In [3]:
```
# Step 1: Import Required Libraries

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


# Step 2: Load Dataset

df = pd.read_csv("C:/Users/Sakshi Gupta/Downloads/student_feedback_50.csv")  # <--
print(" Dataset Loaded Successfully!\n")
display(df.head())


# Step 3: Data Cleaning

print("Before Cleaning:", df.shape)
df.drop_duplicates(inplace=True)
df.dropna(inplace=True)
print("After Cleaning:", df.shape)


# Step 4: EDA (Descriptive Statistics)

print("\n Basic Statistics:\n", df.describe(include='all'))

# Average rating per event
avg_rating_event = df.groupby("Event_Name")["Rating"].mean().sort_values(ascending=

plt.figure(figsize=(8,5))
sns.barplot(x=avg_rating_event.values, y=avg_rating_event.index, palette='viridis')
plt.title("Average Rating by Event", fontsize=14)
plt.xlabel("Average Rating")
plt.ylabel("Event Name")
plt.show()


# Step 5: Rating Distribution

plt.figure(figsize=(7,4))
sns.countplot(x='Rating', data=df, palette='viridis')
plt.title('Distribution of Ratings')
plt.show()


# Step 6: Sentiment Analysis (Using TextBlob)

def get_sentiment(text):
    score = TextBlob(str(text)).sentiment.polarity
    if score > 0:
        return "Positive"
```

```
    elif score == 0:
        return "Neutral"
    else:
        return "Negative"

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

# Sentiment Distribution
plt.figure(figsize=(5,4))
df["Sentiment"].value_counts().plot.pie(autopct='%1.1f%%', startangle=90, colors=["
plt.title("Sentiment Distribution of Feedback Comments")
plt.ylabel("")
plt.show()


# Step 7: Word Cloud

text = " ".join(df["Feedback_Comment"])
wordcloud = WordCloud(width=800, height=400, background_color="white").generate(tex

plt.figure(figsize=(10,5))
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis("off")
plt.title("Word Cloud of Feedback Comments")
plt.show()


# Step 8: Insights & Recommendations

highest_rated = avg_rating_event.idxmax()
lowest_rated = avg_rating_event.idxmin()

print("\n INSIGHTS & RECOMMENDATIONS:")
print(f"- Highest Rated Event: {highest_rated} ({avg_rating_event.max():.2f}/5)")
print(f"- Lowest Rated Event: {lowest_rated} ({avg_rating_event.min():.2f}/5)")
print(f"- Most Common Sentiment: {df['Sentiment'].mode()[0]}")
print("\n Recommendations:")
print("- Focus on improving the lowest-rated event's management and interactivity."
print("- Continue organizing high-rated events like", highest_rated, "more frequent
print("- Address common issues seen in Neutral or Negative comments.")
```

