# Data Analysis Dashboard

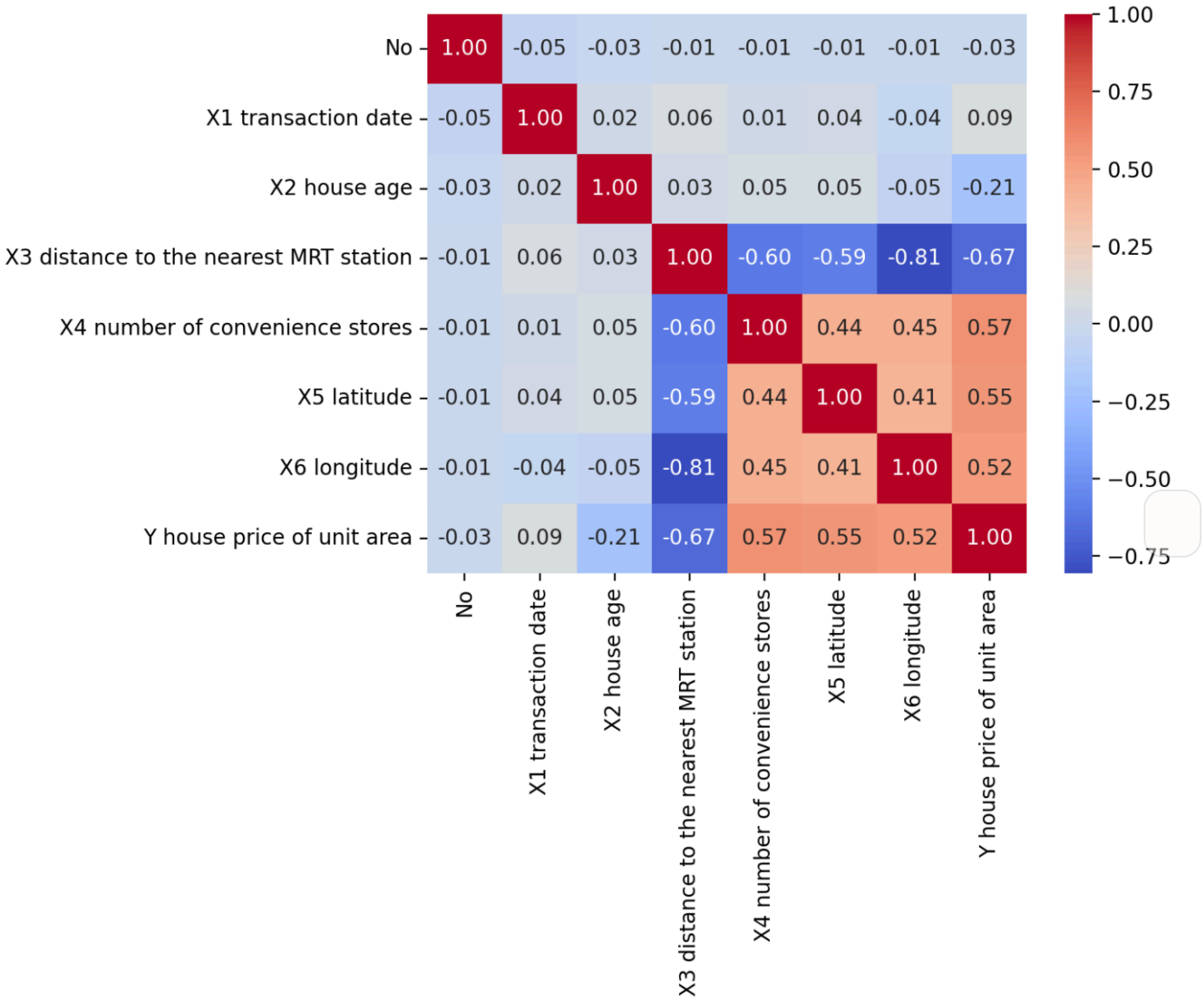
## Real Estate Data Correlation

Calling `st.pyplot()` without providing a figure argument has been deprecated and will be removed in a later version as it requires the use of Matplotlib's global figure object, which is not thread-safe.

To future-proof this code, you should pass in a figure as shown below:

```
object Object],[object Object],[object Object],[object Object],[object Object]
```

If you have a specific use case that requires this functionality, please let us know via issue on Github.



