```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.preprocessing import StandardScaler
from matplotlib.colors import ListedColormap
```

```
# Load Wine Quality dataset from Kaggle
df = pd.read_csv('winequality-red.csv')

# Display first few rows
df.head()
```

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density	pH	sulphates	alcohol	quality
0	7.4	0.70	0.00	1.9	0.076	11.0	34.0	0.9978	3.51	0.56	9.4	5
1	7.8	0.88	0.00	2.6	0.098	25.0	67.0	0.9968	3.20	0.68	9.8	5
2	7.8	0.76	0.04	2.3	0.092	15.0	54.0	0.9970	3.26	0.65	9.8	5
3	11.2	0.28	0.56	1.9	0.075	17.0	60.0	0.9980	3.16	0.58	9.8	6
4	7.4	0.70	0.00	1.9	0.076	11.0	34.0	0.9978	3.51	0.56	9.4	5

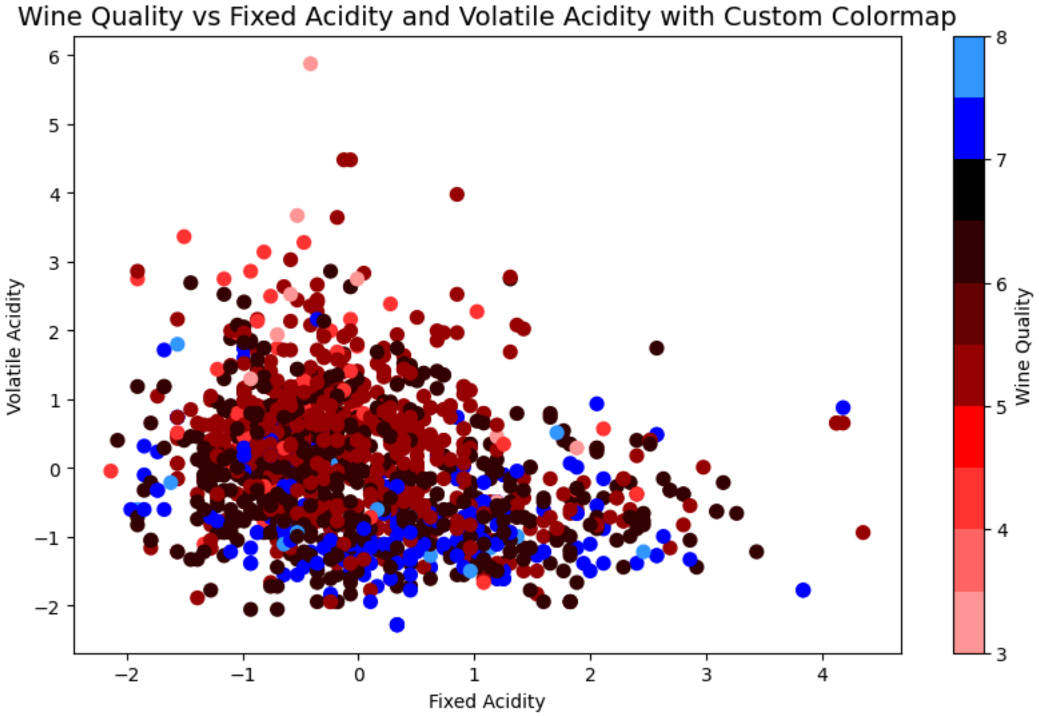
Next steps: Generate code with `df` | View recommended plots | New interactive sheet

```
# Check for missing values
print("\nMissing Values:\n", df.isnull().sum())
```

