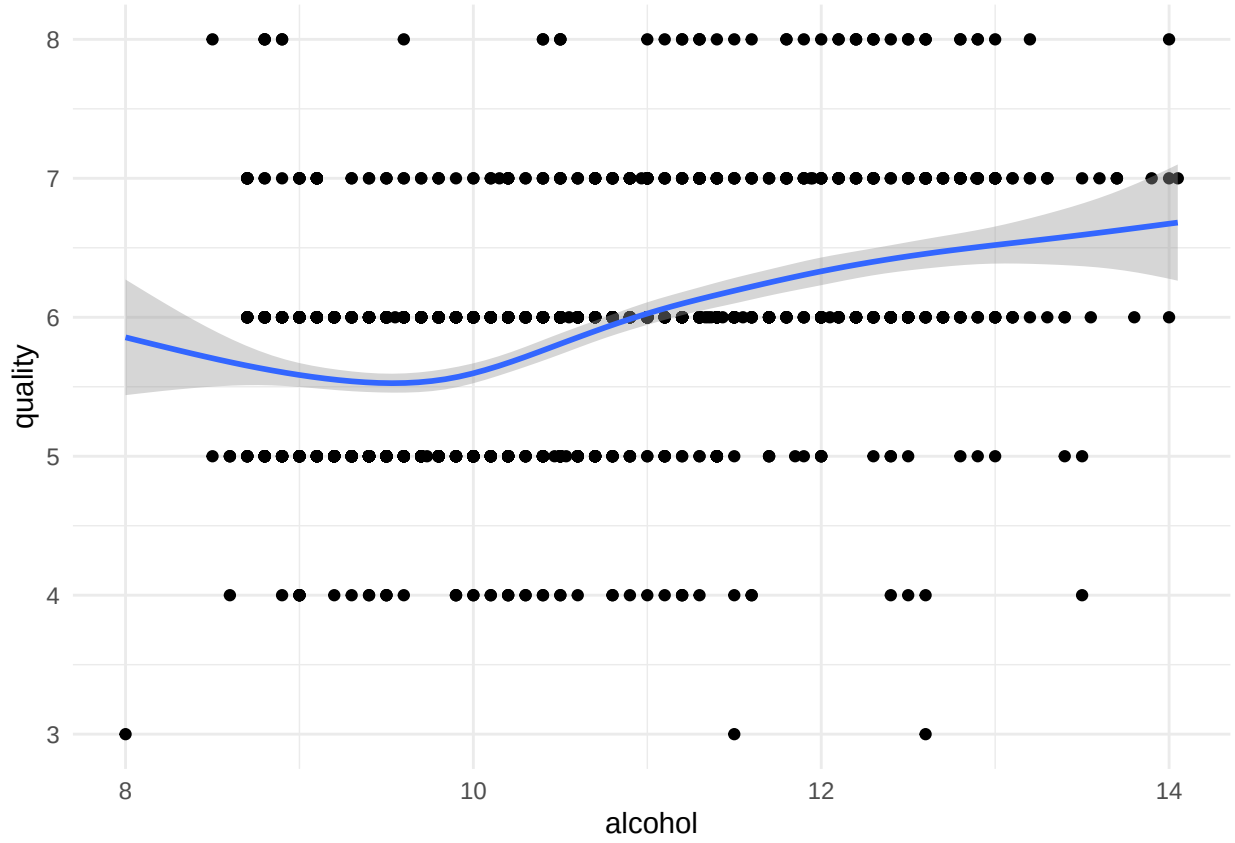
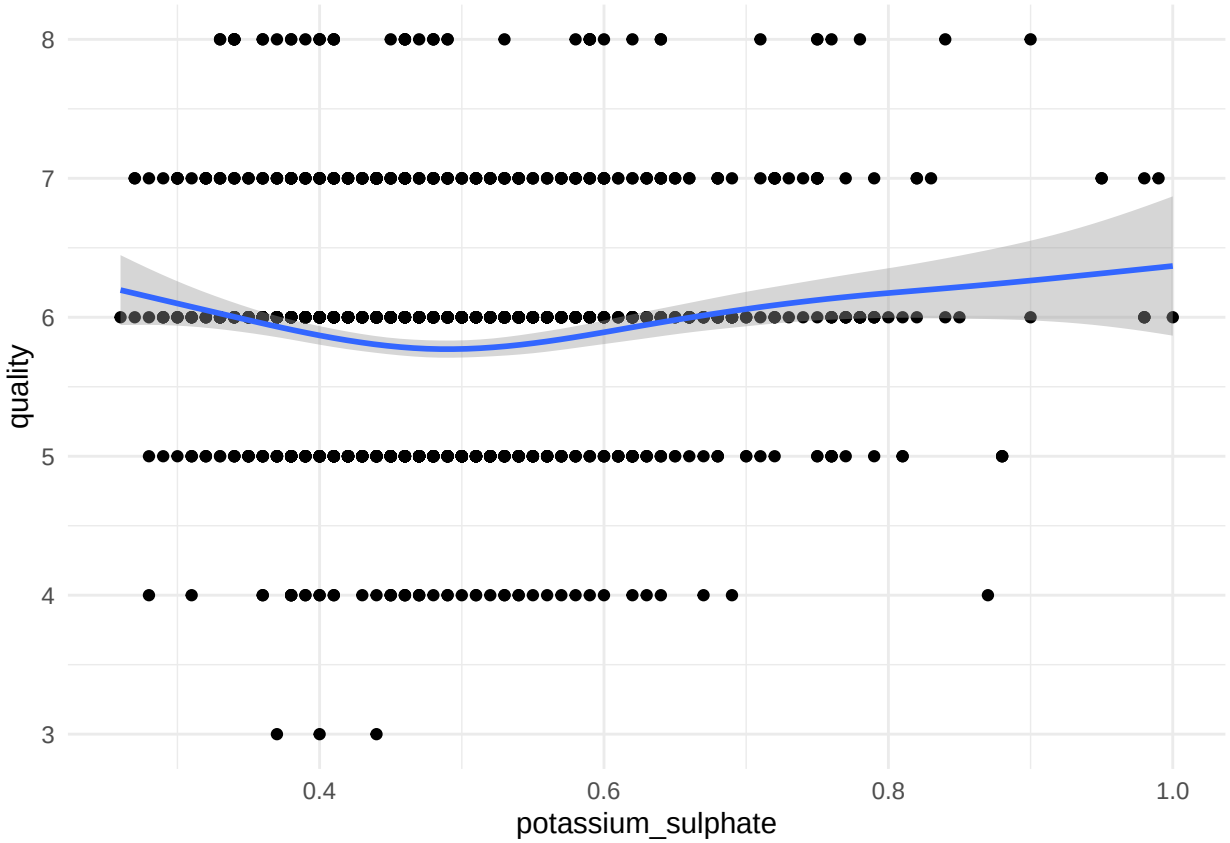
R Notebook

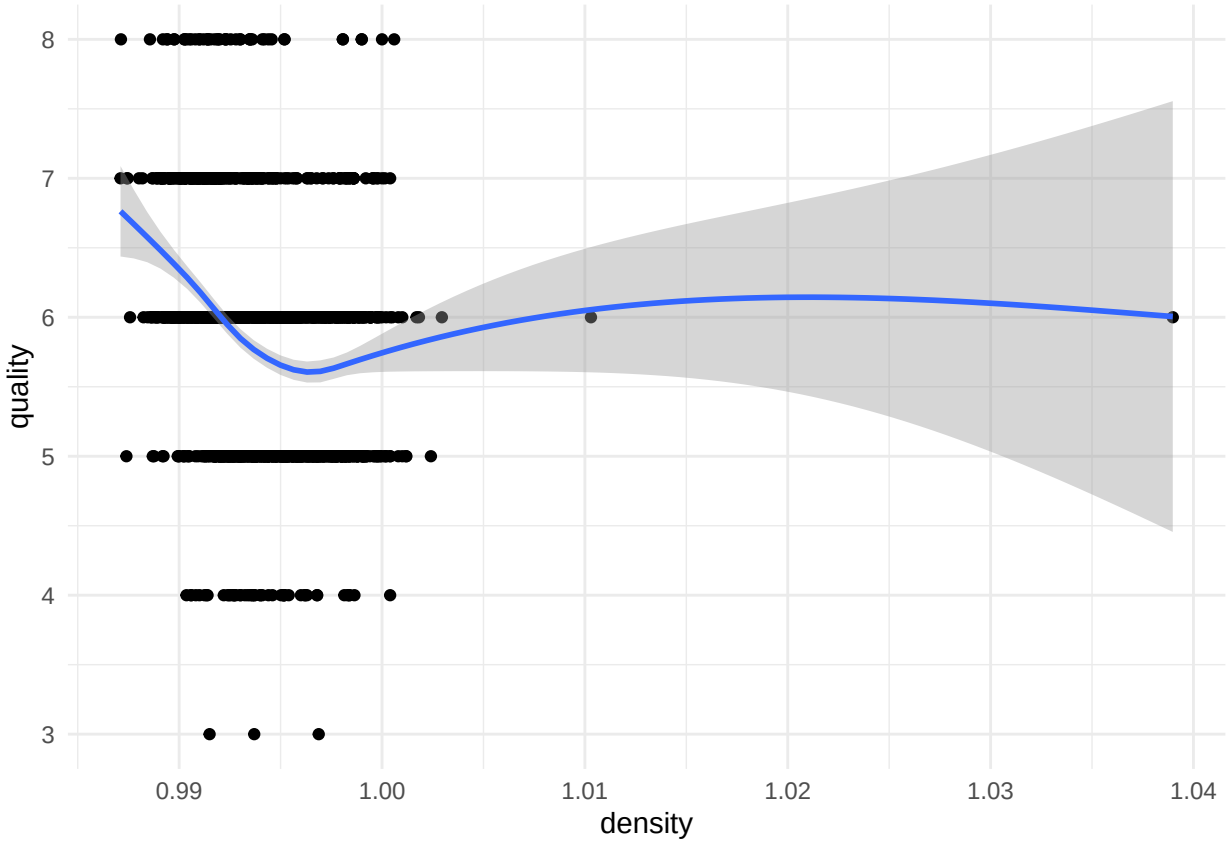
```
knitr::opts_chunk$set(echo = FALSE)
knitr::opts_chunk$set(message=FALSE)

library(tidyverse)
```

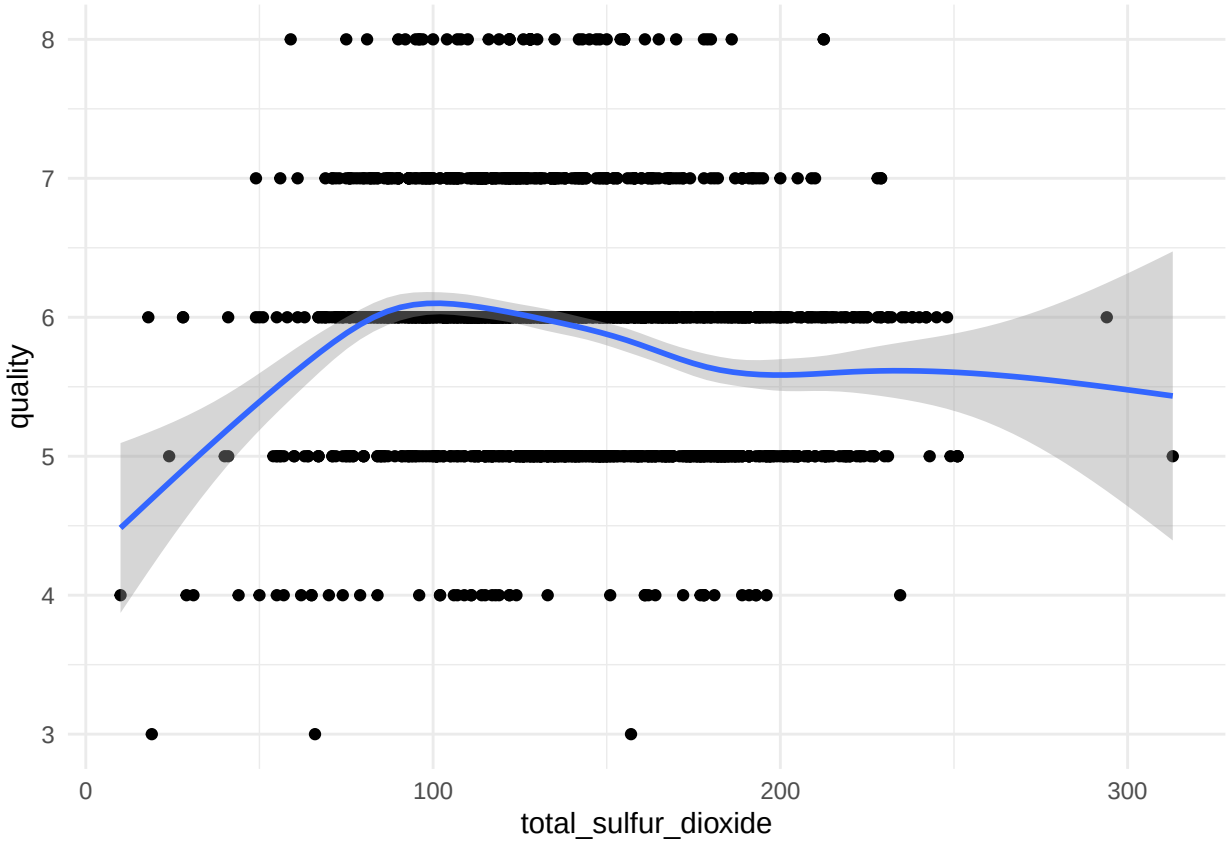
```
## -- Attaching packages --------------------------------------- tidyverse 1.3.2 --
## v ggplot2 3.4.0      v purrr   0.3.5
## v tibble  3.1.8      v dplyr   1.0.10
## v tidyr   1.2.1      v stringr 1.4.1
## v readr   2.1.3      v forcats 0.5.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

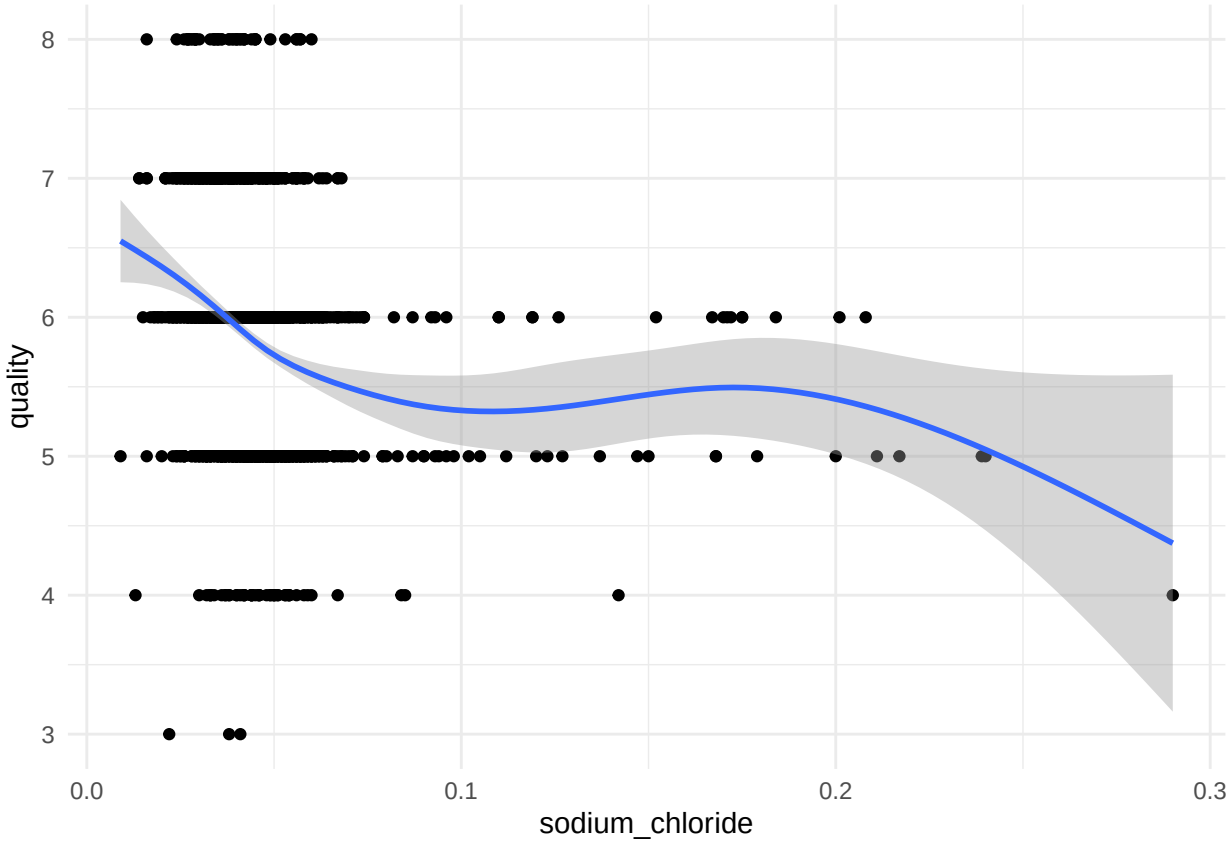