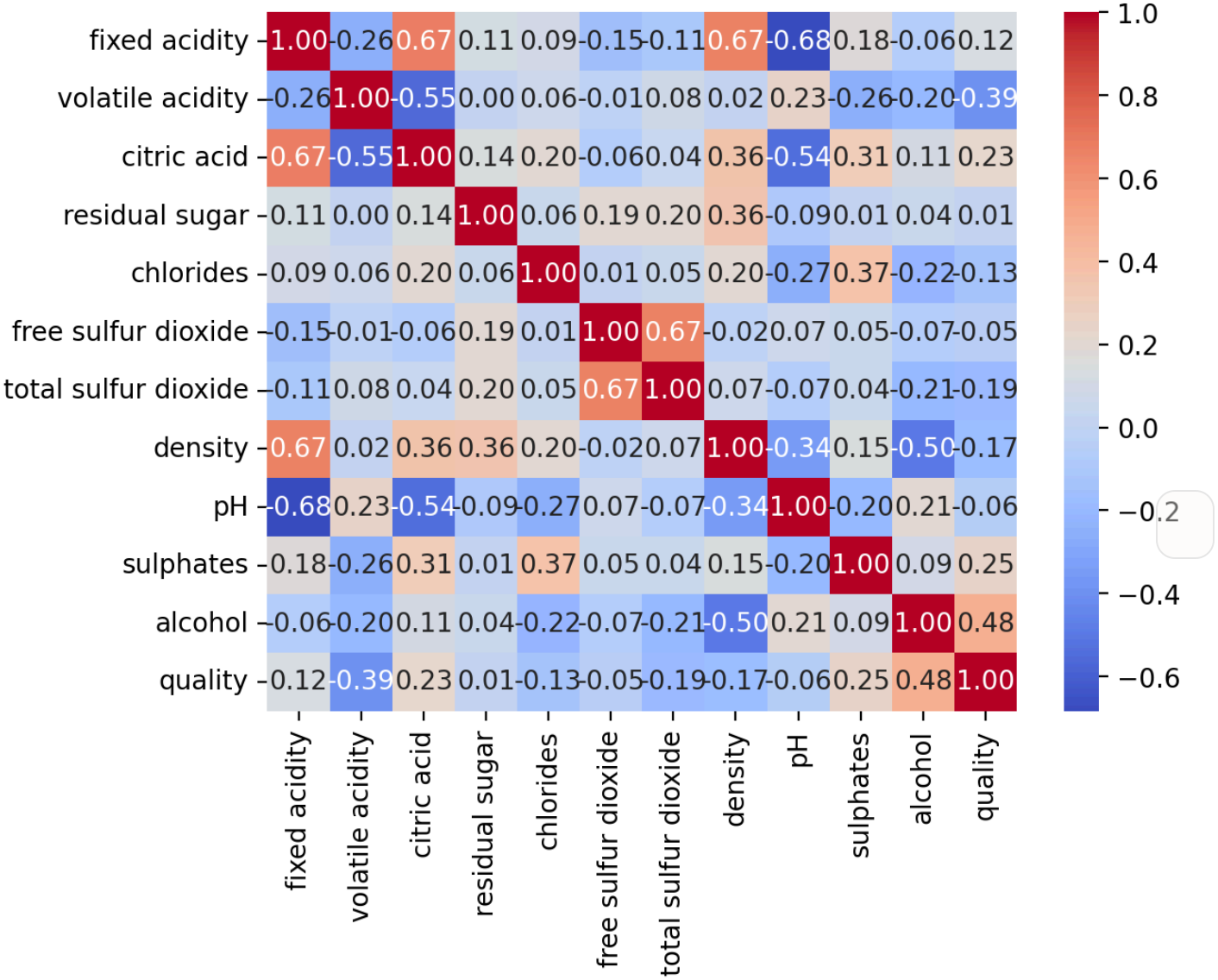

# Red Wine Quality Data Correlation

Calling `st.pyplot()` without providing a figure argument has been deprecated and will be removed in a later version as it requires the use of Matplotlib's global figure object, which is not thread-safe.

To future-proof this code, you should pass in a figure as shown below:

```
[object Object],[object Object],[object Object],[object Object],[object Object
```

If you have a specific use case that requires this functionality, please let us know via issue on Github.