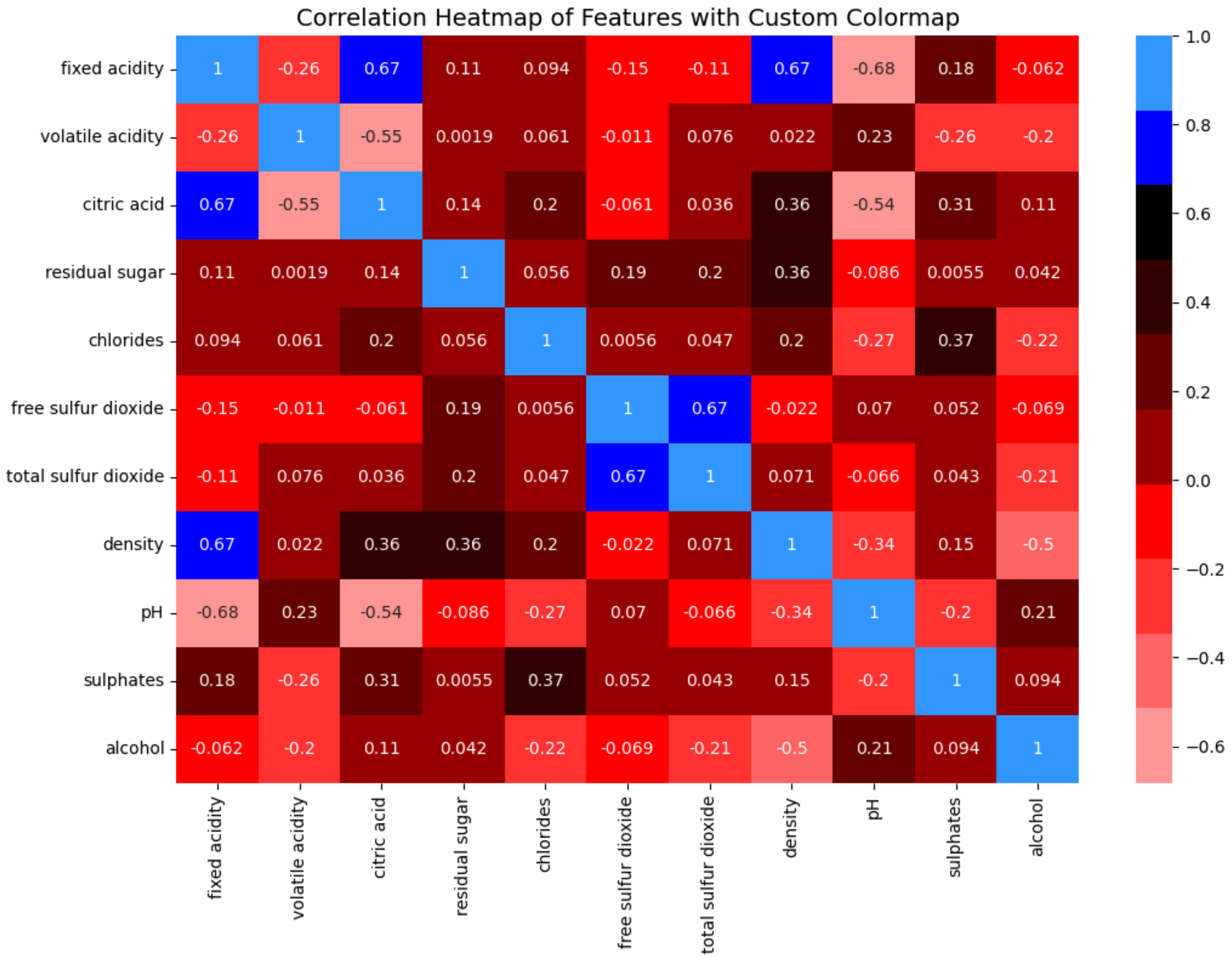
```
Missing Values:
 fixed acidity           0
volatile acidity        0
citric acid             0
residual sugar          0
chlorides               0
free sulfur dioxide     0
total sulfur dioxide    0
density                 0
pH                      0
sulphates               0
alcohol                 0
quality                 0
dtype: int64
```

```
# If there were missing values, we could fill them or drop rows. For simplicity, let's assume there are no missing values.

# Standardize features (important for visualizing)
scaler = StandardScaler()
df_scaled = pd.DataFrame(scaler.fit_transform(df.drop('quality', axis=1)), columns=df.columns[:-1])
```

```
# Add the 'quality' column back to the scaled dataframe
df_scaled['quality'] = df['quality']



# Create a custom colormap using a list of colors
colors = ['#ff9999', '#ff6666', '#ff3333', '#ff0000', '#990000', '#660000', '#330000', '#000000', '#0000ff', '#3399ff']

# Define custom colormap
cmap = ListedColormap(colors)


# Create a scatter plot for the first two features with the custom colormap
plt.figure(figsize=(10, 6))
plt.scatter(df_scaled.iloc[:, 0], df_scaled.iloc[:, 1], c=df_scaled['quality'], cmap=cmap, s=50)
plt.title("Wine Quality vs Fixed Acidity and Volatile Acidity with Custom Colormap", fontsize=14)
plt.xlabel('Fixed Acidity')
plt.ylabel('Volatile Acidity')
plt.colorbar(label='Wine Quality')
plt.show()
```



```
# Create a heatmap of all features with custom colormap
plt.figure(figsize=(12, 8))
sns.heatmap(df_scaled.drop('quality', axis=1).corr(), annot=True, cmap=cmap)
plt.title("Correlation Heatmap of Features with Custom Colormap", fontsize=14)
plt.show()
```



Start coding or generate with AI.