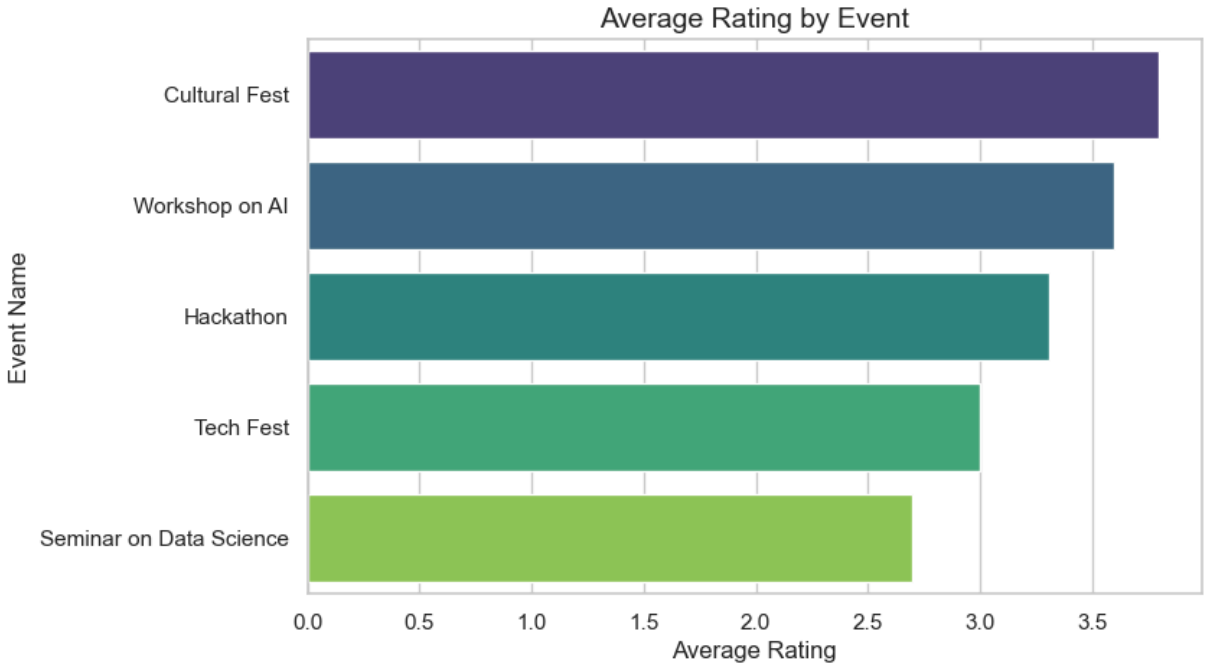
```
Dataset Loaded Successfully!
```

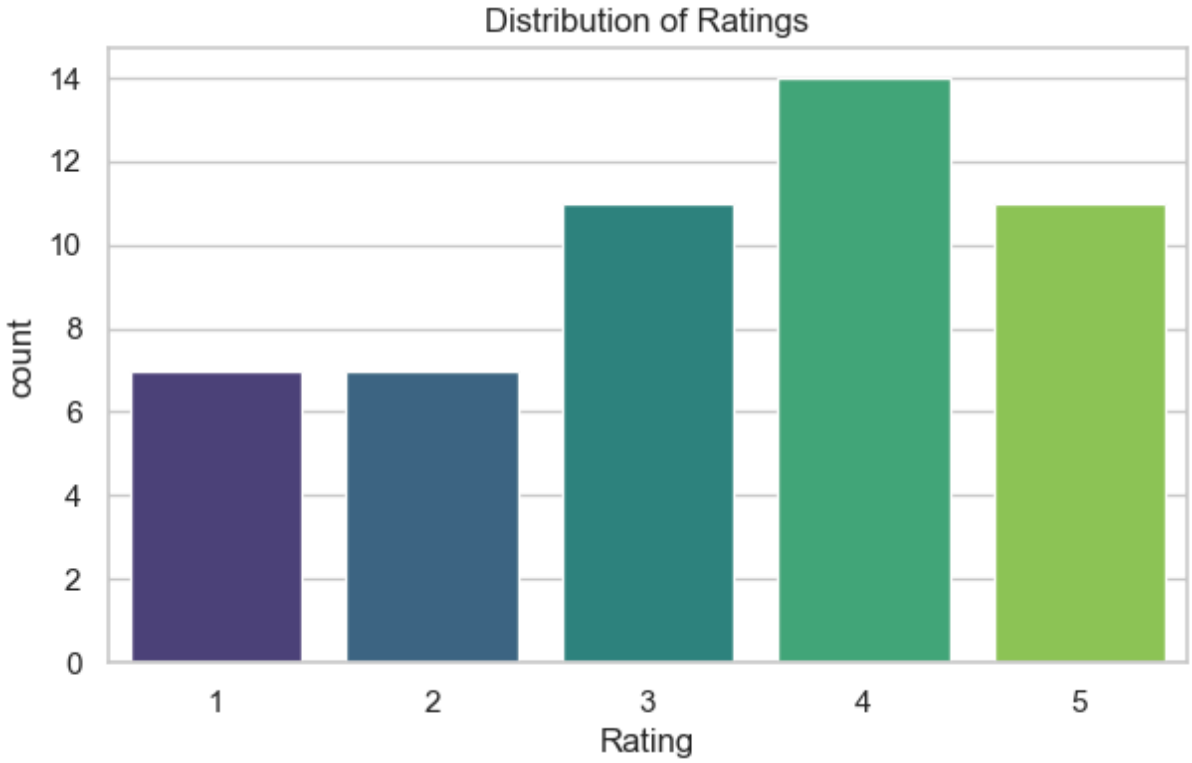
	Student_ID	Event_Name	Department	Rating	Feedback_Comment
0	S1000	Hackathon	ME	4	Average experience, nothing special.
1	S1001	Seminar on Data Science	ME	1	Could use more interaction sessions.
2	S1002	Workshop on AI	ME	4	Great event, very well organized!
3	S1003	Seminar on Data Science	CE	2	Great event, very well organized!
4	S1004	Seminar on Data Science	ECE	1	Average experience, nothing special.

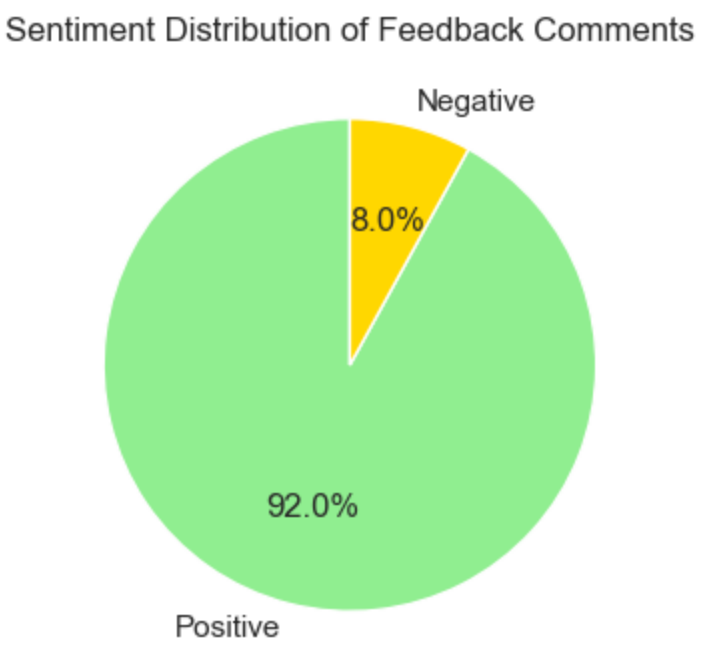
```
Before Cleaning: (50, 5)
After Cleaning: (50, 5)

 Basic Statistics:
        Student_ID Event_Name Department     Rating  \
count           50         50         50  50.000000
unique          50          5          5        NaN
top          S1000  Hackathon         ME        NaN
freq             1         13         13        NaN
mean           NaN        NaN        NaN   3.300000
std            NaN        NaN        NaN   1.343921
min            NaN        NaN        NaN   1.000000
25%            NaN        NaN        NaN   2.000000
50%            NaN        NaN        NaN   3.500000
75%            NaN        NaN        NaN   4.000000
max            NaN        NaN        NaN   5.000000

                       Feedback_Comment
count                                50
unique                               10
top     Great event, very well organized!
freq                                 11
mean                                NaN
std                                 NaN
min                                 NaN
25%                                 NaN
50%                                 NaN
75%                                 NaN
max                                 NaN
```


Average Rating by Event
Cultural Fest
Workshop on AI
Hackathon
Tech Fest
Seminar on Data Science
Event Name
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Average Rating


Distribution of Ratings
14
12
10
8
6
4
2
0
count
1
2
3
4
5
Rating



INSIGHTS & RECOMMENDATIONS:
- Highest Rated Event: Cultural Fest (3.80/5)
- Lowest Rated Event: Seminar on Data Science (2.70/5)
- Most Common Sentiment: Positive

Recommendations:
- Focus on improving the lowest-rated event's management and interactivity.
- Continue organizing high-rated events like Cultural Fest more frequently.
- Address common issues seen in Neutral or Negative comments.