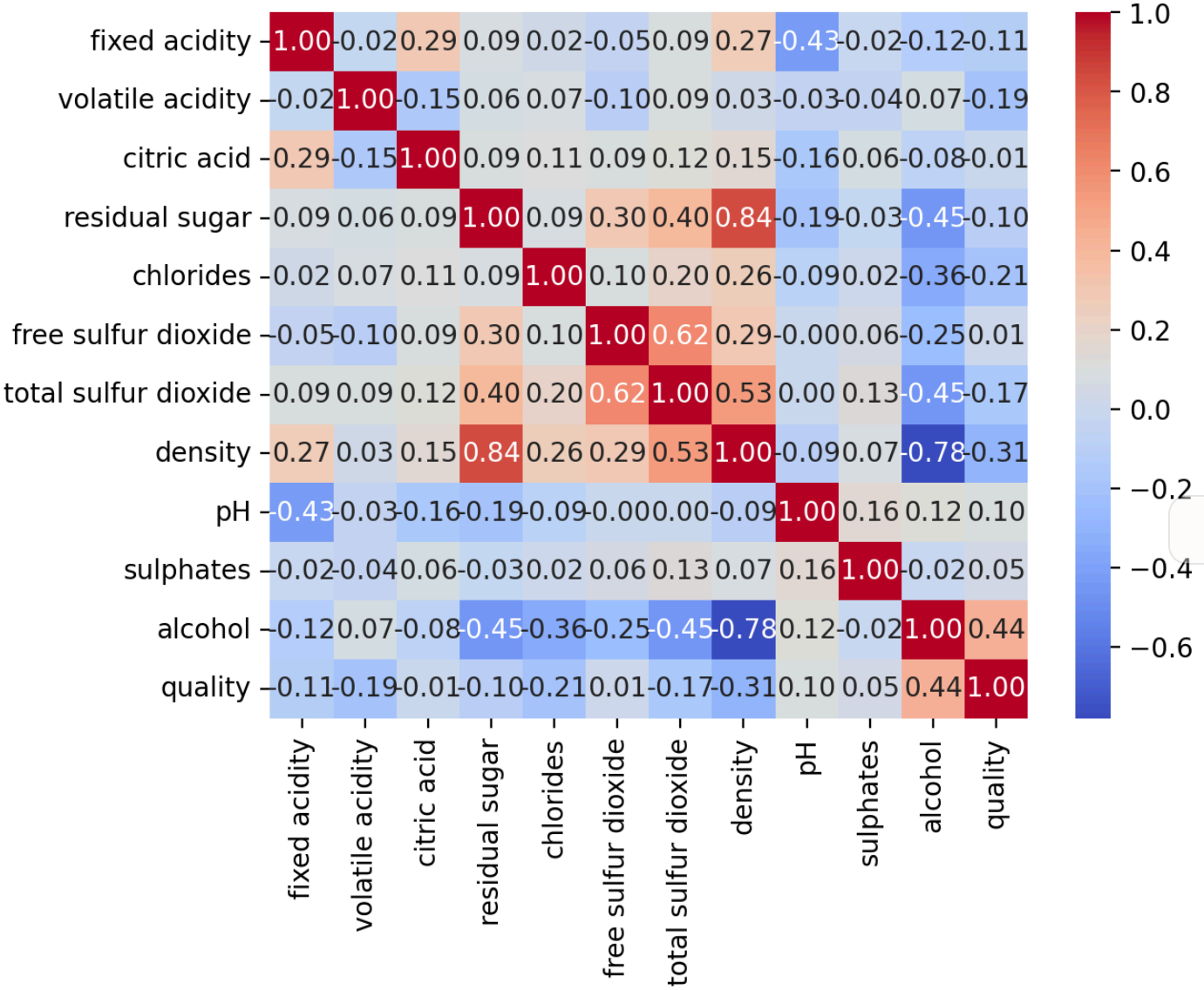

# White Wine Quality Data Correlation

Calling `st.pyplot()` without providing a figure argument has been deprecated and will be removed in a later version as it requires the use of Matplotlib's global figure object, which is not thread-safe.

To future-proof this code, you should pass in a figure as shown below:

```
[object Object],[object Object],[object Object],[object Object],[object Object
```

If you have a specific use case that requires this functionality, please let us know via issue on Github.



