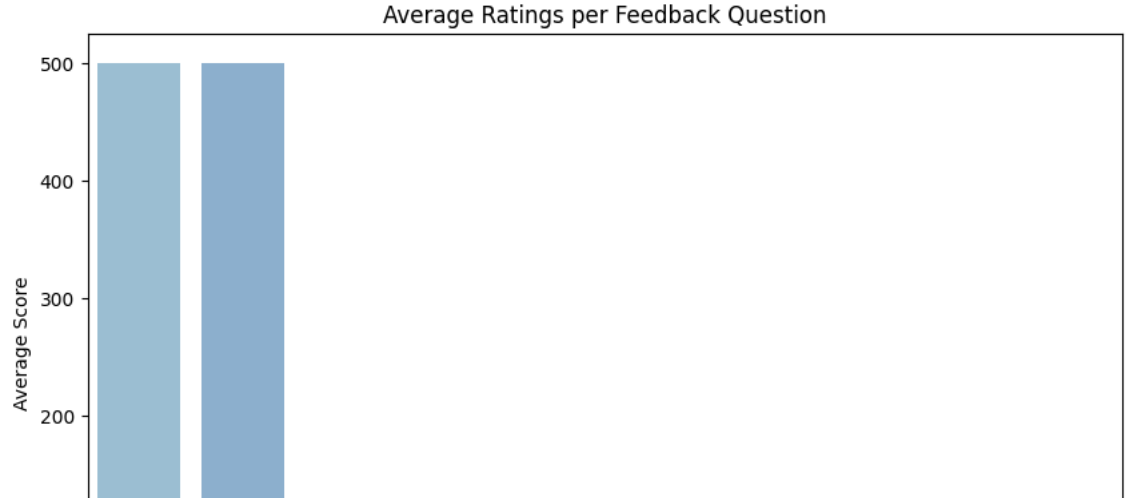
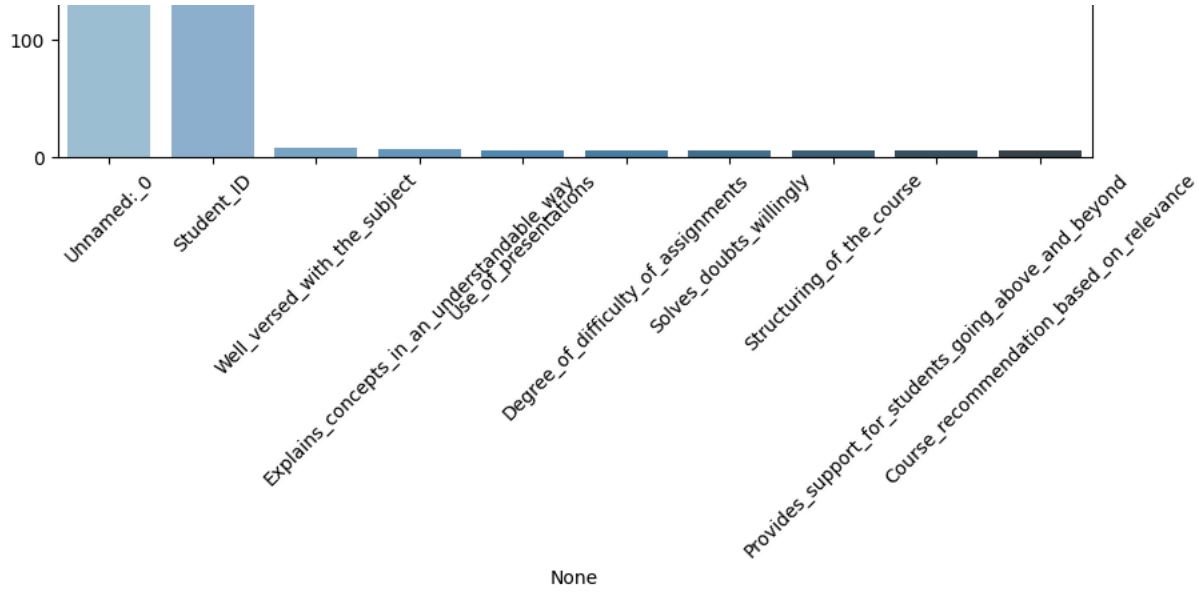
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from textblob import TextBlob
from wordcloud import WordCloud


from google.colab import files
uploaded = files.upload()

df = pd.read_csv("student_feedback.csv")

print(df.shape)
print(df.head())
print(df.info())

df.columns = [c.strip().replace(" ", "_") for c in df.columns]

avg_scores = df.mean(numeric_only=True)

plt.figure(figsize=(10,6))
sns.barplot(x=avg_scores.index, y=avg_scores.values, palette="Blues_d")
plt.xticks(rotation=45)
plt.title("Average Ratings per Feedback Question")
plt.ylabel("Average Score")
plt.show()

plt.figure(figsize=(8,6))
sns.heatmap(df.corr(numeric_only=True), annot=True, cmap="coolwarm")
plt.title("Correlation Heatmap of Feedback Ratings")
plt.show()

if "Feedback" in df.columns:
    def get_sentiment(text):
        if pd.isna(text): return "Neutral"
        score = TextBlob(str(text)).sentiment.polarity
        if score > 0: return "Positive"
        elif score < 0: return "Negative"
        else: return "Neutral"

    df["Sentiment"] = df["Feedback"].apply(get_sentiment)


    df["Sentiment"].value_counts().plot(kind="pie", autopct="%1.1f%%", colors=["green","red","gray"])
    plt.title("Overall Feedback Sentiment")
    plt.ylabel("")
    plt.show()

    all_text = " ".join(str(t) for t in df["Feedback"].dropna())
    wc = WordCloud(width=800, height=400, background_color="white").generate(all_text)

    plt.figure(figsize=(10,6))
    plt.imshow(wc, interpolation="bilinear")
    plt.axis("off")
    plt.title("Most Common Words in Feedback")
    plt.show()

print("✅ Average overall satisfaction score:", round(avg_scores.mean(),2))
if "Sentiment" in df.columns:
    print("✅ Sentiment breakdown:")
    print(df["Sentiment"].value_counts())

print("--- Recommendations ---")
print("1. Improve the lowest-rated areas based on averages.")
print("2. Address common issues highlighted in word cloud.")
print("3. Continue supporting the top strengths noted by students.")
```

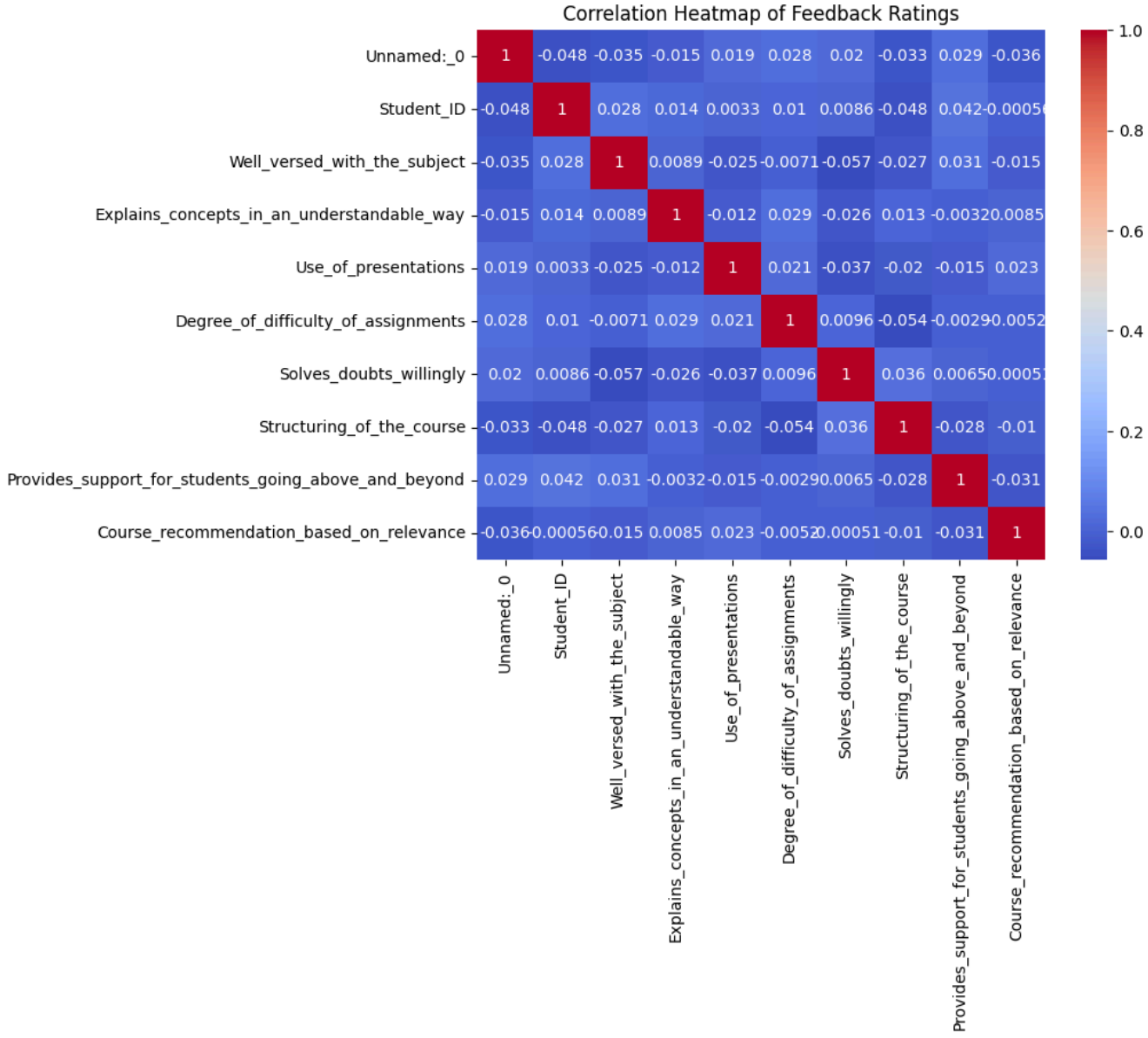
Choose files No file chosen Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.

```
Saving student_feedback.csv to student_feedback (1).csv
(1001, 10)
   Unnamed: 0  Student ID  Well versed with the subject  \
0           0         340                             5
1           1         253                             6
2           2         680                             7
3           3         806                             9
4           4         632                             8

   Explains concepts in an understandable way  Use of presentations  \
0                                           2                     7
1                                           5                     8
2                                           7                     6
3                                           6                     7
4                                          10                     8

   Degree of difficulty of assignments  Solves doubts willingly  \
0                                    6                        9
1                                    6                        2
2                                    5                        4
3                                    1                        5
4                                    4                        6

   Structuring of the course  \
0                          2
1                          1
2                          2
3                          9
4                          6

   Provides support for students going above and beyond  \
0                                                  1
1                                                  2
2                                                  3
3                                                  4
4                                                  9

   Course recommendation based on relevance
0                                         8
1                                         9
2                                         1
3                                         6
4                                         9
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1001 entries, 0 to 1000
Data columns (total 10 columns):
 #   Column                                                Non-Null Count  Dtype
---  ------                                                --------------  -----
 0   Unnamed: 0                                            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)
memory usage: 78.3 KB
None
/tmp/ipython-input-4264390340.py:22: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `

  sns.barplot(x=avg_scores.index, y=avg_scores.values, palette="Blues_d")
```





None




```
✅ Average overall satisfaction score: 104.73
--- Recommendations ---
1. Improve the lowest-rated areas based on averages.
2. Address common issues highlighted in word cloud.
3. Continue supporting the top strengths noted by students.
```