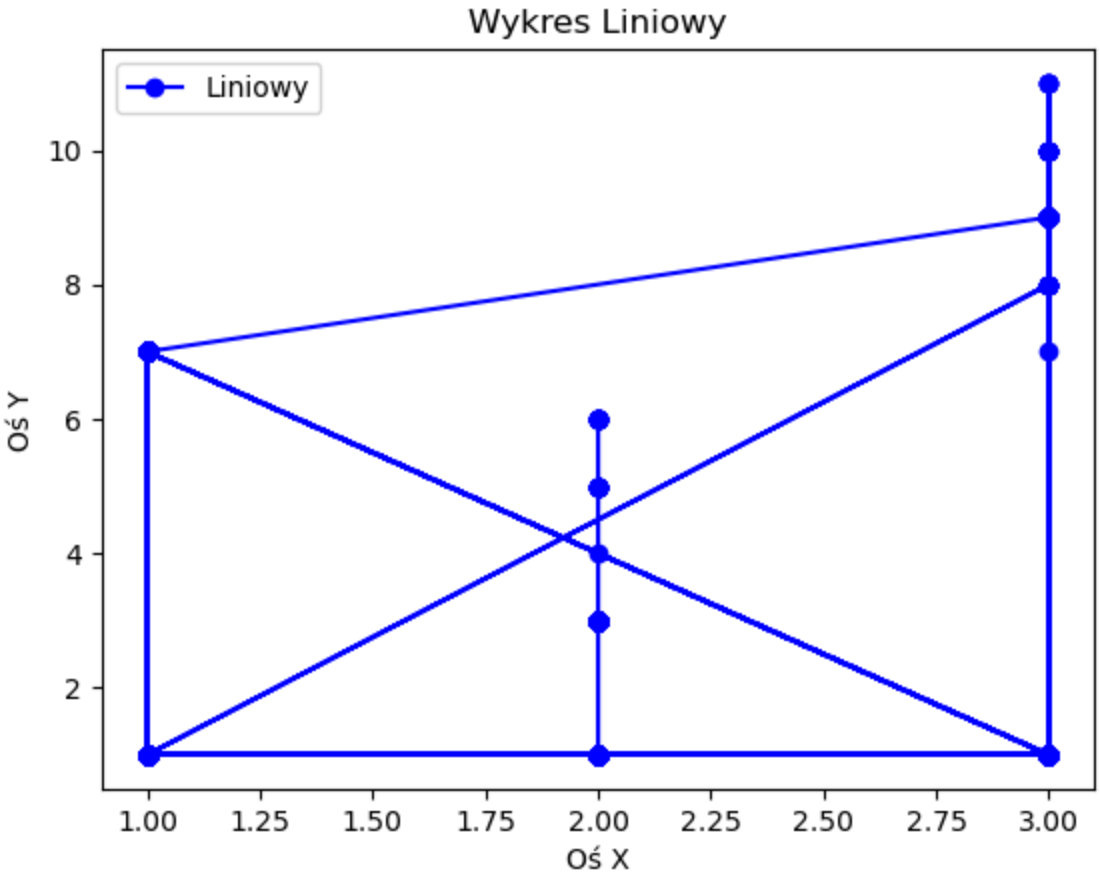
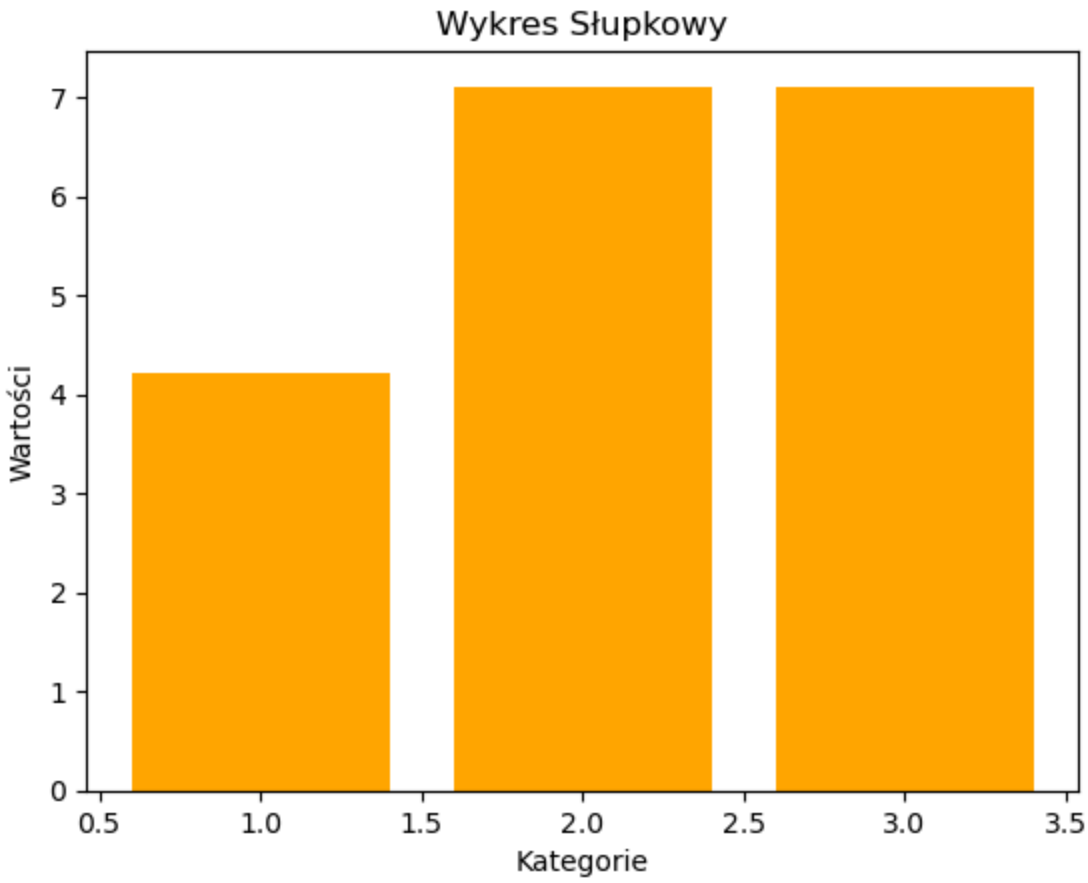
In [1]:
```
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
import plotly.express as px
df = pd.read_csv('data.csv')
```

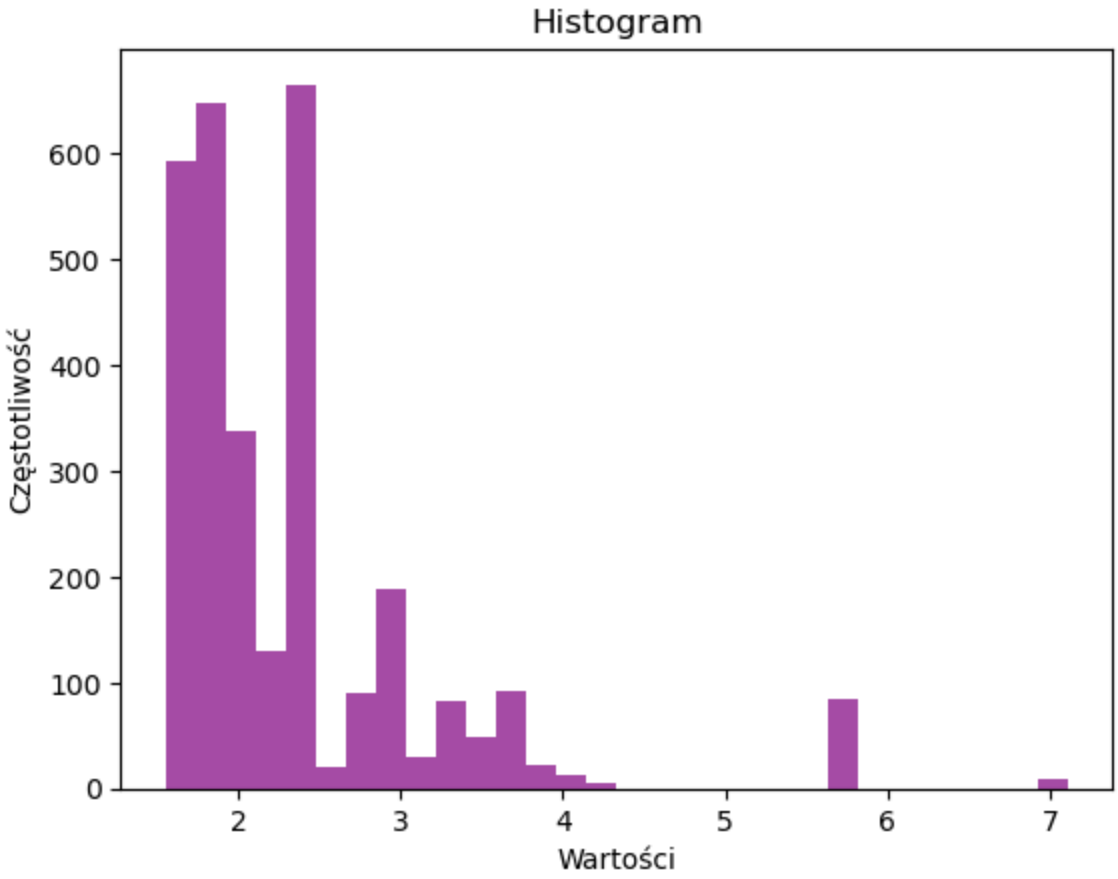
In [2]:
```
# Tworzenie wykresu
plt.plot(df.Country, df.LANG, marker='o', linestyle='-', color='b', label="Liniowy"
plt.xlabel("Oś X")
plt.ylabel("Oś Y")
plt.title("Wykres Liniowy")
plt.legend()
plt.show()
```



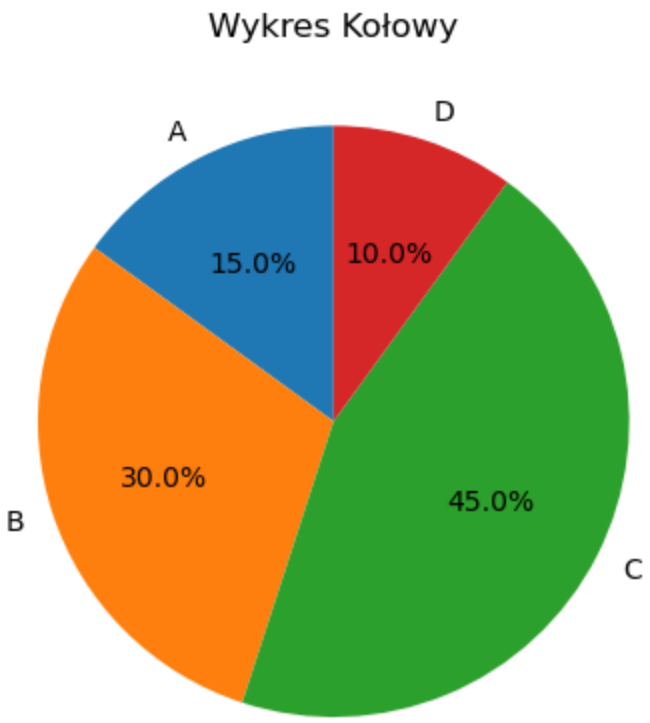
In [3]:
```
# Tworzenie wykresu słupkowego
plt.bar(df.agegroup, df.gk_weight, color='orange')
plt.xlabel("Kategorie")
plt.ylabel("Wartości")
plt.title("Wykres Słupkowy")
plt.show()
```



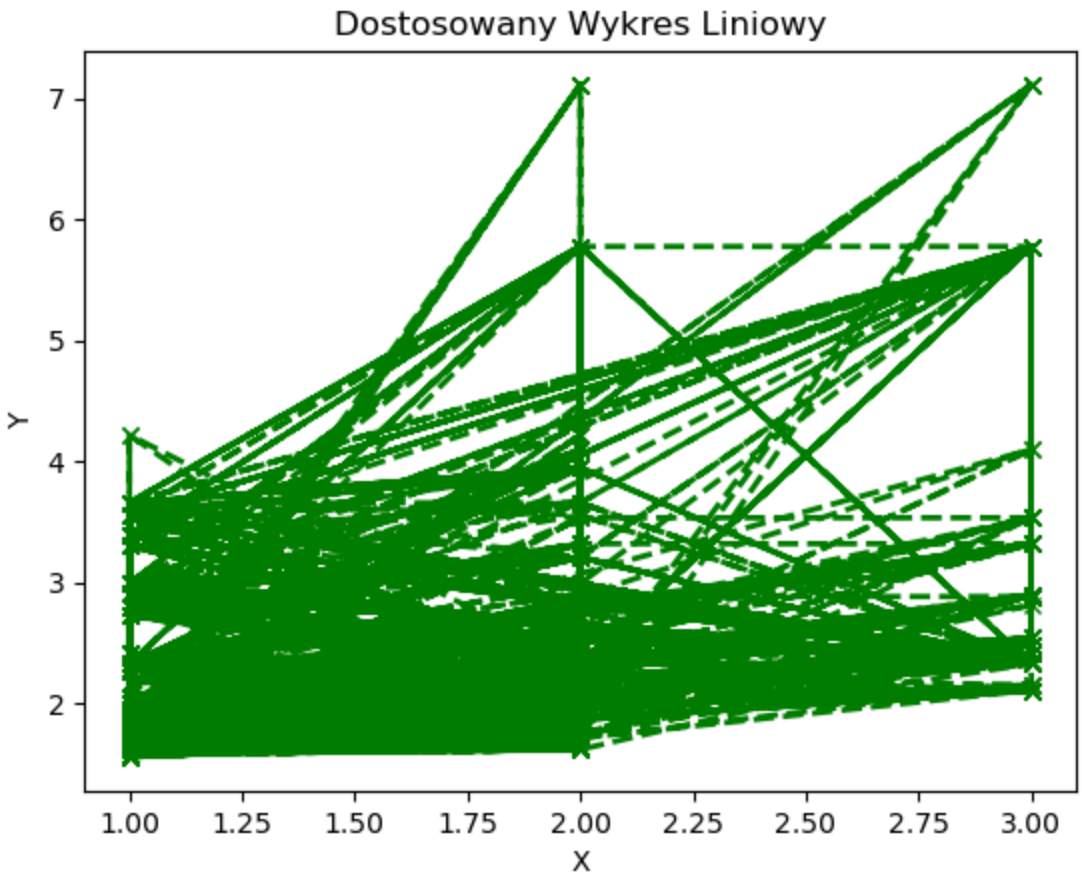
In [4]:
```
# Tworzenie histogramu
plt.hist(df.gk_weight, bins=30, color='purple', alpha=0.7)
plt.xlabel("Wartości")
plt.ylabel("Częstotliwość")
plt.title("Histogram")
plt.show()
```



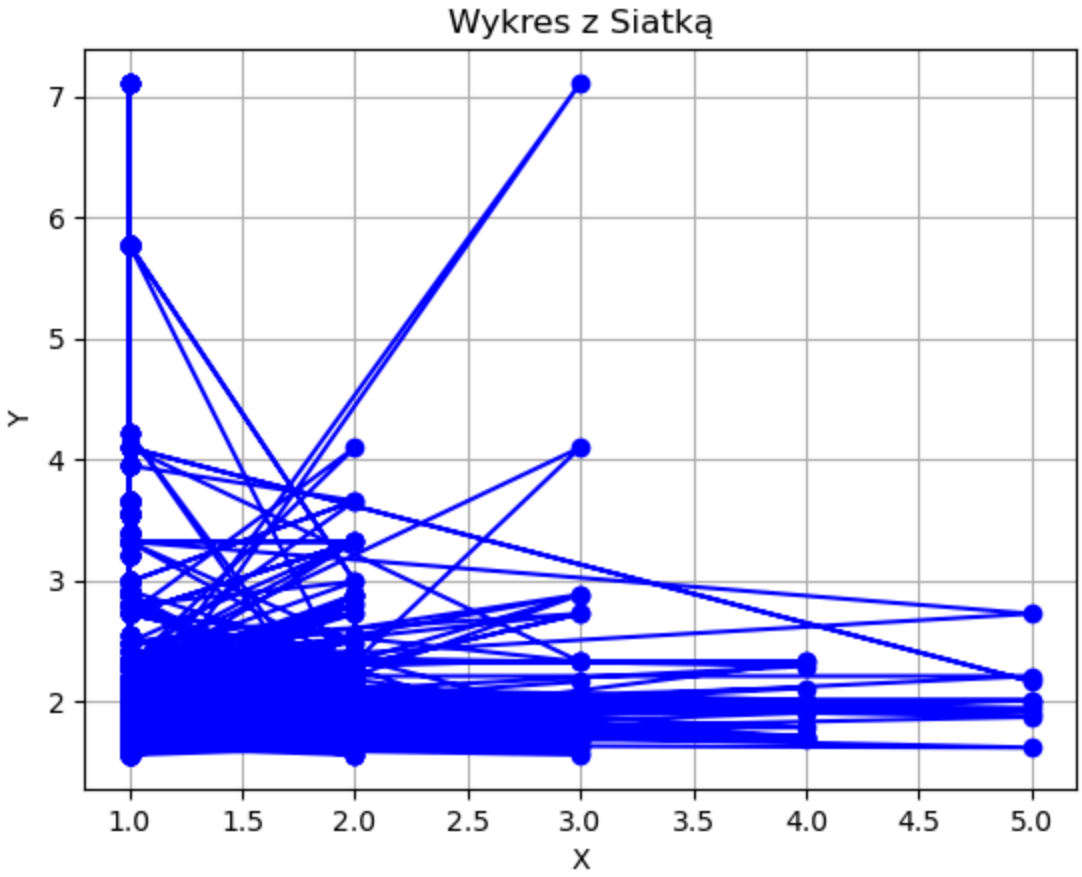
In [5]:
```
# Dane
kategorie = ['A', 'B', 'C', 'D']
wartosci = [15, 30, 45, 10]

# Tworzenie wykresu kołowego
plt.pie(wartosci, labels=kategorie, autopct='%1.1f%%', startangle=90)
plt.title("Wykres Kołowy")
plt.show()
```



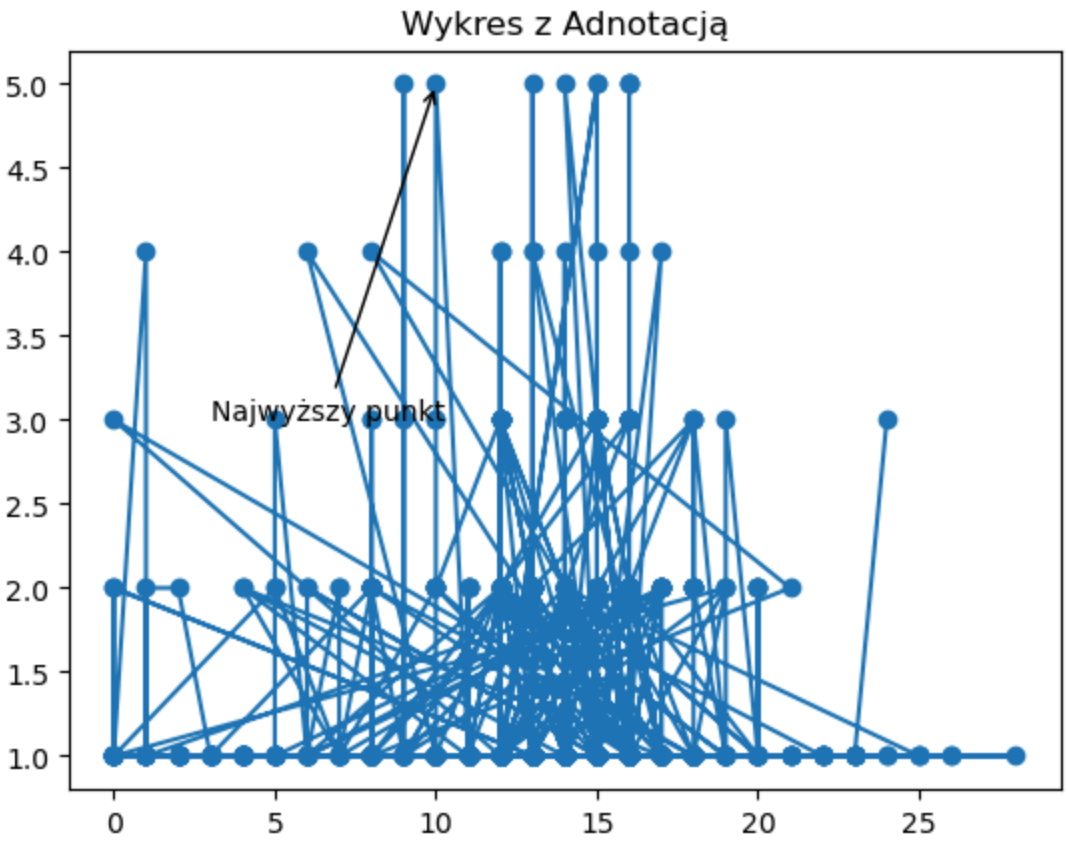
In [6]:
```
x = [1, 2, 3, 4, 5]
y = [10, 20, 25, 30, 35]

plt.plot(df.agegroup, df.gk_weight, color='green', marker='x', linestyle='--', line
plt.xlabel("X")
plt.ylabel("Y")
plt.title("Dostosowany Wykres Liniowy")
plt.show()
```



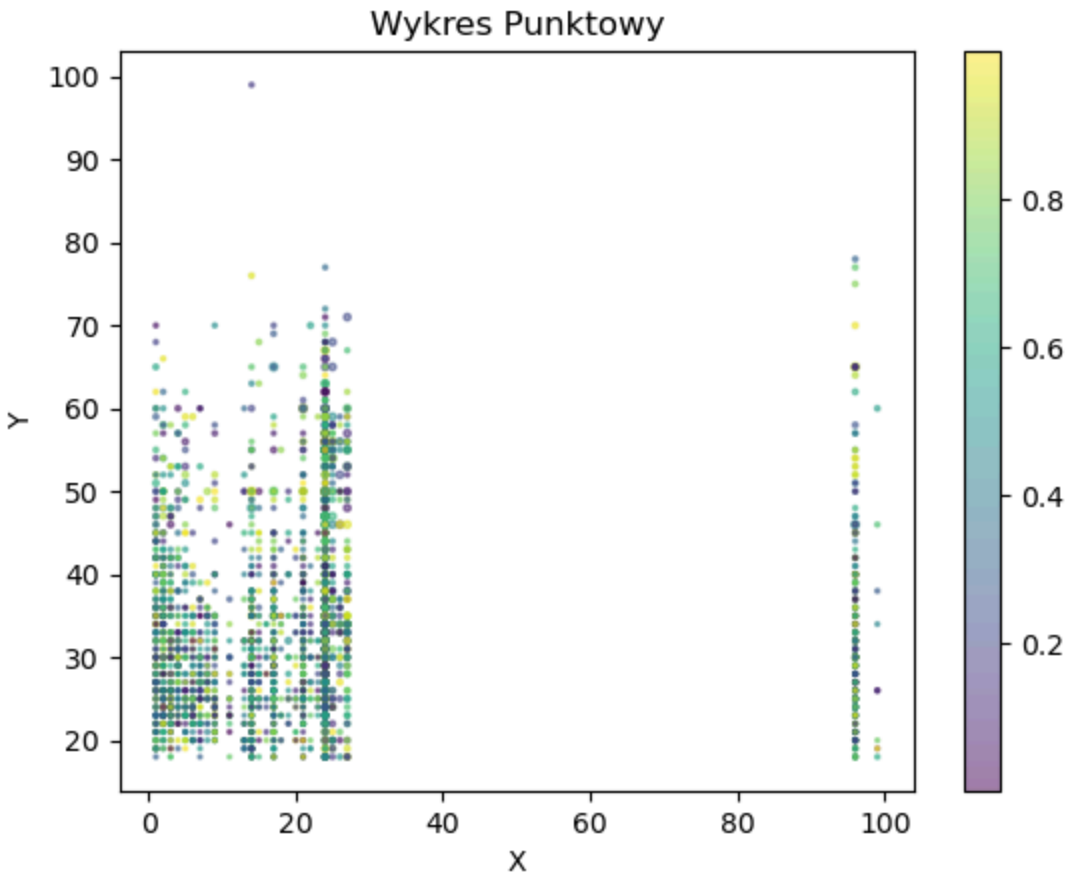
In [7]:
```
plt.plot(df.NumOfVisits, df.gk_weight, color='blue', marker='o')
plt.grid(True)
plt.xlabel("X")
plt.ylabel("Y")
plt.title("Wykres z Siatką")
plt.show()
```



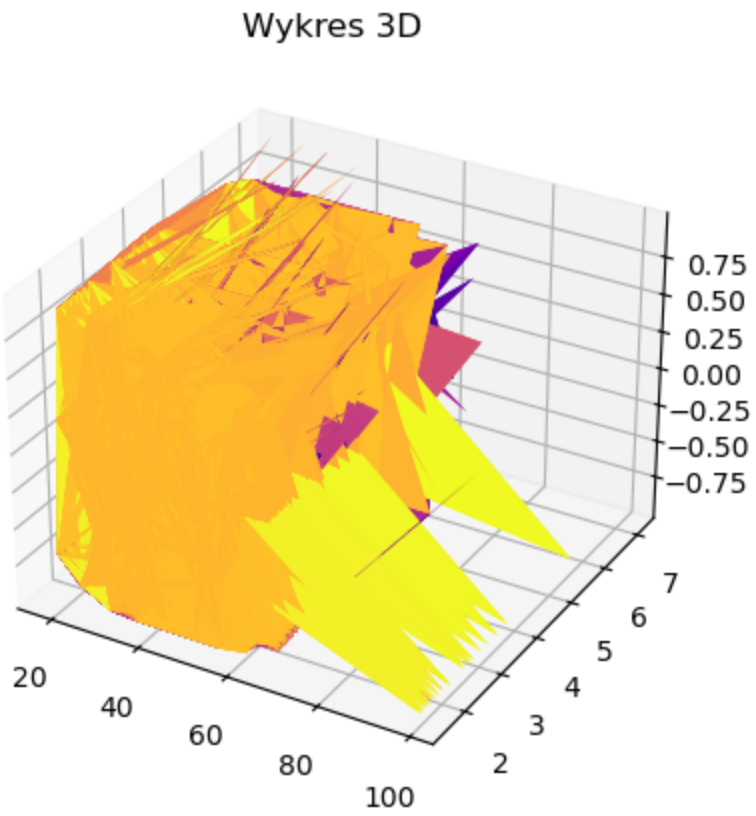
In [8]:
```
plt.plot(df.R8, df.NumOfVisits, marker='o')
plt.annotate('Najwyższy punkt', xy=(10, 5), xytext=(3, 3),
             arrowprops=dict(facecolor='black', arrowstyle='->'))
plt.title("Wykres z Adnotacją")
plt.show()
```



In [9]:
```
sizes = 1000 * np.random.rand(50)
colors = np.random.rand(3058)

plt.scatter(df.R7, df.R5, s=df.gk_weight, c=colors, alpha=0.5, cmap='viridis')
plt.colorbar()
plt.xlabel("X")
plt.ylabel("Y")
plt.title("Wykres Punktowy")
plt.show()
```

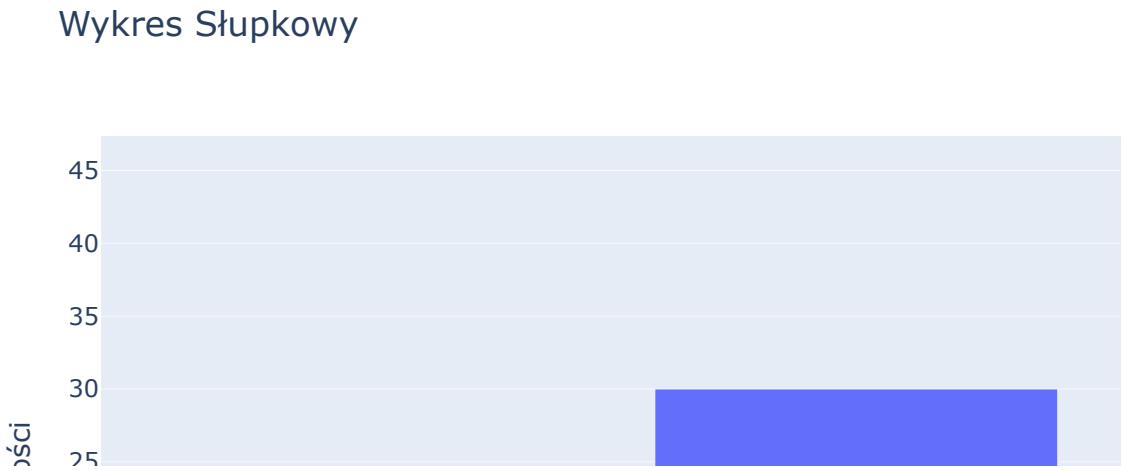


In [10]:
```
from mpl_toolkits.mplot3d import Axes3D

fig = plt.figure()
ax = fig.add_subplot(111, projection='3d')

x = df.R5
y = df.gk_weight
X, Y = np.meshgrid(x, y)
Z = np.sin(np.sqrt(X**2 + Y**2))

ax.plot_surface(X, Y, Z, cmap='plasma')
plt.title("Wykres 3D")
plt.show()
```



In [11]:
```
# Tworzenie wykresu
fig = px.line(x=x, y=y, title="Wykres Liniowy", labels={'x':"Oś X", 'y':"Oś Y"})
fig.show()
```

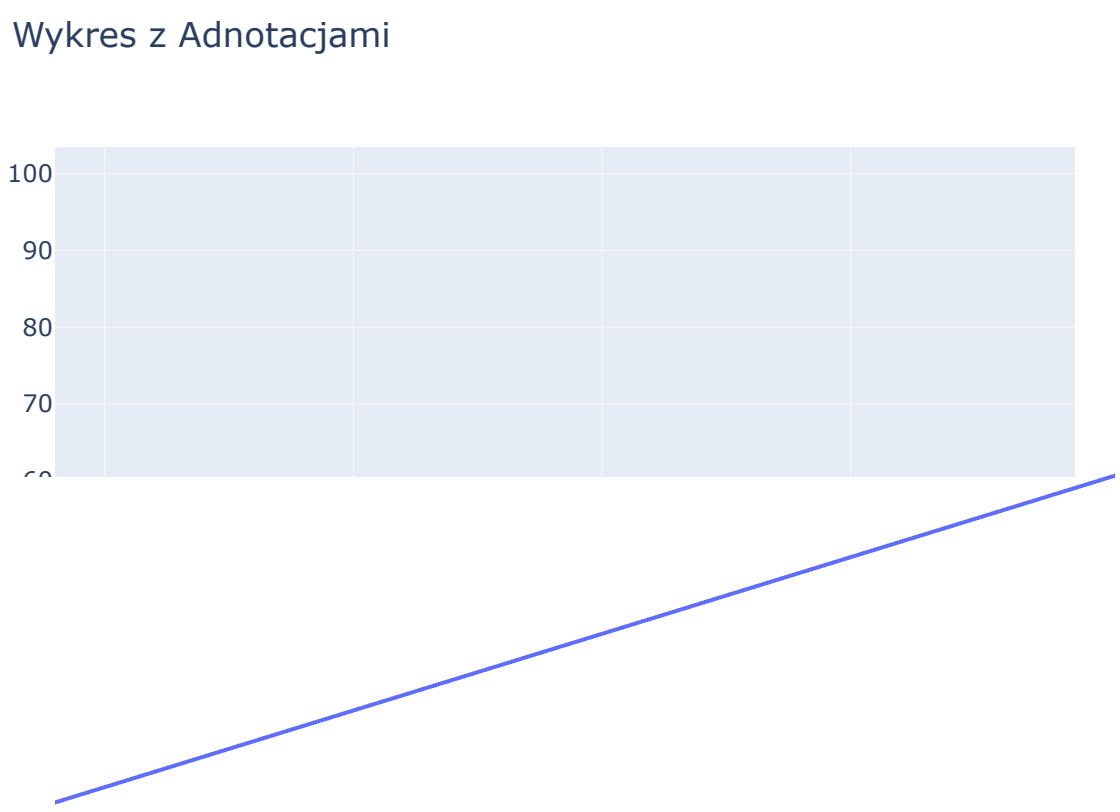
In [12]:
```
# Tworzenie wykresu słupkowego
fig = px.bar(x=kategorie, y=wartosci, title="Wykres Słupkowy", labels={'x':"Kategor
fig.show()
```



In [13]:
```
# Dane
kategorie = ['A', 'B', 'C', 'D']
wartosci = [15, 30, 45, 10]

# Tworzenie wykresu kołowego
fig = px.pie(names=kategorie, values=wartosci, title="Wykres Kołowy")
fig.show()
```

