**Aadarsh Baranwal**
**FYCS A**

# PRACTICAL 9

| | |
|---|---|
| 9 | Matplotlib Visualization<br>Create a data visualization program.<br>• Generate random numbers using the random module.<br>• Create and display the following charts using Matplotlib:<br>  • Scatter plot for random points. |
| | • Bar chart to compare 5 values.<br>• Pie chart for the distribution of 5 categories.<br>• Line chart showing trends over time. |

---

```
mport random

import matplotlib.pyplot as plt


# 1. Scatter Plot

x = [random.randint(1, 50) for _ in range(20)]

y = [random.randint(1, 50) for _ in range(20)]


plt.scatter(x, y, color="blue", marker="o")

plt.title("Scatter Plot of Random Points")

plt.xlabel("X values")

plt.ylabel("Y values")

plt.show()


# 2. Bar Chart

values = [random.randint(10, 100) for _ in range(5)]

categories = ["A", "B", "C", "D", "E"]


plt.bar(categories, values, color="orange")

plt.title("Bar Chart - Comparing 5 Values")

plt.xlabel("Categories")

plt.ylabel("Values")
```

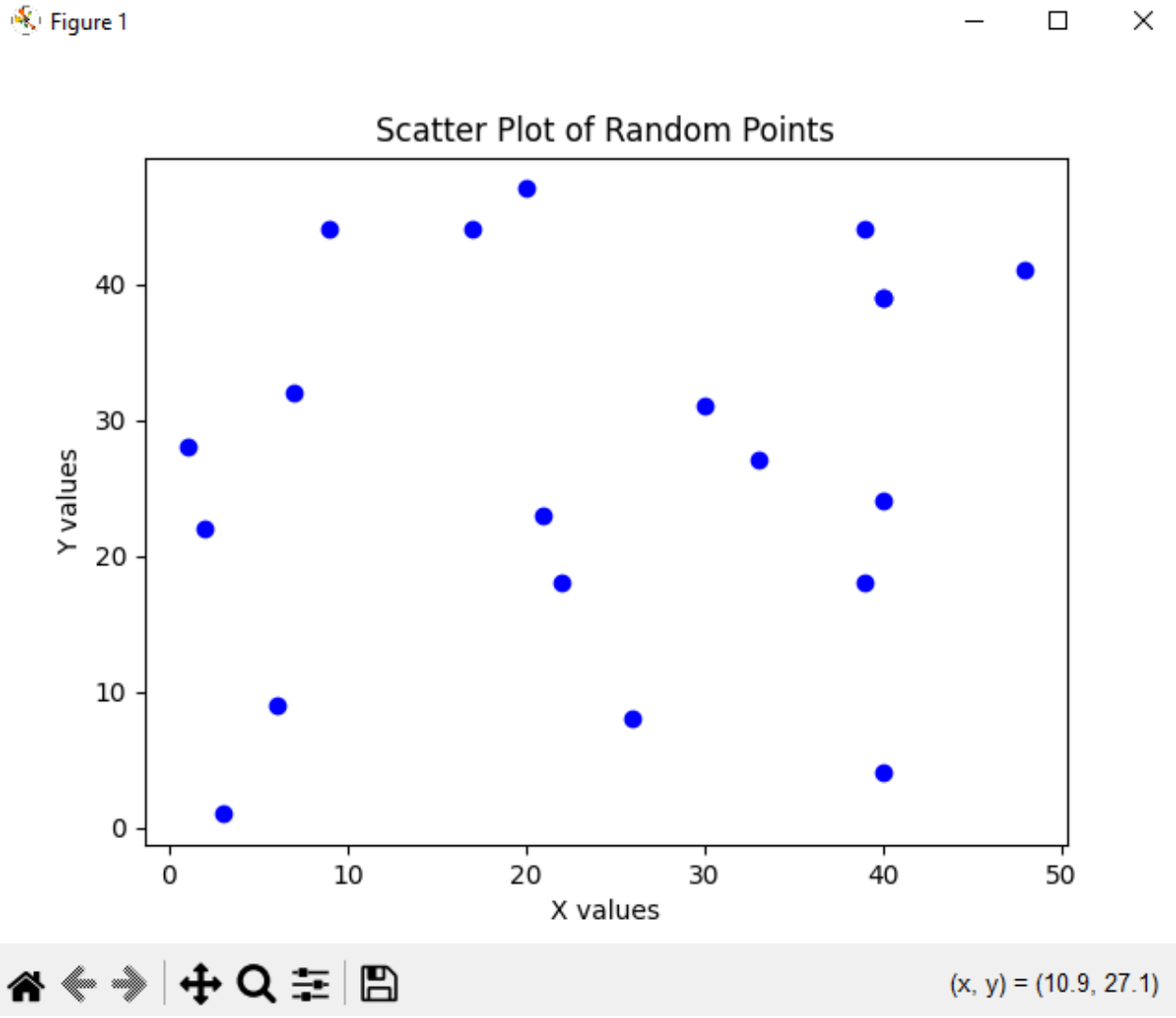
**Aadarsh Baranwal**
**FYCS A**

# PRACTICAL 9

```
plt.show()


# 3. Pie Chart

pie_values = [random.randint(10, 50) for _ in range(5)]

labels = ["Cat1", "Cat2", "Cat3", "Cat4", "Cat5"]


plt.pie(pie_values, labels=labels, autopct="%1.1f%%", startangle=140)

plt.title("Pie Chart - Distribution of 5 Categories")

plt.show()


# 4. Line Chart

time = list(range(1, 11))  # time steps (1 to 10)

trends = [random.randint(5, 20) for _ in range(10)]


plt.plot(time, trends, marker="o", linestyle="-", color="green")

plt.title("Line Chart - Trends Over Time")

plt.xlabel("Time")

plt.ylabel("Value")

plt.show()
```