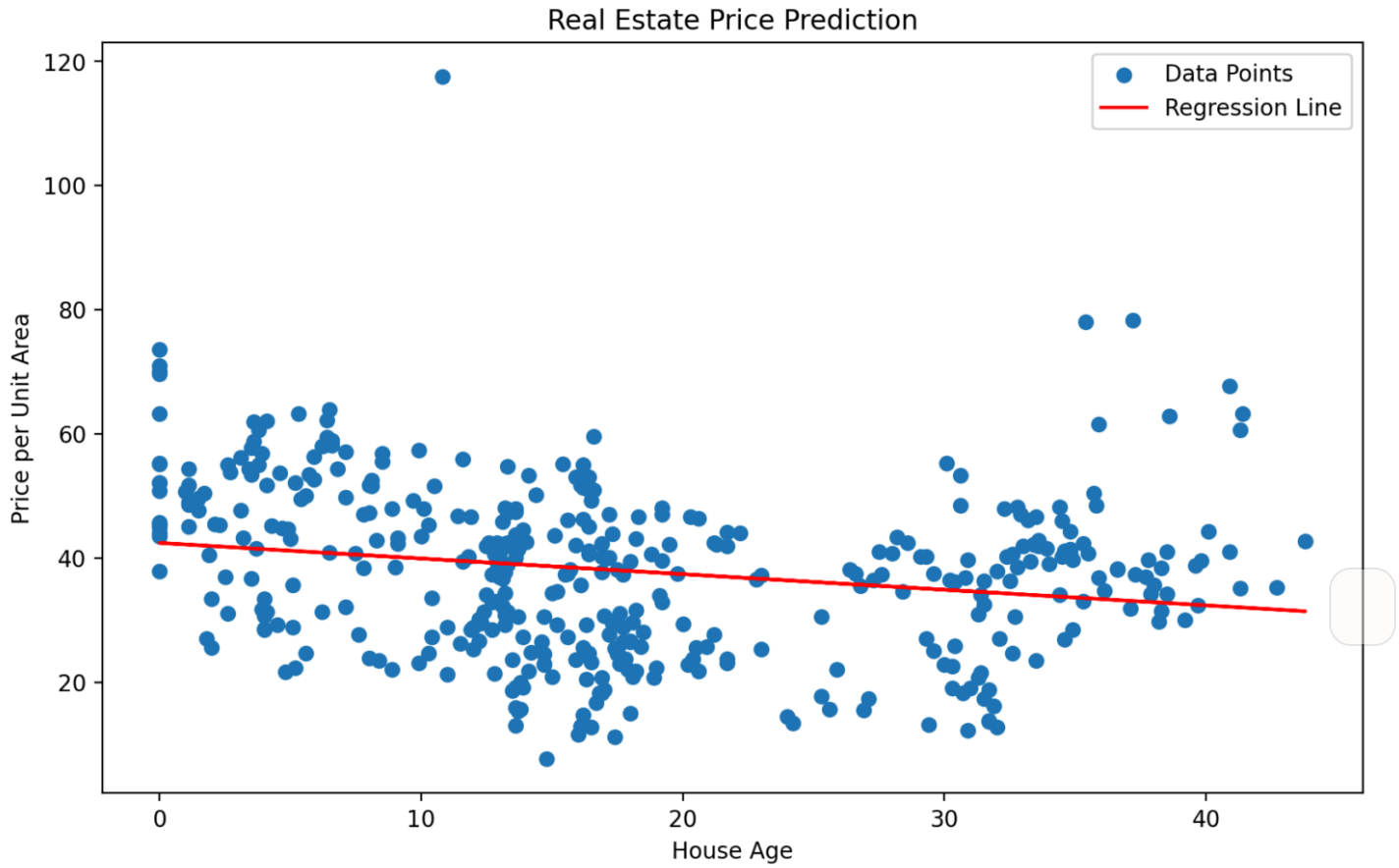

# Linear Regression for Real Estate

Calling `st.pyplot()` without providing a figure argument has been deprecated and will be removed in a later version as it requires the use of Matplotlib's global figure object, which is not thread-safe.

To future-proof this code, you should pass in a figure as shown below:

```
[object Object],[object Object],[object Object],[object Object],[object Object
```

If you have a specific use case that requires this functionality, please let us know via issue on Github.




