygulama
x = [1, 2, 3, 4, 5]
y = [2, 4, 6, 8, 10]

plt.scatter(x, y, c=x, cmap=my_cmap)  # c=y ifadesiyle renklendirme yapılıyor

plt.colorbar()  # Renk skalasını gösterme

plt.show()
```
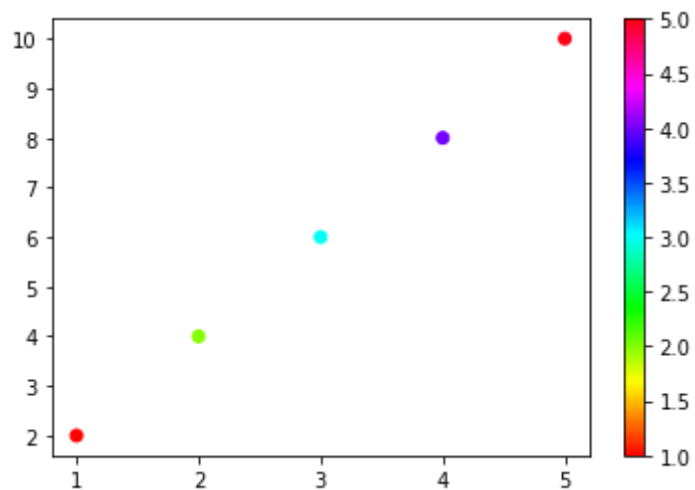
In [142]:
```python
import numpy as np
import matplotlib.pyplot as plt
from mpl_toolkits.mplot3d import Axes3D

# Veri oluşturma
longitude = np.linspace(-180, 180, 100)  # Örnek boylam değerleri
altitude = np.linspace(0, 5000, 100)  # Örnek yükseklik değerleri

# Boyle bir veri örneği olsun:
# longitude = [-180, -176.36, ..., 176.36, 180]
# altitude = [0, 50, ..., 4950, 5000]

# Boyle bir meshgrid elde edelim:
longitude_mesh, altitude_mesh = np.meshgrid(longitude, altitude)

# Örnek bir yükseklik fonksiyonu (burada rastgele bir değer kullanıldı)
z = np.random.random((100, 100))

# 3D grafik figürünü oluşturma
fig = plt.figure()
ax = fig.add_subplot(111, projection='3d')

# Veriyi 3D yüzey grafiği olarak çizme
ax.plot_surface(longitude_mesh, altitude_mesh, z, cmap='viridis')

# Eksen etiketlerini ayarlama
ax.set_xlabel('Boylam (Longitude)')
ax.set_ylabel('Yükseklik (Altitude)')
ax.set_zlabel('Z ekseni')

# Başlığı ayarlama
plt.title('3D Yüzey Grafiği')

# Grafiği gösterme
plt.show()
```
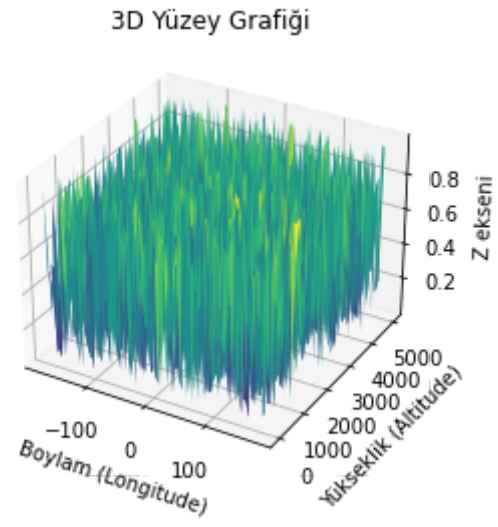
3D Yüzey Grafiği

In [143]:
```python
import numpy as np
import matplotlib.pyplot as plt
from mpl_toolkits.mplot3d import Axes3D

# Veri oluşturma
np.random.seed(0)
n_points = 100
longitude = np.random.uniform(low=-180, high=180, size=n_points)
latitude = np.random.uniform(low=-90, high=90, size=n_points)
elevation = np.random.uniform(low=0, high=5000, size=n_points)

# 3D grafik figürünü oluşturma
fig = plt.figure()
ax = fig.add_subplot(111, projection='3d')

# Veriyi 3D nokta grafiği olarak çizme
ax.scatter(longitude, latitude, elevation)

# Eksen etiketlerini ayarlama
ax.set_xlabel('Longitude')
ax.set_ylabel('Latitude')
ax.set_zlabel('Elevation')

# Başlığı ayarlama
plt.title('3D Nokta Grafiği')

# Grafiği gösterme
plt.show()
```
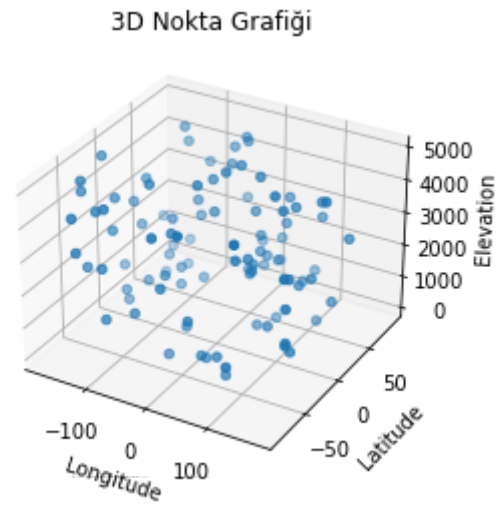
3D Nokta Grafiği

In [ ]: