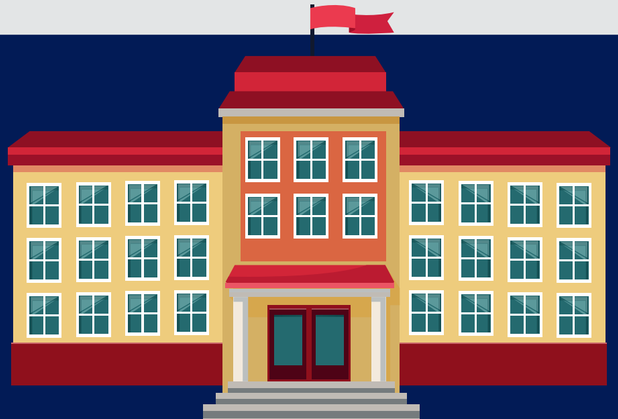
Task 3

colab

Student feedback analysis



Vishnu Ram Sachin
Data Science & Analytics
Future Interns

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Vishnu Ram Sachin
Data Science & Analytics
Future Interns

Introduction

- This report presents an analysis of student feedback data collected to evaluate and enhance a course.

- The feedback, gathered from over 1,000 students, covers various aspects of the course, including the instructor's subject expertise, teaching methodology, course structure, and overall relevance

Vishnu Ram Sachin
Data Science & Analytics
Future Interns

Problem Statement

The goal is to address low student satisfaction by identifying the specific areas of the event that received the lowest feedback ratings. The analysis aims to pinpoint which aspects, such as course content, instructor support, or assignment difficulty, are most negatively impacting students' overall experience

Objectives

Primary Objective :

- To analyze the average satisfaction score to get a clear picture of how students perceive the event

Secondary Objective :

- To Investigate the relationship between different feedback categories and overall satisfaction
- To determine which factors have the most significant impact on student happiness.
- To pinpoint the highest and lowest rated feedback categories.

Executive Summary

- Based on an analysis of the student feedback data, the event received a moderate overall satisfaction score of 5.71 out of 10
- 7.50 for being Well versed with the subject. This suggests that students found the content and delivery of the material to be accurate and reliable
- Correlation analysis shows that improving assignment difficulty and doubt-solving willingness will have the most significant impact on increasing overall student satisfaction
    - Key weaknesses were identified in student support. The lowest rated areas were Degree of difficulty of assignments (5.43)

Methodology

Research Design- Descriptive

- Descriptive research methods were employed to understand the data, identify key trends, and present the findings

Data Analysis

- The analysis was performed using Google Colab with the pandas library for data manipulation and matplotlib and seaborn for data visualization.

Results

```
df = pd.read_csv("/content/student_feedback.csv")
```

0s

```
[17] display(df.columns)
```

0s

```
Index(['S.NO', 'Student ID', 'Well versed with the subject',
       'Explains concepts in an understandable way', 'Use of presentations',
       'Degree of difficulty of assignments', 'Solves doubts willingly',
       'Structuring of the course',
       'Provides support for students going above and beyond',
       'Course recommendation based on relevance'],
      dtype='object')
```

```
[18] df.info()
```

