

# Sentiment Analysis of User Reviews

The screenshot shows a web browser with multiple tabs. The active tab is 'projects.datacamp.com/projects/619'. The page displays a project titled 'Project: The Android App Market on Google Play'. On the left, there's a 'Task 10: Instructions' section with a list of steps: 1. Load the user review data and plot it to visualize sentiment of paid vs. free apps. 2. Read 'datasets/user\_reviews.csv' into the reviews\_df DataFrame. 3. Merge apps and reviews\_df DataFrames and assign the result to merged\_df. 4. Create a box plot with Type on the x-axis and Sentiment\_Polarity on the y-axis. Below the instructions, there are 'Helpful links' and a 'Take Hint' button. On the right, a Jupyter notebook is open, showing a code cell with the following Python code:

```
In [18]: # Load user_reviews.csv
reviews_df = ...

# Join the two dataframes
merged_df = ...

# Drop NA values from Sentiment and Review columns
merged_df = merged_df.dropna(subset=['Sentiment', 'Review'])

sns.set_style('ticks')
fig, ax = plt.subplots(1)
fig.mpl_style(['_backend', 'agg'])

# Use review sentiment polarity for paid vs. free apps
ax = sns.boxplot(x='Type', y='Sentiment_Polarity', data=merged_df)

# Drop NA values from Sentiment and Review columns
merged_df = merged_df.dropna(subset=['Sentiment', 'Review'])

sns.set_style('ticks')

AttributeError: 'Axis' object has no attribute 'dropna'
```

## Question:

Load the user review data and plot it to visualize sentiment of paid vs. free apps:

1. Read 'datasets/user\_reviews.csv' into the reviews\_df DataFrame.
2. Merge apps and reviews\_df DataFrames and assign the result to merged\_df.
3. Create a box plot with Type on the x-axis and Sentiment\_Polarity on the y-axis.

## Code:

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

```
# Load the user reviews data
reviews_df = pd.read_csv('datasets/user_reviews.csv')
```

```
# Merge the DataFrames
merged_df = pd.merge(apps, reviews_df, on='App', how='inner')
```

```
# Drop NA values from Sentiment and Review columns
merged_df = merged_df.dropna(subset=['Sentiment', 'Review'])
```

```
# Set seaborn style
sns.set_style('ticks')
plt.figure(figsize=(10, 6))

# Create a box plot
sns.boxplot(x='Type', y='Sentiment_Polarity', data=merged_df)
plt.title('Sentiment Polarity Distribution')
plt.show()
```

### Explanation:

1. `pd.read_csv()` is used to load the user review data from a CSV file into a DataFrame called `reviews_df`.
2. `pd.merge()` combines `apps` and `reviews_df` DataFrames on the 'App' column using an inner join, creating `merged_df`.
3. `dropna()` removes rows where 'Sentiment' or 'Review' columns have missing values.
4. `sns.set_style('ticks')` sets the visual style of the plots to 'ticks' for better readability.
5. A new figure is created with `plt.figure(figsize=(10, 6))` to set the size of the plot.
6. `sns.boxplot()` creates a box plot with 'Type' (Paid/Free) on the x-axis and 'Sentiment\_Polarity' on the y-axis, using the `merged_df` DataFrame.
7. The title of the plot is set using `plt.title()`.
8. `plt.show()` displays the plot.