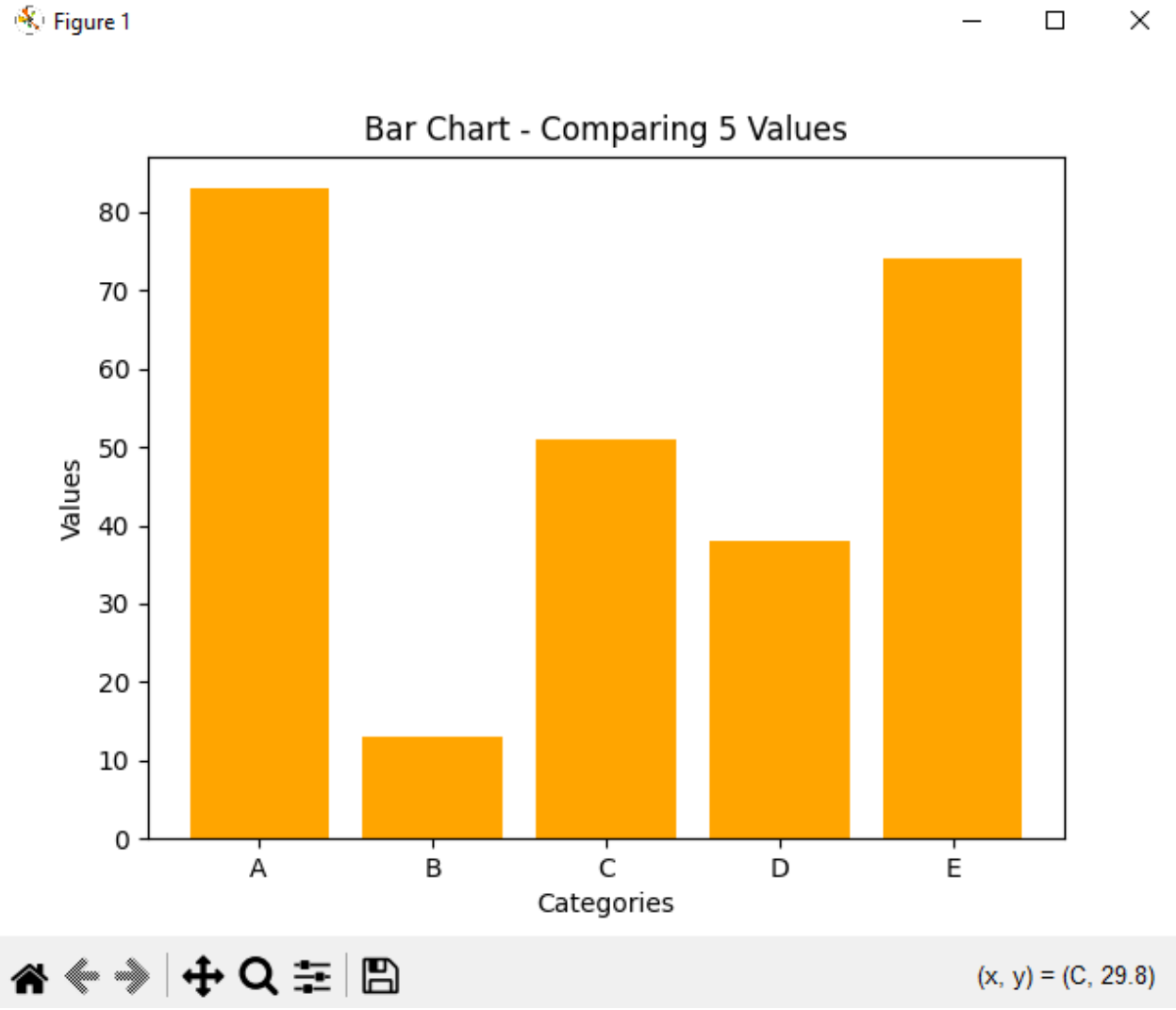
**Aadarsh Baranwal**
**FYCS A**

# PRACTICAL 9



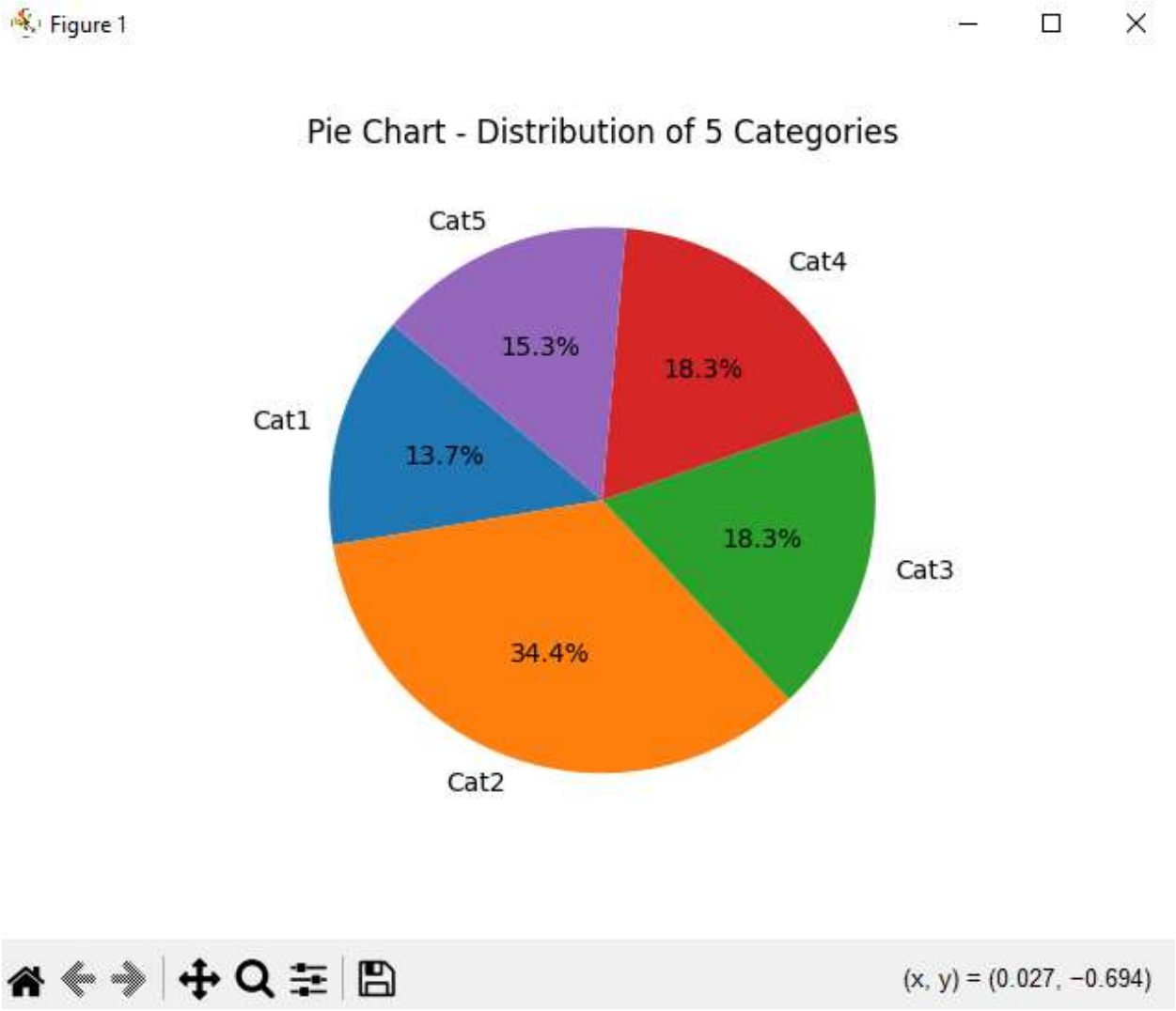
**Aadarsh Baranwal**
**FYCS A**

# PRACTICAL 9



**Aadarsh Baranwal**
**FYCS A**

# PRACTICAL 9



**Aadarsh Baranwal**
**FYCS A**

# PRACTICAL 9