0s

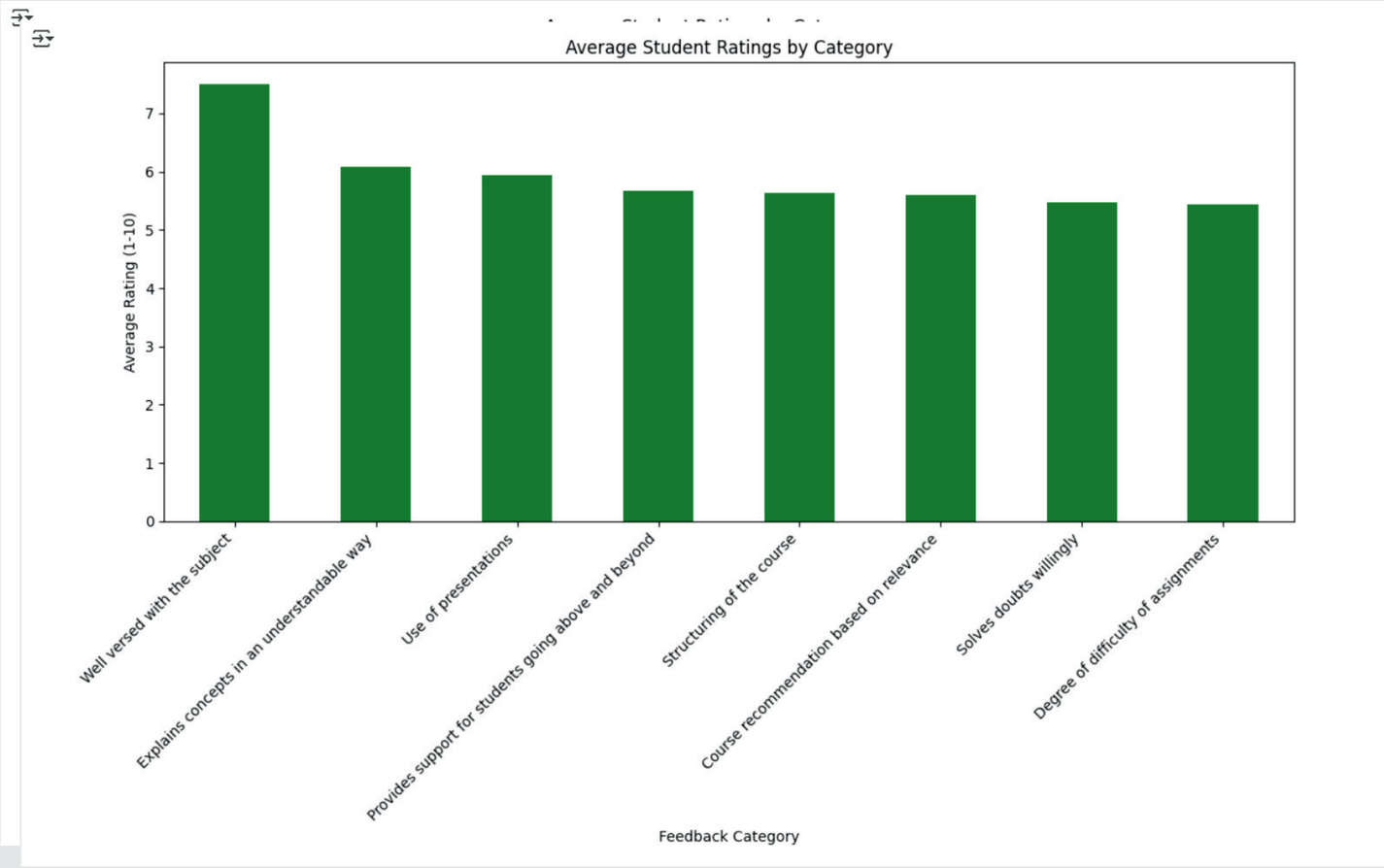
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1001 entries, 0 to 1000
Data columns (total 10 columns):
 #   Column                                          Non-Null Count  Dtype
---  ------                                          --------------  -----
 0   S.NO                                            1001 non-null   int64
 1   Student ID                                      1001 non-null   int64
 2   Well versed with the subject                    1001 non-null   int64
 3   Explains concepts in an understandable way      1001 non-null   int64
 4   Use of presentations                            1001 non-null   int64
 5   Degree of difficulty of assignments             1001 non-null   int64
 6   Solves doubts willingly                         1001 non-null   int64
 7   Structuring of the course                       1001 non-null   int64
 8   Provides support for students going above and beyond  1001 non-null   int64
 9   Course recommendation based on relevance        1001 non-null   int64
dtypes: int64(10)
```

Results

Creating Bar chart for Mean Ratings

0s

