# First test

2024-02-28

## R Markdown

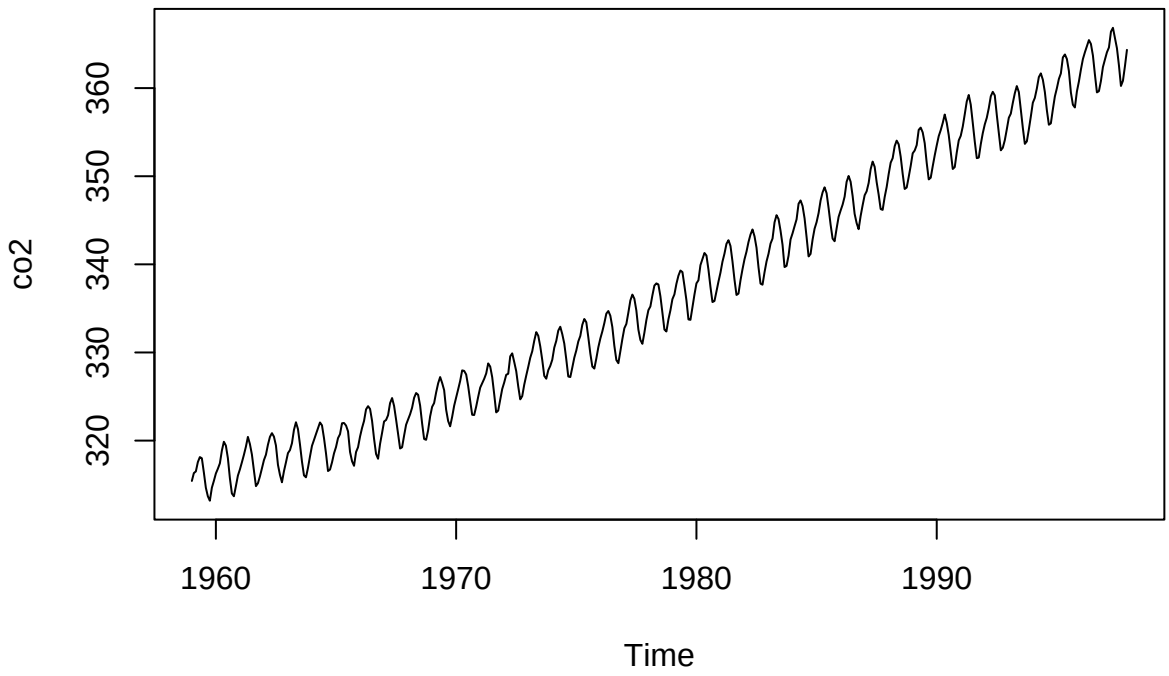
I will demonstrated the use of imputeTestbench package by using it on the Mauna Loa Atmospheric CO2 Concentration dataset. My demonstration is based upon the same one done in the paper "R Package imputeTestbench to Compare Imputation Methods for Univariate Time Series"

```
library(imputeTestbench)
```

```
## Warning: package 'imputeTestbench' was built under R version 4.3.2
```

```
## Registered S3 method overwritten by 'quantmod':
##   method            from
##   as.zoo.data.frame zoo
```

```
set.seed(44)
plot(co2)
```

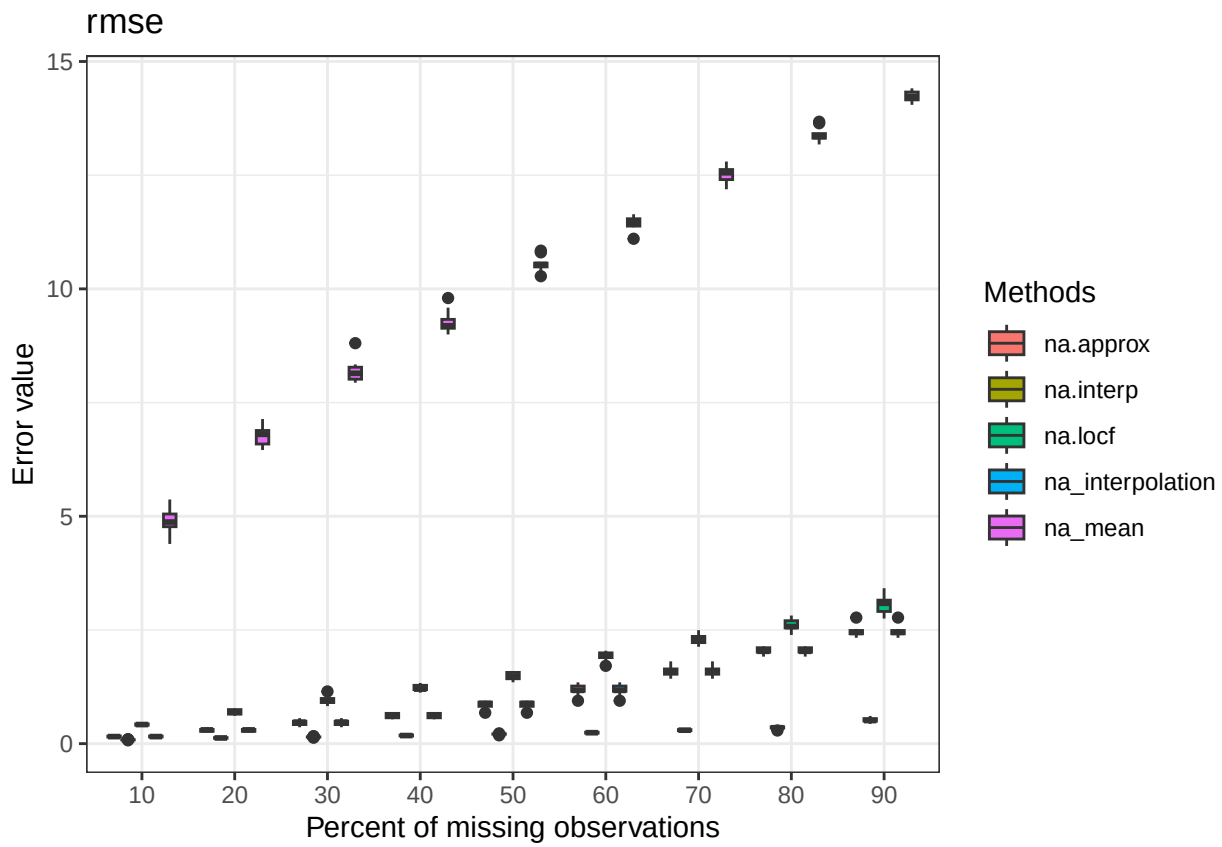



```
missing_simulation <-  impute_errors(dataIn = co2)
missing_simulation
```

```
## $Parameter
## [1] "rmse"
##
## $MissingPercent
## [1] 10 20 30 40 50 60 70 80 90
##
## $na.approx
## [1] 0.1567887 0.2972286 0.4615230 0.6150082 0.8605513 1.1786475 1.5957400
## [8] 2.0494282 2.4681039
##
## $na.interp
## [1] 0.08494883 0.12504056 0.14781176 0.18022817 0.21004462 0.24332971 0.29617992
## [8] 0.35127728 0.51907733
##
## $na_interpolation
## [1] 0.1567887 0.2972286 0.4615230 0.6150082 0.8605513 1.1786475 1.5957400
## [8] 2.0494282 2.4681039
##
## $na.locf
## [1] 0.4202639 0.6952231 0.9601077 1.2186546 1.4879115 1.9198295 2.2960605
## [8] 2.6153835 3.0633192
##
## $na_mean
## [1]  4.892031  6.763751  8.197521  9.264852 10.547650 11.447410 12.523262
## [8] 13.381857 14.234886
```

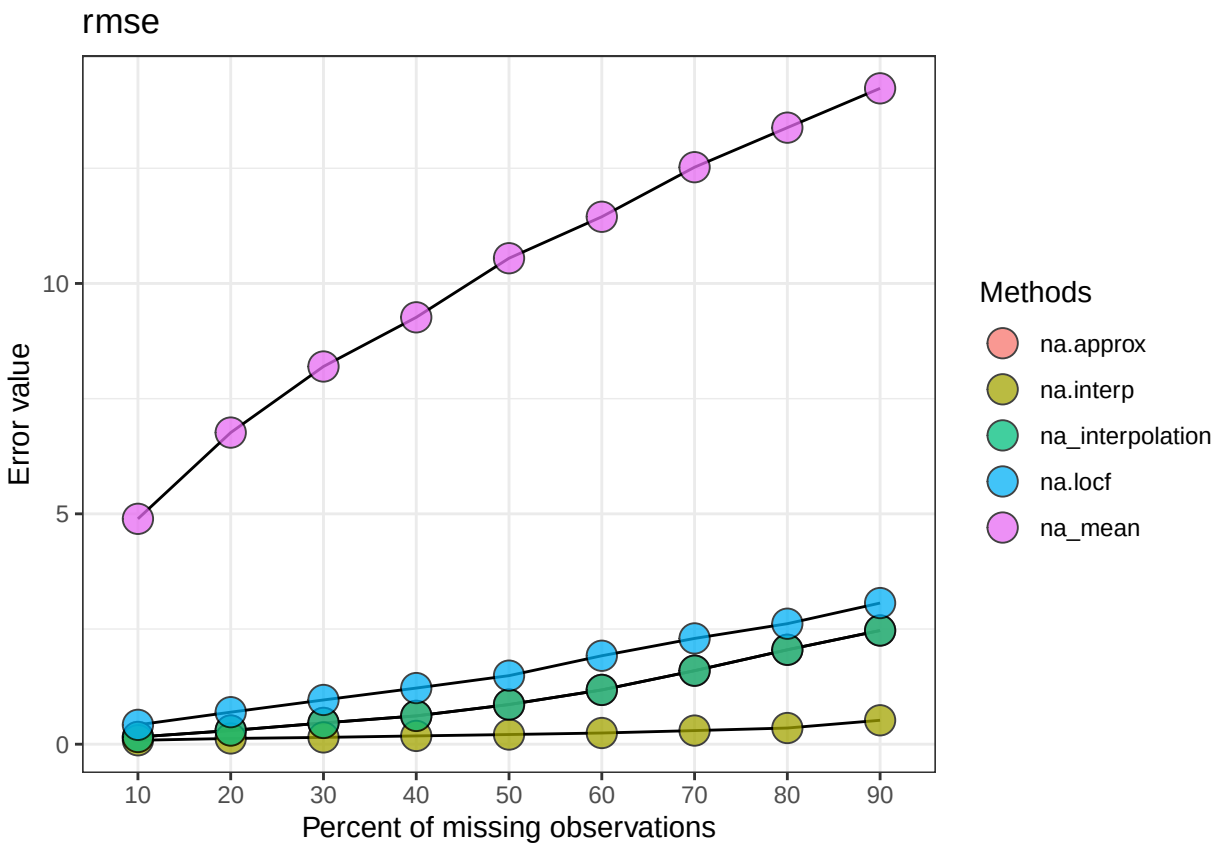
Having created an errprof object, I can now visualize the rmse errors of each imputation method.

```
plot_errors(missing_simulation)
```




Instead of showing the errors as box plots, lets show the average error as a line plot.

```
plot_errors(missing_simulation, plotType = 'line')
```


rmse
Error value
10
5
0
10
20
30
40
50
60
70
80
90
Percent of missing observations
Methods
na.approx
na.interp
na_interpolation
na.locf
na_mean