In an effort to enhance customer retention strategies, I undertook a project to explore the relationship between customer feedback ratings and churn behavior. Understanding this relationship is critical for businesses aiming to reduce churn by leveraging customer feedback insights.

The objective was to analyze whether there is a significant correlation between customer feedback ratings and churn behavior. I aimed to visualize and interpret the relationship between these two variables using a sample dataset.

1. **Data Preparation**:
   * I converted nested feedback data from string format to JSON objects and extracted the feedback rating from each entry.
   * A sample DataFrame was created with feedback ratings and churn labels.

python

df = pd.DataFrame({

'Feedback': ['{"Rating": 5}', '{"Rating": 3}', '{"Rating": 4}', '{"Rating": 2}', '{"Rating": 1}', '{"Rating": 5}'],

'ChurnLabel': [0, 1, 0, 1, 1, 0]

})

df['Feedback'] = df['Feedback'].astype(str)

df['FeedbackRating'] = df['Feedback'].apply(lambda x: json.loads(x)['Rating'])

1. **Visualization**:
   * I plotted the distribution of feedback ratings against churn labels to visualize any potential relationships.

python

plt.figure(figsize=(12, 6))

sns.countplot(x='FeedbackRating', data=df, hue='ChurnLabel', palette='viridis')

plt.title('Relationship between Feedback Rating and Churn', fontsize=16)

plt.xlabel('Rating', fontsize=14)

plt.ylabel('Count', fontsize=14)

plt.legend(title='ChurnLabel', loc='upper right', labels=['No Churn', 'Churn'])

plt.grid(True, which='both', linestyle='--', linewidth=0.5)

plt.tight\_layout()

plt.show()

**Result**

The analysis revealed that there wasn't a strong correlation between feedback ratings and churn behavior in the sample dataset. Both high (5) and low (1) feedback ratings were associated with churn and non-churn behavior. This highlighted the complexity of churn behavior and the necessity for a more comprehensive analysis involving additional features and advanced modeling techniques.

**Conclusion**

While the initial analysis did not indicate a clear relationship between feedback ratings and churn, it underscored the importance of integrating multiple data sources and features for a thorough churn analysis. This project set the foundation for further exploration using larger datasets and sophisticated machine learning models to predict and mitigate customer churn effectively.