```
plt.figure(figsize=(12, 8))
mean_ratings.plot(kind='bar', color='Green')
plt.title('Average Student Ratings by Category')
plt.xlabel('Feedback Category')
plt.ylabel('Average Rating (1-10)')
plt.xticks(rotation=45, ha='right')
plt.tight_layout()
plt.savefig('average_ratings.png')
plt.show()
```



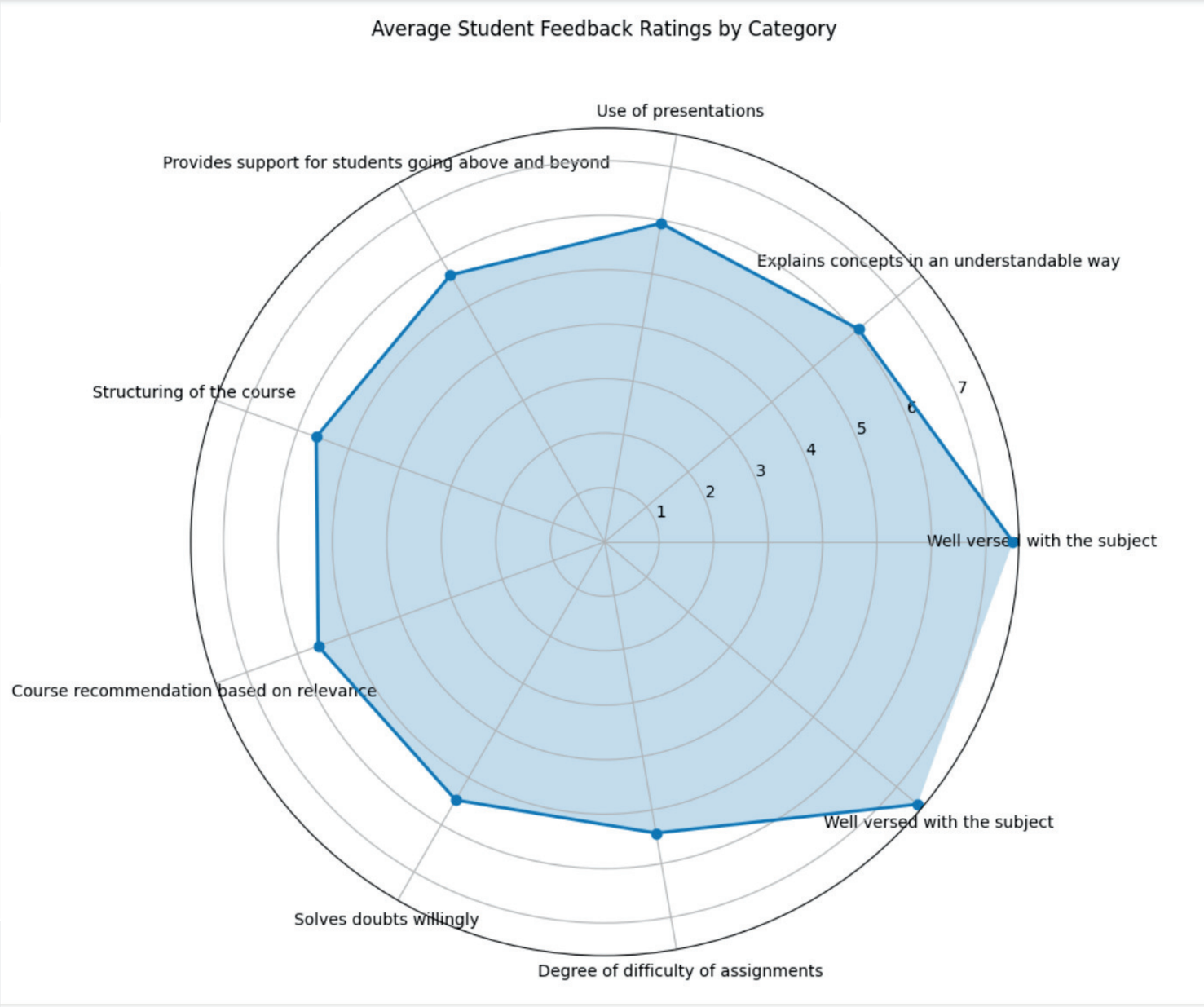
Results

Radar chart for Mean Rating

```
mean_ratings = df_ratings.mean().sort_values(ascending=False)
```

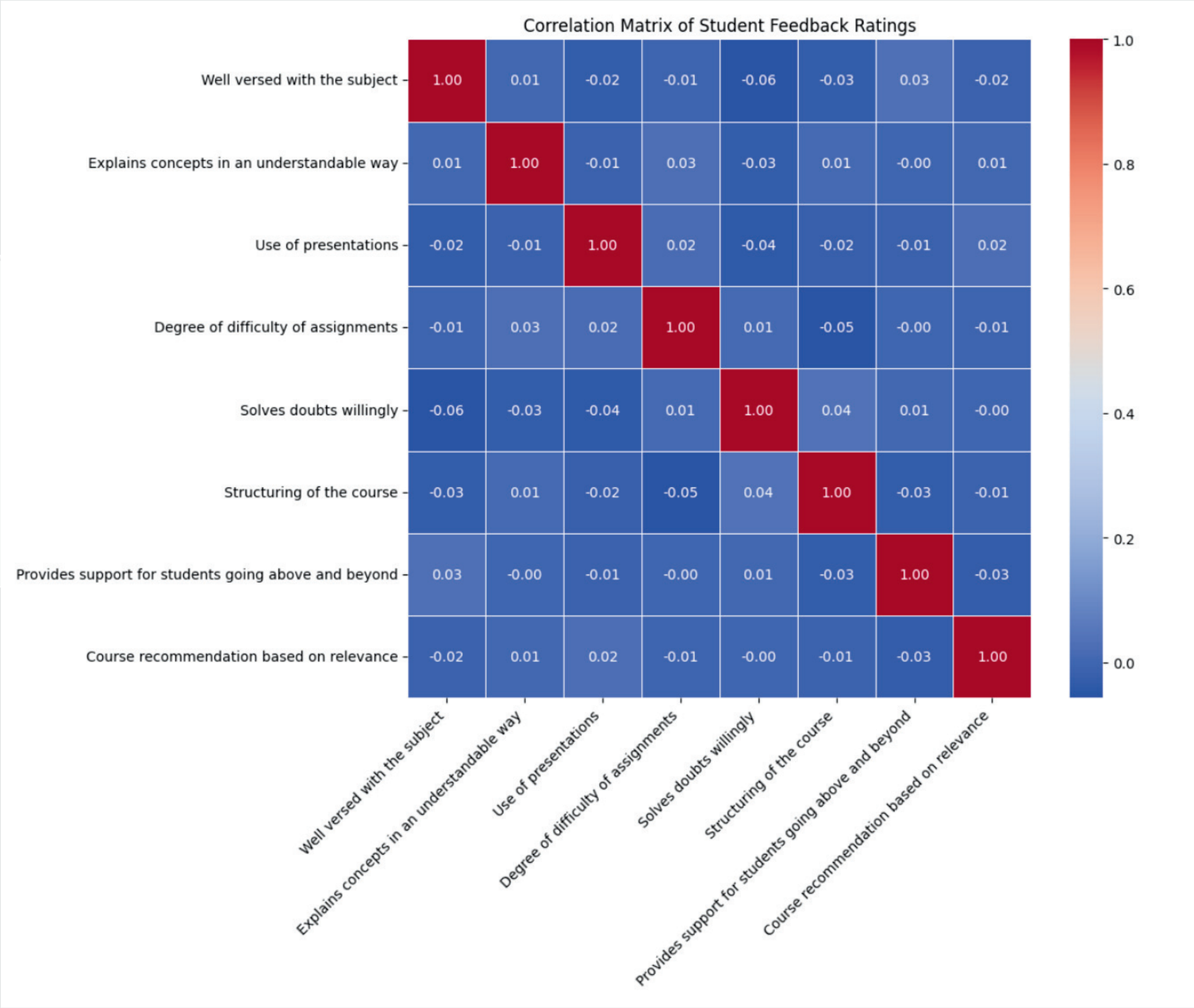
```
labels = mean_ratings.index.tolist()
values = mean_ratings.values.tolist()
labels.append(labels[0])
values.append(values[0])
```