# Multiple Regression for Red Wine Quality

## Red Wine Quality Regression Summary

OLS Regression Results

| | | | |
|---|---|---|---|
| Dep. Variable: | quality | R-squared: | 0.361 |
| Model: | OLS | Adj. R-squared: | 0.356 |
| Method: | Least Squares | F-statistic: | 81.35 |
| Date: | Wed, 15 Jan 2025 | Prob (F-statistic): | 1.79e-145 |
| Time: | 22:53:37 | Log-Likelihood: | -1569.1 |
| No. Observations: | 1599 | AIC: | 3162. |
| Df Residuals: | 1587 | BIC: | 3227. |
| Df Model: | 11 | | |
| Covariance Type: | nonrobust | | |

| | coef | std err | t | P>\|t\| | [0.025 |
|---|---|---|---|---|---|
| const | 21.9652 | 21.195 | 1.036 | 0.300 | -19.607 |
| fixed acidity | 0.0250 | 0.026 | 0.963 | 0.336 | -0.026 |

```
volatile acidity       -1.0836      0.121     -8.948      0.000      -1.321
citric acid            -0.1826      0.147     -1.240      0.215      -0.471
residual sugar          0.0163      0.015      1.089      0.276      -0.013
chlorides              -1.8742      0.419     -4.470      0.000      -2.697
free sulfur dioxide     0.0044      0.002      2.009      0.045       0.000
total sulfur dioxide   -0.0033      0.001     -4.480      0.000      -0.005
density               -17.8812     21.633     -0.827      0.409     -60.314
pH                     -0.4137      0.192     -2.159      0.031      -0.789
sulphates               0.9163      0.114      8.014      0.000       0.692
alcohol                 0.2762      0.026     10.429      0.000       0.224
==============================================================================
Omnibus:                       27.376   Durbin-Watson:                   1.757
Prob(Omnibus):                  0.000   Jarque-Bera (JB):               40.965
Skew:                          -0.168   Prob(JB):                     1.27e-09
Kurtosis:                       3.708   Cond. No.                     1.13e+05
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly s
[2] The condition number is large, 1.13e+05. This might indicate that there are
strong multicollinearity or other numerical problems.
```

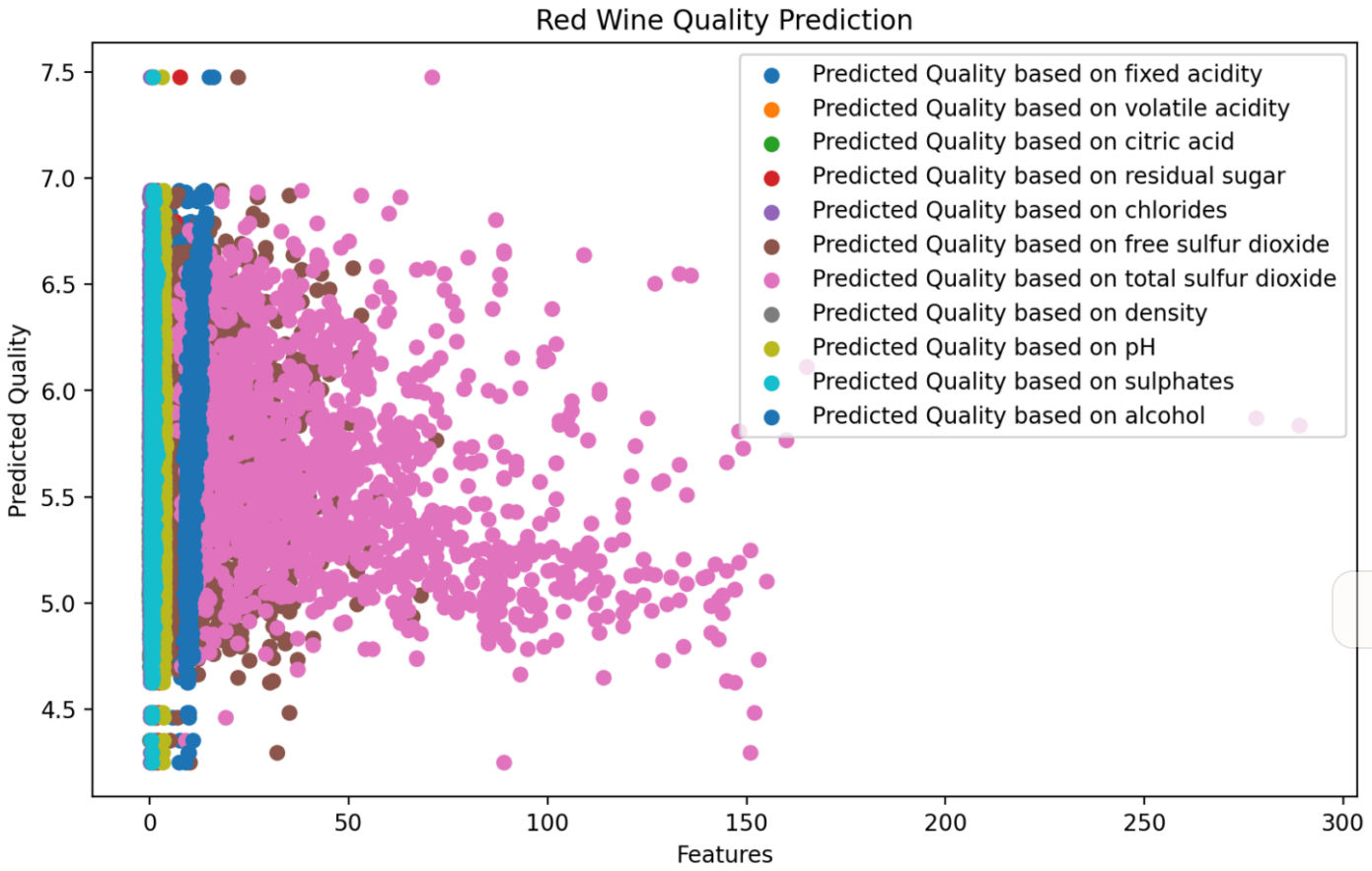
# Red Wine Quality Predictions

Calling `st.pyplot()` without providing a figure argument has been deprecated and will be removed in a later version as it requires the use of Matplotlib's global figure object, which is not thread-safe.

To future-proof this code, you should pass in a figure as shown below:

```
[object Object],[object Object],[object Object],[object Object],[object Object
```

If you have a specific use case that requires this functionality, please let us know via issue on Github.




# Multiple Regression for White Wine Quality

## White Wine Quality Regression Summary

OLS Regression Results

| | | | |
|---|---|---|---|
| Dep. Variable: | quality | R-squared: | 0.282 |
| Model: | OLS | Adj. R-squared: | 0.280 |
| Method: | Least Squares | F-statistic: | 174.3 |
| Date: | Wed, 15 Jan 2025 | Prob (F-statistic): | 0.00 |
| Time: | 22:53:40 | Log-Likelihood: | -5543.7 |
| No. Observations: | 4898 | AIC: | 1.111e+04 |
| Df Residuals: | 4886 | BIC: | 1.119e+04 |
| Df Model: | 11 | | |
| Covariance Type: | nonrobust | | |

| | coef | std err | t | P>\|t\| | [0.025 | |
|---|---|---|---|---|---|---|
| const | 150.1928 | 18.804 | 7.987 | 0.000 | 113.328 | 1 |
| fixed acidity | 0.0655 | 0.021 | 3.139 | 0.002 | 0.025 | |

```
volatile acidity        -1.8632      0.114    -16.373      0.000      -2.086
citric acid              0.0221      0.096      0.231      0.818      -0.166
residual sugar           0.0815      0.008     10.825      0.000       0.067
chlorides               -0.2473      0.547     -0.452      0.651      -1.319
free sulfur dioxide      0.0037      0.001      4.422      0.000       0.002
total sulfur dioxide    -0.0003      0.000     -0.756      0.450      -0.001
density               -150.2842     19.075     -7.879      0.000    -187.679    -1
pH                       0.6863      0.105      6.513      0.000       0.480
sulphates                0.6315      0.100      6.291      0.000       0.435
alcohol                  0.1935      0.024      7.988      0.000       0.146
==============================================================================
Omnibus:                      114.161   Durbin-Watson:                   1.621
Prob(Omnibus):                  0.000   Jarque-Bera (JB):              251.637
Skew:                           0.073   Prob(JB):                     2.28e-55
Kurtosis:                       4.101   Cond. No.                     3.74e+05
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly s
[2] The condition number is large, 3.74e+05. This might indicate that there are
strong multicollinearity or other numerical problems.
```