```
library(patchwork)

knitr::opts_chunk$set(message=FALSE)
theme_set(theme_minimal())
```

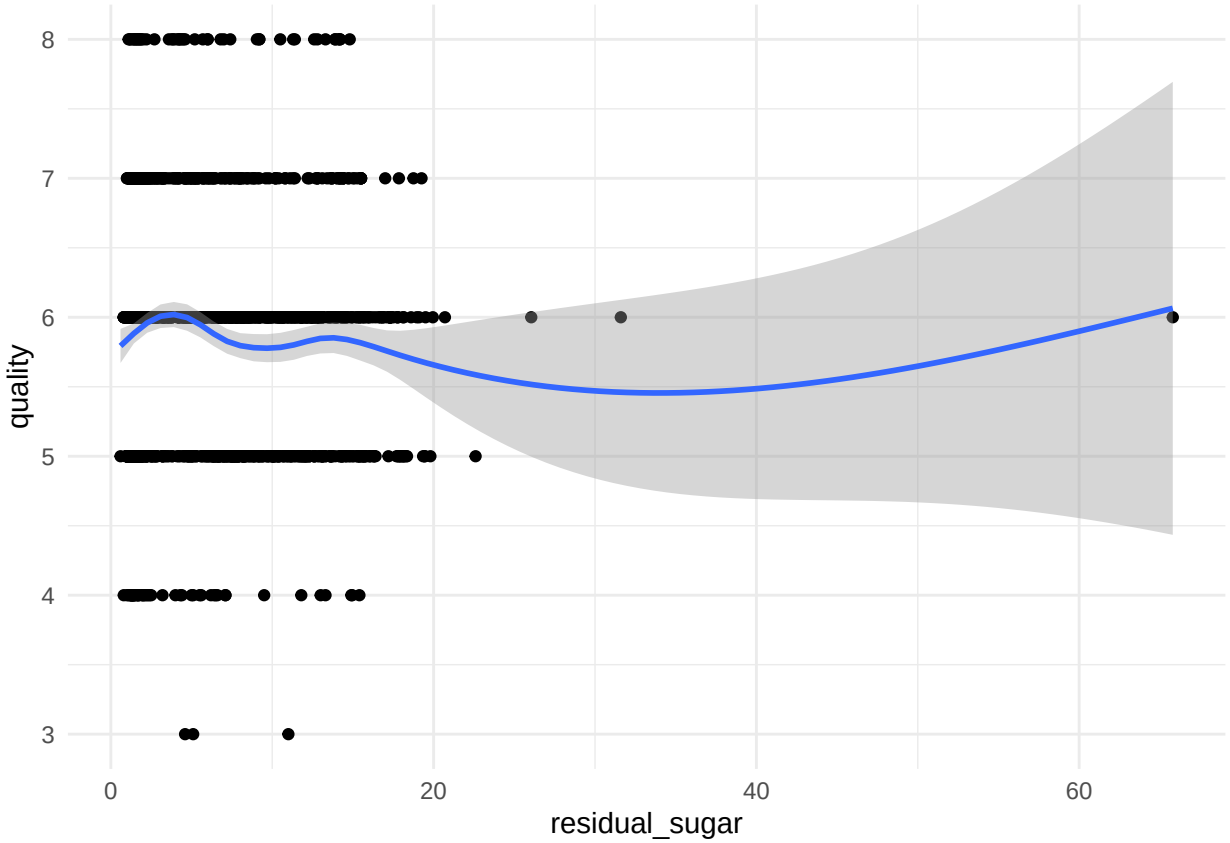


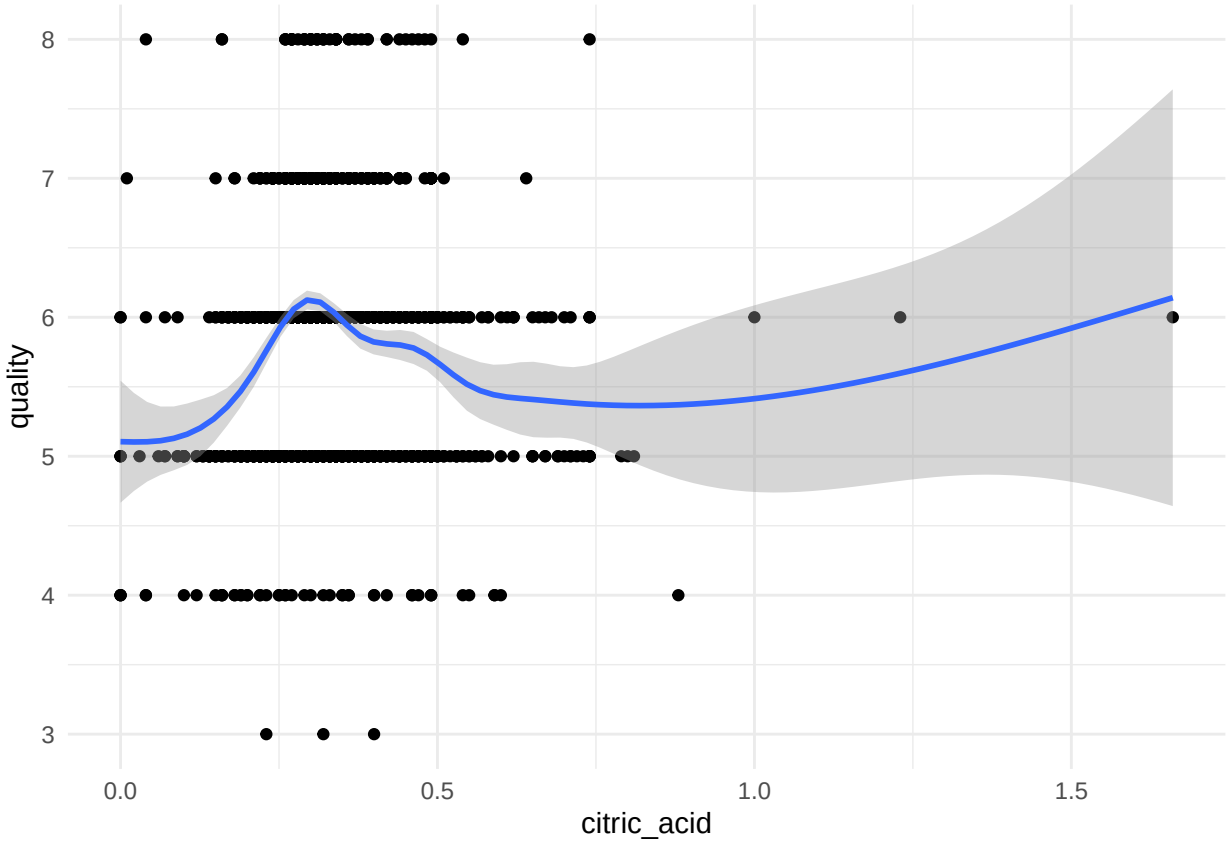

8
7
6
5
4
3
quality
0.4
0.6
0.8
1.0
potassium_sulphate

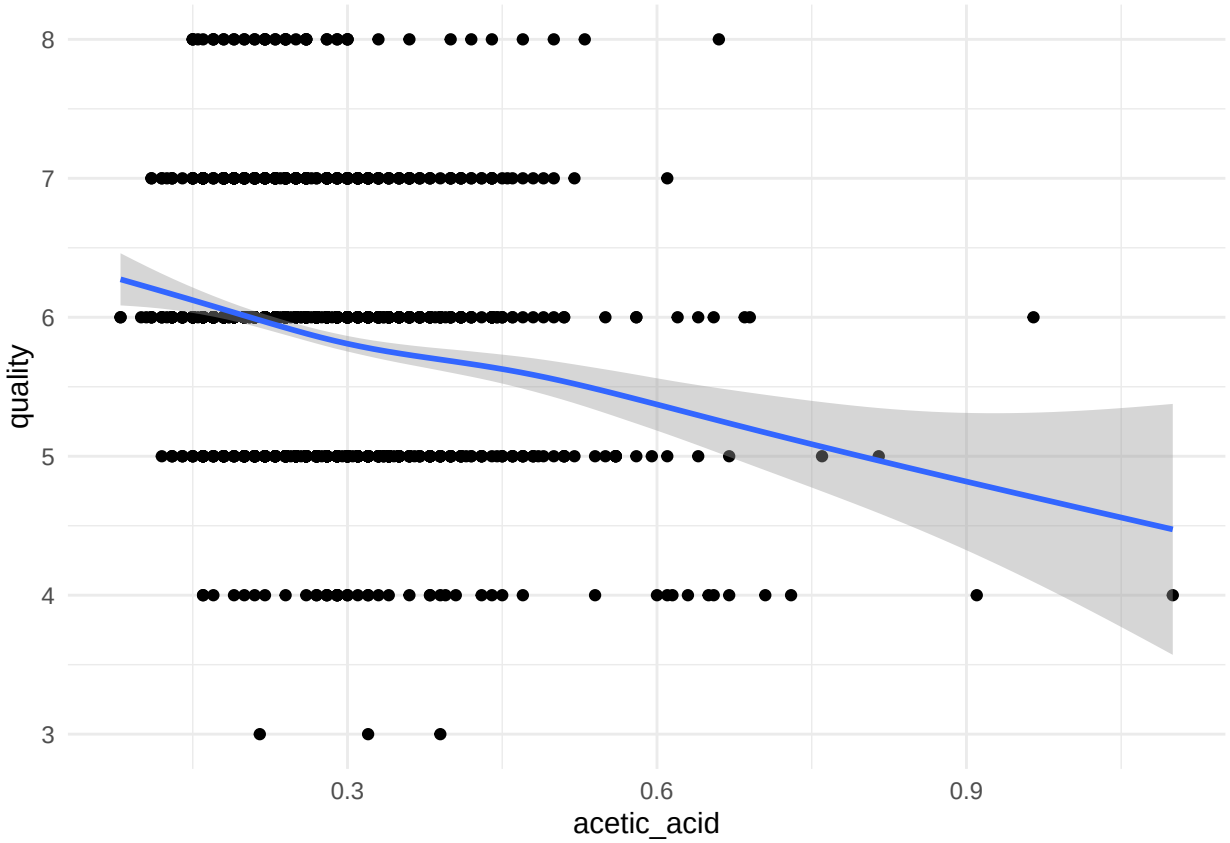

8
7
6
5
4
3
quality
0.99
1.00
1.01
1.02
1.03
1.04
density

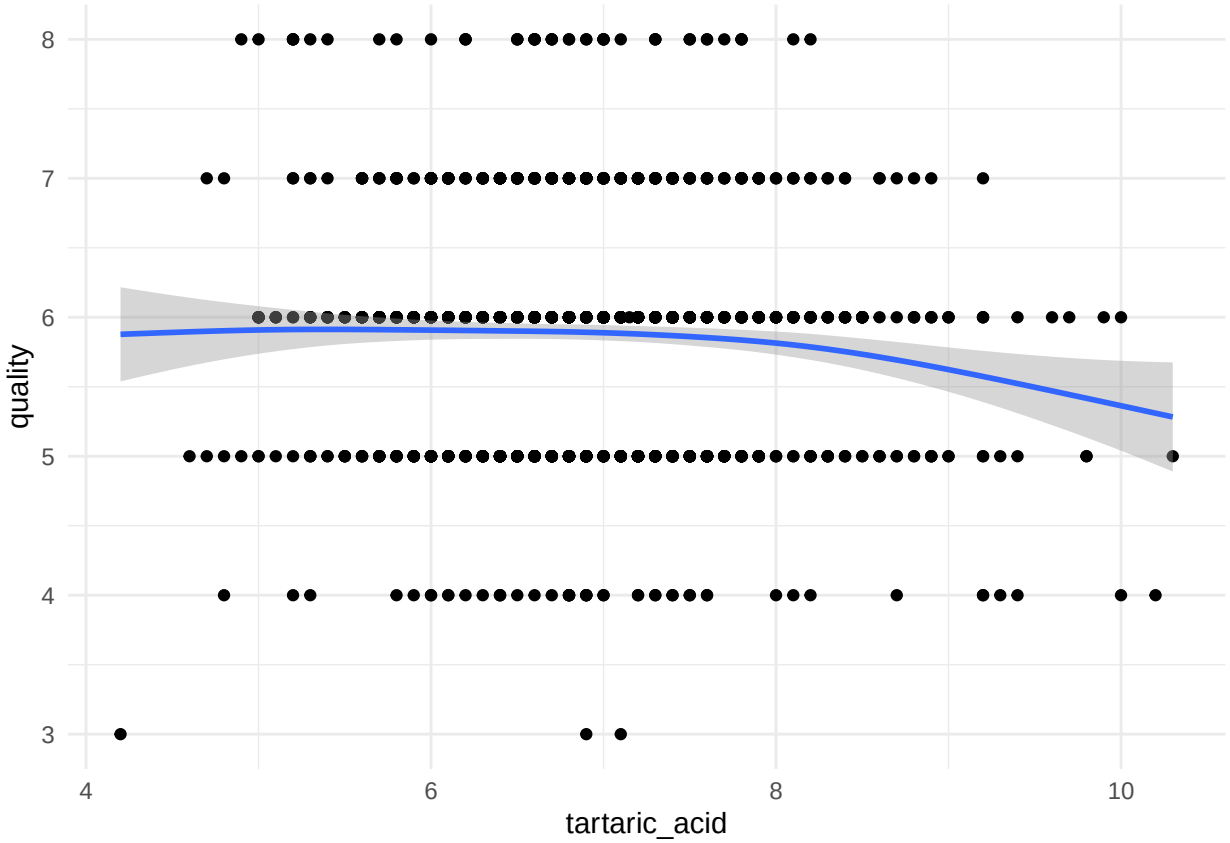

8
7
6
5
4
3
quality
0
100
200
300
total_sulfur_dioxide

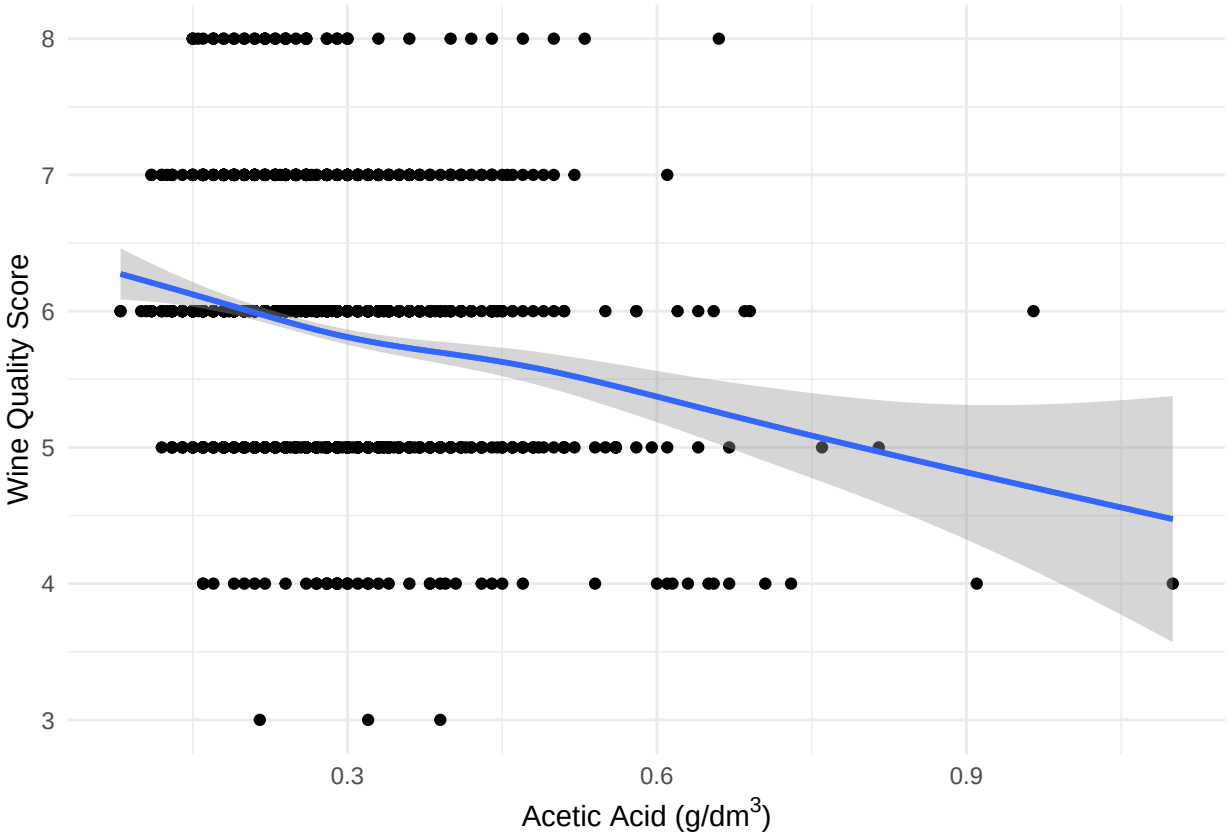

8
7
6
5
4
3
quality
0.0
0.1
0.2
0.3
sodium_chloride

