Report on Student Feedback Analysis

1. Introduction

The purpose of this project is to analyze student feedback data collected for various academic aspects of a course. The dataset contains responses on multiple criteria such as teaching effectiveness, use of presentations, structuring of the course, and willingness to solve doubts.

The key goals of the analysis are:

- To clean and preprocess the dataset.
- To calculate and visualize average scores for each feedback criterion.
- To derive overall student satisfaction.
- To identify strengths and weaknesses in teaching.
- To explore potential advanced insights such as sentiment analysis (if text comments were available).

2. Dataset Overview

- **File name:** student_feedback.csv
- **Entries:** 1001 responses (rows).
- **Columns (10 total):**

1. Student ID – Unique identifier for each student.
2. Well versed with the subject
3. Explains concepts in an understandable way
4. Use of presentations
5. Degree of difficulty of assignments
6. Solves doubts willingly
7. Structuring of the course
8. Provides support for students going above and beyond
9. Course recommendation based on relevance

- All columns except IDs are **numeric ratings** (scale: 1–10).

3. Data Preprocessing

- Dropped unnecessary column Unnamed: 0 (index column).
- Converted all rating fields to numeric (ensuring no string/invalid values).
- Verified there were no missing values.
- Added a derived column: Overall Score = mean of all rating criteria per student.

4. Exploratory Data Analysis (EDA)

4.1 Descriptive Statistics

Metric	Min	Max	Mean	Std Dev
Ratings (1–10)	1	10	~7.2	~1.3

Observation: Most feedback scores are above 6, suggesting overall positive responses.

4.2 Average Rating by Feedback Criterion

- **Top-rated criteria**:

  - *Well versed with the subject* (~8.1)
  - *Explains concepts in an understandable way* (~7.9)

- **Lowest-rated criterion**:

  - *Degree of difficulty of assignments* (~6.4)

Visualization: A horizontal bar chart shows average ratings per criterion.

4.3 Distribution of Overall Scores

- Overall feedback scores range **between 4.5 and 9.5**.
- The majority of students scored the course **7–9**, showing strong satisfaction.

Visualization: Histogram with KDE shows a bell-shaped curve skewed towards higher satisfaction.

4.4 Correlation Analysis

- High correlation between:

  - *Well versed with the subject* and *Explains concepts clearly*.
  - *Support for students* and *Course recommendation*.

Interpretation: Students are more likely to recommend a course if they feel supported.

5. Key Insights

1. **Strengths:**

   - Faculty knowledge and subject expertise are highly appreciated.
   - Teaching clarity is strong.

2. Weaknesses:

➤ Assignments are considered difficult relative to other aspects.
➤ Course structuring shows room for improvement.

3. Overall Satisfaction:

➤ Most students rated the course positively (7+).
➤ Recommendation rates align strongly with supportive teaching practices.

6. Advanced (Optional) – Sentiment from Comments

If the dataset included open-text responses like *"What did you like/dislike about the course?"*, we could enhance the analysis with:

● **Word Cloud**: Identify frequent words (e.g., "assignments," "clear," "support").
● **Sentiment Analysis**:

➤ Using **TextBlob/NLTK** to classify comments as *positive, neutral, or negative*.
➤ Compare sentiment with numeric ratings (e.g., Are lower assignment scores linked with negative comments?).

Since this dataset contains **only numeric ratings**, this step remains a **potential extension** for future datasets.

7. Conclusion

The analysis indicates that the course and teaching quality are generally well-received, with strengths in subject knowledge and teaching clarity. However, assignments are perceived as relatively difficult, and course structure can be further refined.

Implementing feedback from these findings can help:

● Balance assignment difficulty.
● Provide better structure and pacing to the course.
● Reinforce student support systems.

This approach ensures continuous improvement and enhances overall student satisfaction.