Experiment -37

Scenario: You are a data scientist working for an educational institution, and you want to explore the correlation between students' study time and their exam scores. You have collected data from a group of students, noting their study time in hours and their corresponding scores in an exam.

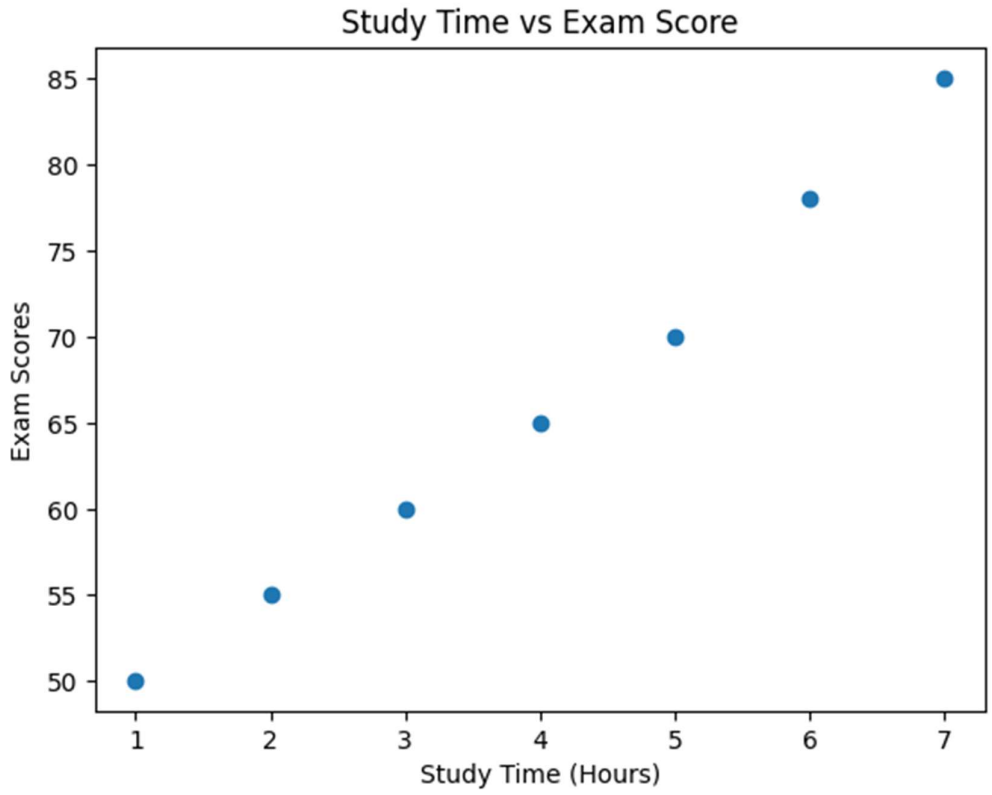
Question: Identify any potential correlation between study time and exam scores and explore various plotting functions to visualize this relationship effectively.

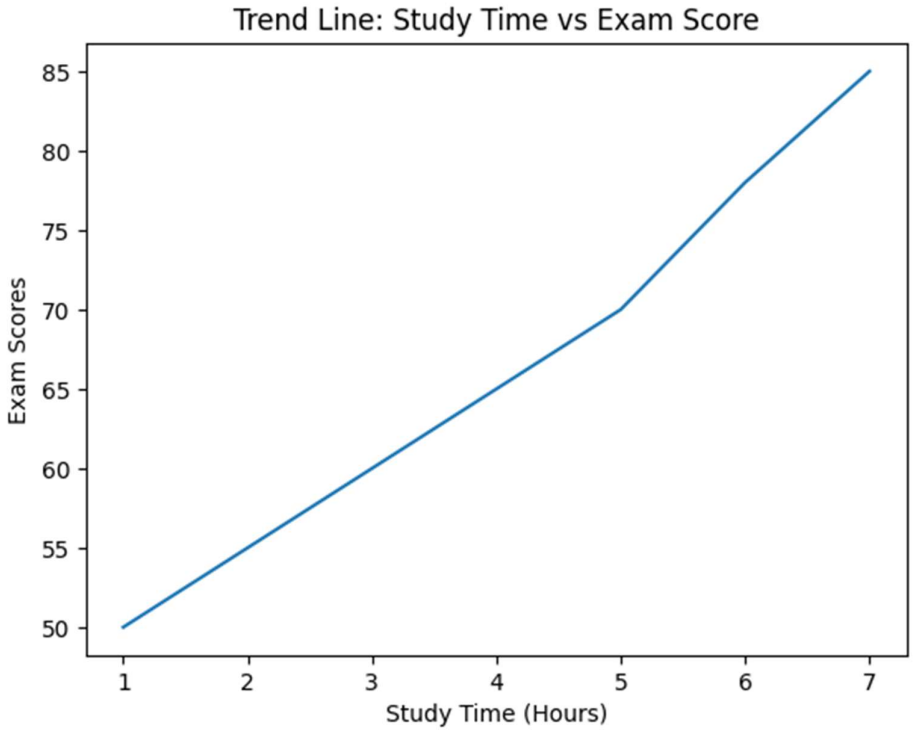
Code

```
import matplotlib.pyplot as plt

import numpy as np

study_time = [1, 2, 3, 4, 5, 6, 7]

exam_scores = [50, 55, 60, 65, 70, 78, 85]

correlation = np.corrcoef(study_time, exam_scores)[0, 1]

print("Correlation between study time and exam scores:", round(correlation, 2))

plt.scatter(study_time, exam_scores)

plt.xlabel("Study Time (Hours)")

plt.ylabel("Exam Scores")

plt.title("Study Time vs Exam Score")

plt.show()


plt.plot(study_time, exam_scores)

plt.xlabel("Study Time (Hours)")

plt.ylabel("Exam Scores")

plt.title("Trend Line: Study Time vs Exam Score")

plt.show()
```

Output:

```
Correlation between study time and exam scores: 1.0
```




Trend Line: Study Time vs Exam Score
Exam Scores
85
80
75
70
65
60
55
50
1
2
3
4
5
6
7
Study Time (Hours)