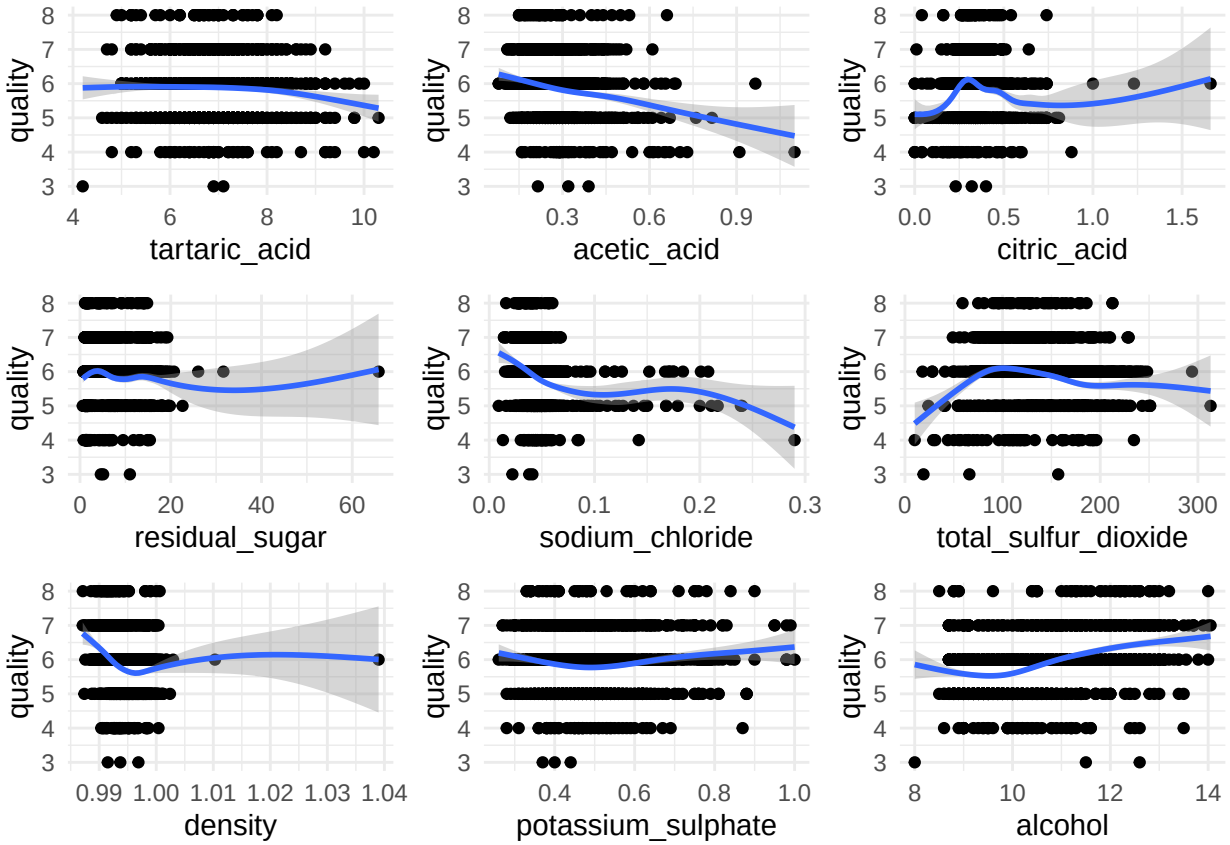

8
7
6
5
4
3
quality
0
20
40
60
residual_sugar


8
7
6
5
4
3
quality
0.0
0.5
1.0
1.5
citric_acid


8
7
6
5
4
3
quality
0.3
0.6
0.9
acetic_acid


8
7
6
5
4
3
quality
4
6
8
10
tartaric_acid


8
7
6
5
4
3
Wine Quality Score
0.3
0.6
0.9
Acetic Acid (g/dm3)




```
##  [1] "tartaric_acid"        "acetic_acid"          "citric_acid"
##  [4] "residual_sugar"       "sodium_chloride"      "total_sulfur_dioxide"
##  [7] "density"              "potassium_sulphate"   "alcohol"
## [10] "quality"
```

```
##
## ================================================================================================
##                                          Dependent Variable: Wine Quality
##                                  ------------------------------------------------------------
##                                        (1)                    (2)                    (3)
## ------------------------------------------------------------------------------------------------
## potassium_sulphate                   0.305                  0.365*                 0.635***
##                                     (0.191)                (0.171)                (0.174)
##
## density                                                     45.905***              -81.262***
##                                                             (9.626)                (21.029)
##
## alcohol                                                     0.356***               0.253***
##                                                             (0.025)                (0.030)
##
## sodium_chloride                                             -1.463                 -0.928
##                                                             (0.953)                (0.943)
##
## citric_acid                                                 -0.237                 -0.249
##                                                             (0.172)                (0.170)
```

```
##
## tartaric_acid                                -0.049                  0.017
##                                             (0.025)                (0.027)
##
## acetic_acid                                -2.150***               -2.117***
##                                             (0.199)                (0.196)
##
## total_sulfur_dioxide                                                0.001*
##                                                                    (0.001)
##
## residual_sugar                                                      0.059***
##                                                                    (0.009)
##
## Constant                    5.722***              -42.614***               83.729***
##                             (0.097)                (9.695)                 (20.971)
##
## ------------------------------------------------------------------------------------
## Observations                 1,470                  1,470                   1,470
## R2                           0.002                  0.224                   0.249
## Adjusted R2                  0.001                  0.221                   0.244
## Residual Std. Error   0.846 (df = 1468)      0.747 (df = 1462)       0.736 (df = 1460)
## F Statistic          2.537 (df = 1; 1468) 60.461*** (df = 7; 1462) 53.781*** (df = 9; 1460)
## ====================================================================================
## Note:                                                  *p<0.05; **p<0.01; ***p<0.001
```