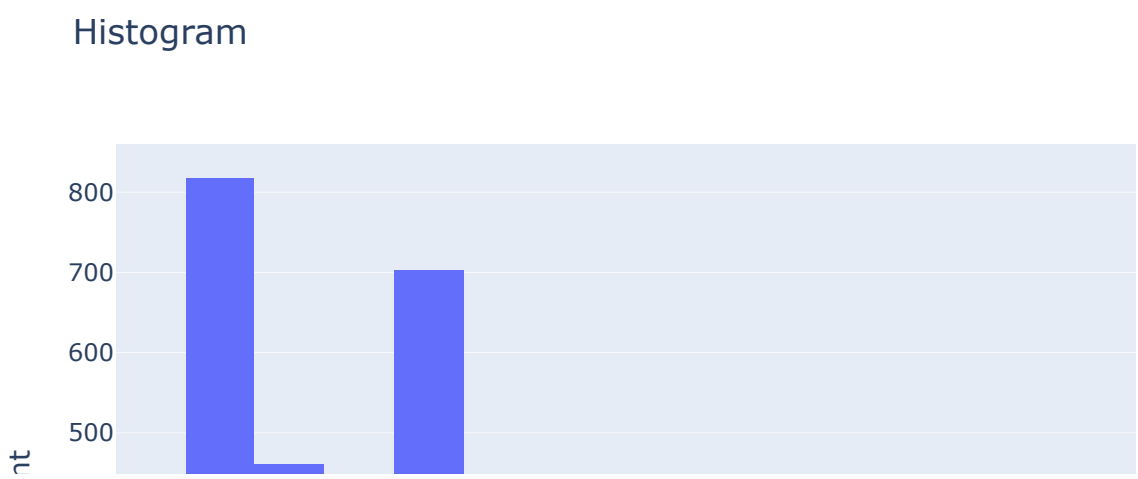
In [14]:
```
fig = px.line(x=x, y=df.R5, title="Wykres Liniowy z Dostosowanymi Kolorami")
fig.update_traces(line=dict(color="purple", width=4))
fig.show()
```

In [15]:
```
fig = px.line(x=x, y=df.R5, title="Wykres z Adnotacjami")
fig.add_annotation(x=40, y=40, text="Wyróżniony Punkt", showarrow=True, arrowhead=1
fig.show()
```



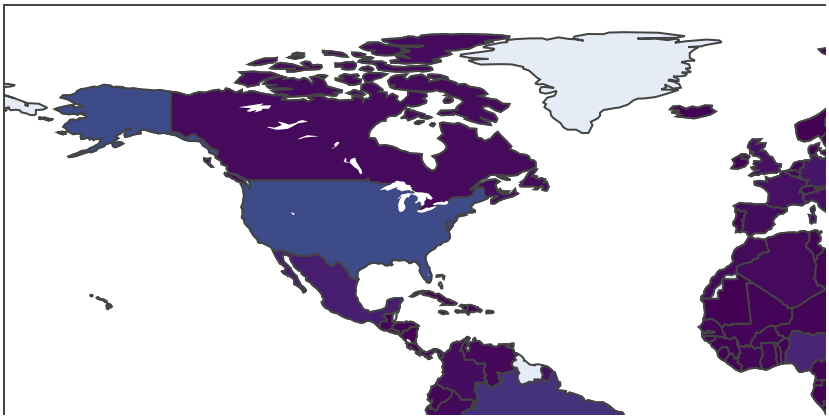
In [16]:
```
import plotly.graph_objects as go
from plotly.subplots import make_subplots

# Dane
x = [1, 2, 3, 4, 5]
y1 = df.R1
y2 = df.R2

# Tworzenie subplotów
fig = make_subplots(rows=1, cols=2, subplot_titles=("Wykres 1", "Wykres 2"))
fig.add_trace(go.Scatter(x=x, y=y1, mode='lines+markers', name="Liniowy 1"), row=1,
fig.add_trace(go.Scatter(x=x, y=y2, mode='lines+markers', name="Liniowy 2"), row=1,
fig.update_layout(title="Subploty w Plotly")
fig.show()
```

In [20]:
```
import numpy as np

# Tworzenie histogramu
fig = px.histogram(x=df.gk_weight, nbins=30, title="Histogram", labels={'x':"Wartoś
fig.show()
```



In [23]:
```
import plotly.express as px

# Dane krajów z ich kodami ISO oraz populacją
data = px.data.gapminder().query("year == 2007")

# Tworzenie mapy choropleth
fig = px.choropleth(data, locations="iso_alpha", color="pop",
                    hover_name="country", color_continuous_scale="Viridis",
                    labels={'pop': 'Populacja'})

# Ustawienia mapy
fig.update_layout(title="Populacja Krajów na Świecie w 2007 roku")
fig.show()
```

Populacja Krajów na Świecie w 2007 roku



In [ ]: