Simple example of using R2wd

# Introduction

Consider Fisher's famous iris data set. It has sepal and petal length and width of a total of 150 flowers from 3 species.

The first few lines of the data are shown in Table 1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sepal.Length  Sepal.Width  Petal.Length  Petal.Width  Species  1  5.1  3.5  1.4  0.2  setosa  2  4.9  3.0  1.4  0.2  setosa  3  4.7  3.2  1.3  0.2  setosa  4  4.6  3.1  1.5  0.2  setosa  5  5.0  3.6  1.4  0.2  setosa  6  5.4  3.9  1.7  0.4  setosa | Sepal.Length | Sepal.Width | Petal.Length | Petal.Width | Species |
| 1 | 5.1 | 3.5 | 1.4 | 0.2 | setosa |
| 2 | 4.9 | 3.0 | 1.4 | 0.2 | setosa |
| 3 | 4.7 | 3.2 | 1.3 | 0.2 | setosa |
| 4 | 4.6 | 3.1 | 1.5 | 0.2 | setosa |
| 5 | 5.0 | 3.6 | 1.4 | 0.2 | setosa |
| 6 | 5.4 | 3.9 | 1.7 | 0.4 | setosa |

Table Data for the first 6 flowers.

# Analyzing petal widths

Figure 1 shows a boxplot of petal widths by species - there is a large apparent separation of this measurement.



The separation can be formally confirmed via ANOVA:

Df Sum Sq Mean Sq F value Pr(>F)

Species 2 80.413 40.207 960 < 2.2e-16 \*\*\*

Residuals 147 6.157 0.042

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1