```
categories = labels
values = values

num_categories = len(categories)
angles = np.linspace(0, 2 * np.pi, num_categories, endpoint=False).tolist()

fig, ax = plt.figure(figsize=(10, 10)), plt.subplot(polar=True)

ax.plot(angles, values, 'o-', linewidth=2)
ax.fill(angles, values, alpha=0.25)

ax.set_thetagrids(np.degrees(angles), categories)
ax.set_title('Average Student Feedback Ratings by Category', y=1.1)
ax.grid(True)

plt.tight_layout()
plt.show()
```



Results

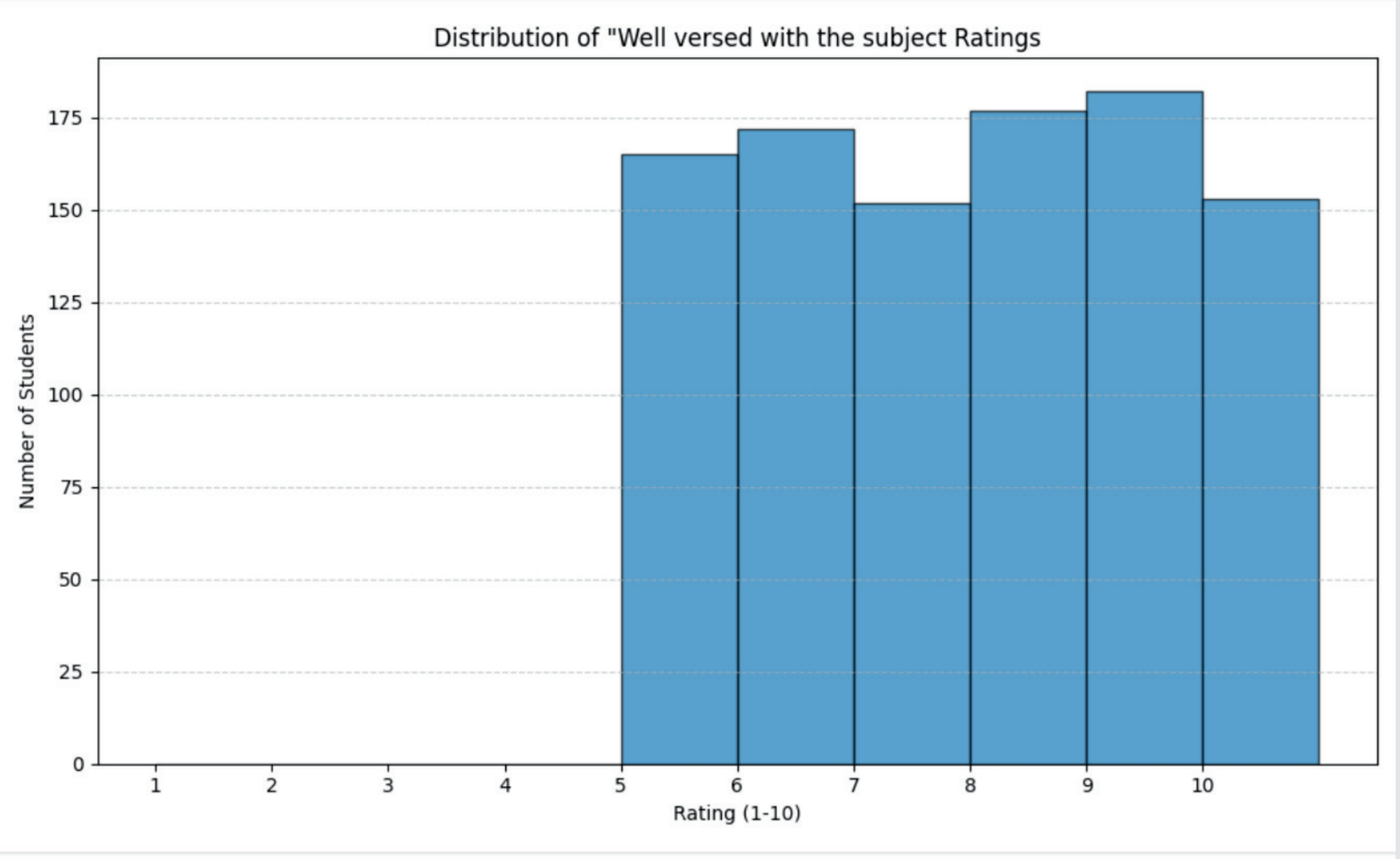
```
plt.figure(figsize=(12, 10))
sns.heatmap(correlation_matrix, annot=True,
            cmap='coolwarm',
            fmt=".2f",
            linewidths=.5)
plt.title('Correlation Matrix of Student Feedback Ratings')
plt.xticks(rotation=45, ha='right')
plt.tight_layout()
plt.savefig('correlation_heatmap.png')
plt.show()
```



Results

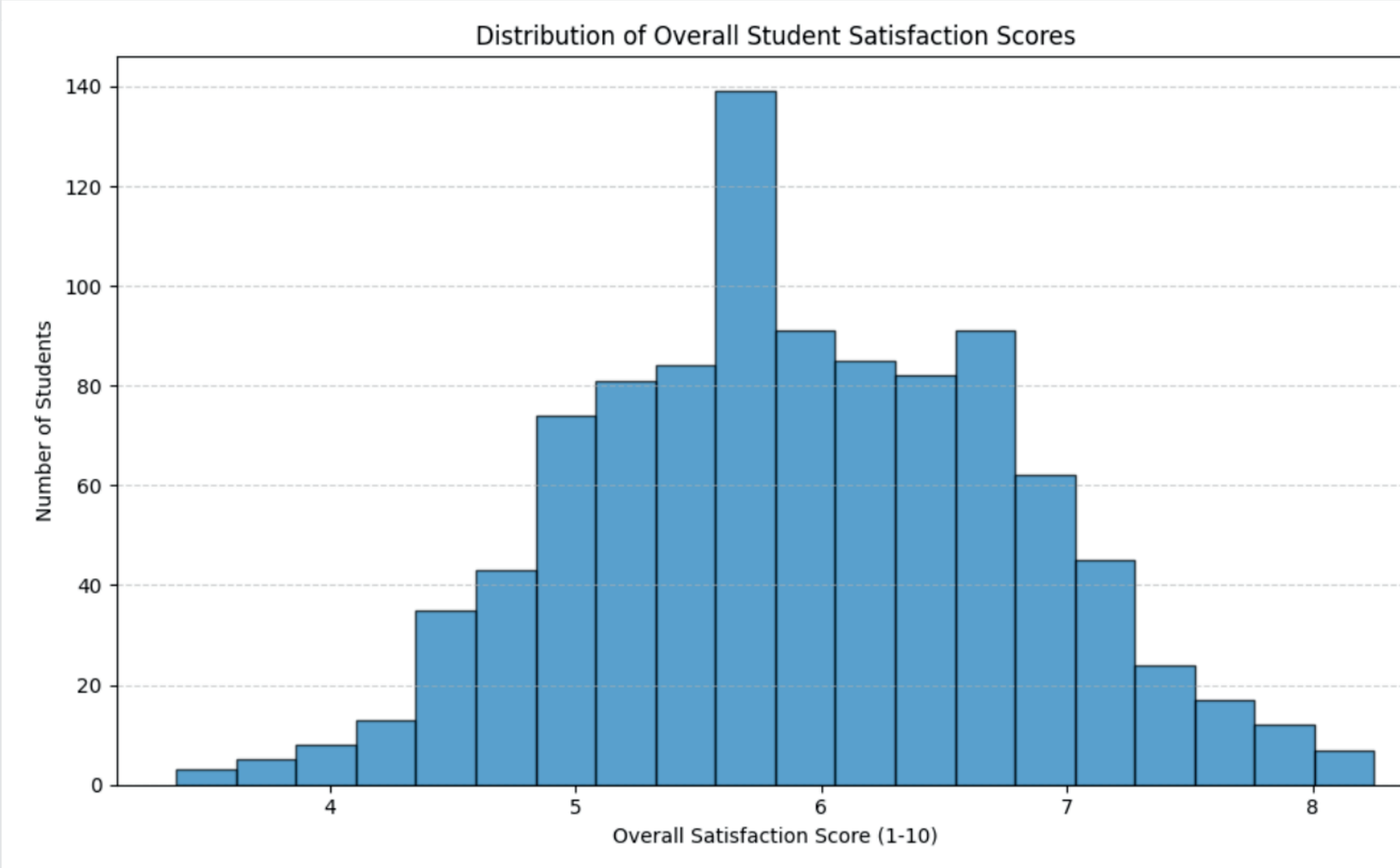
Analyzing the distribution of the Well versed with the subject ratings

