```r
# Example of initializing parameters
# Load the lars package and the diabetes dataset
library(reshape2)
library(lars)
```

```
## Loaded lars 1.3
```

```r
data(diabetes)
library(GGally)
```

```
## Loading required package: ggplot2

## Registered S3 method overwritten by 'GGally':
##   method from
##   +.gg   ggplot2
```

```r
library(ggplot2)
library(gridExtra)

library("rstan") # observe startup messages
```

```
## Loading required package: StanHeaders

##
## rstan version 2.32.3 (Stan version 2.26.1)

## For execution on a local, multicore CPU with excess RAM we recommend calling
## options(mc.cores = parallel::detectCores()).
## To avoid recompilation of unchanged Stan programs, we recommend calling
## rstan_options(auto_write = TRUE)
## For within-chain threading using `reduce_sum()` or `map_rect()` Stan functions,
## change `threads_per_chain` option:
## rstan_options(threads_per_chain = 1)
```

```r
options(mc.cores = parallel::detectCores())
rstan_options(auto_write = TRUE)

library(rjags)
```

```
## Loading required package: coda

##
## Attaching package: 'coda'

## The following object is masked from 'package:rstan':
##
##     traceplot

## Linked to JAGS 4.3.2

## Loaded modules: basemod,bugs
```

```r
#data
X_matrix <- diabetes$x
class(X_matrix) <- "matrix"
y_vector <- diabetes$y

X_design <- cbind(1, X_matrix)

K <- ncol(X_design)
```

```r
inits <- list(z = rep(0, K-1),
              beta = rep(0, K),
              sigma2temp = 1,
              mu_beta = rep(0, K),
              v0 = 1,
              s0 = 1)

data_list <- list(
  N = dim(X_design)[1],
  K = dim(X_design)[2],
  x = X_design,
  y = y_vector,
  Ik = diag(K),
  C0 = diag(K)
)


# Assuming your JAGS model code is in a file named 'model_code.txt'
model_file <- "./prior_M2_ind.txt"
model.fit <- jags.model(model_file,
                    data = data_list,
                    inits = inits,
                    n.chains = 4)
```

```
## Compiling model graph
##    Resolving undeclared variables
##    Allocating nodes
## Graph information:
##    Observed stochastic nodes: 443
##    Unobserved stochastic nodes: 15
##    Total graph size: 6804
##
## Initializing model
```

```r
update(model.fit, n.iter = 2000)  # Burn-in
model.samples <- coda.samples(model.fit,
                        variable.names = c("z", "beta", "sigma2temp"), n.iter = 4000)

print(summary(model.samples))
```

```
##
## Iterations = 3001:7000
## Thinning interval = 1
## Number of chains = 4
## Sample size per chain = 4000
##
## 1. Empirical mean and standard deviation for each variable,
##    plus standard error of the mean:
##
##                 Mean        SD  Naive SE Time-series SE
## beta[1]     1.521e+02 2.847e+00 2.251e-02      2.285e-02
## beta[2]     9.055e+01 5.734e+01 4.533e-01      5.813e-01
## beta[3]     2.006e+01 8.356e+01 6.606e-01      1.741e+00
## beta[4]     3.315e+02 4.051e+01 3.203e-01      3.934e-01
```

```
## beta[5]      2.378e+02 4.073e+01 3.220e-01      3.596e-01
## beta[6]      1.287e+02 6.099e+01 4.822e-01      7.002e-01
## beta[7]      9.989e+01 6.350e+01 5.020e-01      7.548e-01
## beta[8]     -1.848e+02 5.045e+01 3.988e-01      9.068e-01
## beta[9]      2.110e+02 4.999e+01 3.952e-01      8.774e-01
## beta[10]     2.936e+02 4.281e+01 3.384e-01      5.517e-01
## beta[11]     1.815e+02 4.237e+01 3.349e-01      4.401e-01
## sigma2temp   2.816e-04 1.879e-05 1.485e-07      1.841e-07
## z[1]         2.652e-01 4.415e-01 3.490e-03      4.164e-03
## z[2]         4.282e-01 4.948e-01 3.912e-03      1.048e-02
## z[3]         1.000e+00 0.000e+00 0.000e+00      0.000e+00
## z[4]         1.000e+00 0.000e+00 0.000e+00      0.000e+00
## z[5]         9.938e-02 2.992e-01 2.365e-03      3.168e-03
## z[6]         1.102e-01 3.131e-01 2.476e-03      3.489e-03
## z[7]         9.893e-01 1.028e-01 8.129e-04      9.390e-04
## z[8]         5.585e-01 4.966e-01 3.926e-03      1.106e-02
## z[9]         1.000e+00 0.000e+00 0.000e+00      0.000e+00
## z[10]        9.204e-01 2.706e-01 2.139e-03      3.006e-03
##
## 2. Quantiles for each variable:
##
##                   2.5%        25%        50%        75%      97.5%
## beta[1]      1.465e+02  1.502e+02  1.521e+02  1.541e+02  1.577e+02
## beta[2]     -1.644e+01  5.077e+01  8.817e+01  1.290e+02  2.071e+02
## beta[3]     -1.227e+02 -4.890e+01  1.849e+01  8.636e+01  1.743e+02
## beta[4]      2.522e+02  3.045e+02  3.311e+02  3.589e+02  4.109e+02
## beta[5]      1.584e+02  2.103e+02  2.375e+02  2.653e+02  3.195e+02
## beta[6]      8.724e+00  8.675e+01  1.306e+02  1.711e+02  2.450e+02
## beta[7]     -2.827e+01  5.708e+01  1.022e+02  1.432e+02  2.204e+02
## beta[8]     -2.877e+02 -2.199e+02 -1.819e+02 -1.483e+02 -9.386e+01
## beta[9]      1.251e+02  1.753e+02  2.057e+02  2.434e+02  3.191e+02
## beta[10]     2.124e+02  2.640e+02  2.930e+02  3.223e+02  3.792e+02
## beta[11]     1.001e+02  1.533e+02  1.808e+02  2.091e+02  2.663e+02
## sigma2temp   2.464e-04  2.686e-04  2.810e-04  2.940e-04  3.199e-04
## z[1]         0.000e+00  0.000e+00  0.000e+00  1.000e+00  1.000e+00
## z[2]         0.000e+00  0.000e+00  0.000e+00  1.000e+00  1.000e+00
## z[3]         1.000e+00  1.000e+00  1.000e+00  1.000e+00  1.000e+00
## z[4]         1.000e+00  1.000e+00  1.000e+00  1.000e+00  1.000e+00
## z[5]         0.000e+00  0.000e+00  0.000e+00  0.000e+00  1.000e+00
## z[6]         0.000e+00  0.000e+00  0.000e+00  0.000e+00  1.000e+00
## z[7]         1.000e+00  1.000e+00  1.000e+00  1.000e+00  1.000e+00
## z[8]         0.000e+00  0.000e+00  1.000e+00  1.000e+00  1.000e+00
## z[9]         1.000e+00  1.000e+00  1.000e+00  1.000e+00  1.000e+00
## z[10]        0.000e+00  1.000e+00  1.000e+00  1.000e+00  1.000e+00
```