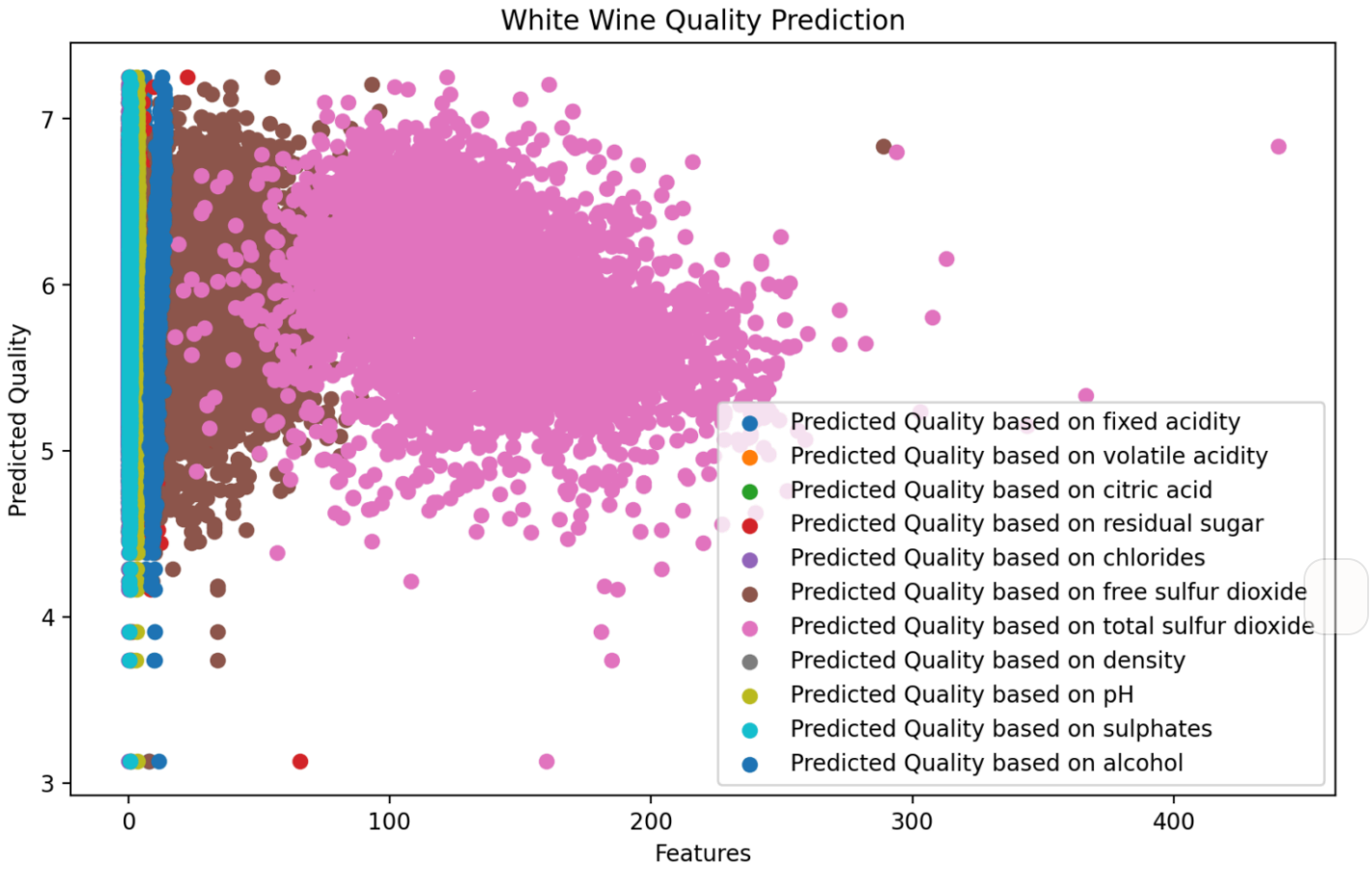
# White Wine Quality Predictions

Calling `st.pyplot()` without providing a figure argument has been deprecated and will be removed in a later version as it requires the use of Matplotlib's global figure object, which is not thread-safe.

To future-proof this code, you should pass in a figure as shown below:

```
[object Object],[object Object],[object Object],[object Object],[object Object
```

If you have a specific use case that requires this functionality, please let us know via issue on Github.


White Wine Quality Prediction
Predicted Quality
Features
7
6
5
4
3
0
100
200
300
400
Predicted Quality based on fixed acidity
Predicted Quality based on volatile acidity
Predicted Quality based on citric acid
Predicted Quality based on residual sugar
Predicted Quality based on chlorides
Predicted Quality based on free sulfur dioxide
Predicted Quality based on total sulfur dioxide
Predicted Quality based on density
Predicted Quality based on pH
Predicted Quality based on sulphates
Predicted Quality based on alcohol