```
plt.figure(figsize=(10, 6))
plt.hist(df['Well versed with the subject'],
         bins=range(1, 12),
         edgecolor='black',
         alpha=0.7)
plt.title('Distribution of "Well versed with the subject Ratings')
plt.xlabel('Rating (1-10)')
plt.ylabel('Number of Students')
plt.xticks(range(1, 11))
plt.grid(axis='y', linestyle='--', alpha=0.6)
plt.tight_layout()
plt.savefig('rating_distribution_histogram.png')
plt.show()
```



Results

```
plt.figure(figsize=(10, 6))
plt.hist(df['Overall_Satisfaction'],
         bins=20,
         edgecolor='black',
         alpha=0.7)
plt.title('Distribution of Overall Student Satisfaction Scores')
plt.xlabel('Overall Satisfaction Score (1-10)')
plt.ylabel('Number of Students')
plt.grid(axis='y', linestyle='--', alpha=0.6)
plt.tight_layout()
plt.savefig('overall_satisfaction_histogram.png')
plt.show()
```



Results

Top 3 Highest Satisfaction

** Top 3 Events with Highest Satisfaction**

```
[37] display(most_satisfied.head(3))
```

	S.NO	Student ID	Well versed with the subject	Explains concepts in an understandable way	Use of presentations	Degree of difficulty of assignments	Solves doubts willingly	Structuring of the course	Provides support for students going above and beyond	Course recommendation based on relevance	Overall_Satisfaction
199	199	770	10	10	5	7	10	7	7	10	8.25
110	110	188	7	6	8	9	9	8	9	10	8.25
692	692	238	8	7	5	10	10	9	7	10	8.25

Top 3 Lowest Satisfaction

```
display(least_satisfied.head(3))
```

	S.NO	Student ID	Well versed with the subject	Explains concepts in an understandable way	Use of presentations	Degree of difficulty of assignments	Solves doubts willingly	Structuring of the course	Provides support for students going above and beyond	Course recommendation based on relevance	Overall_Satisfaction
644	644	281	5	6	6	3	4	1	1	1	3.375
592	592	54	7	2	5	1	5	3	1	3	3.375
743	743	724	5	2	6	1	7	3	3	1	3.500

Results

```
print(high_impact_analysis.to_markdown(numalign="left", stralign="left"))
```

	Average_Score	Correlation_with_Overall_Satisfaction
Degree of difficulty of assignments	5.43057	0.392695
Solves doubts willingly	5.47453	0.392453
Course recommendation based on relevance	5.5984	0.388351
Structuring of the course	5.63636	0.379754
Provides support for students going above and beyond	5.66234	0.384881
Use of presentations	5.94206	0.176207
Explains concepts in an understandable way	6.08192	0.371296
Well versed with the subject	7.4975	0.204551

Discussion

- The instructor's strong subject knowledge was a key strength, receiving the highest average rating

- The lowest ratings were related to the practical and support aspects of the course.

- Students found the "Degree of difficulty of assignments" challenging and felt there was a lack of support for doubts. This indicates a gap between the theoretical content and its practical application

Conclusion

The core issue affecting student satisfaction is the lack of support, specifically with assignments and doubt solving. To improve, we should focus on revising assignments to be more manageable and increasing instructor availability for student questions