

# example

## Packages needed

```
library(nimMCMCSMCupdates)
library(nimble)
library(nimbleSMC)

set.seed(1)
```

## Simulating data

```
# Setting up MCMC configuration values and variation of parameters
nIterations = 1000
nBurnin = 200
nChains = 3
nThin = 1
nyears = 50
aVars <- c(0.1, 0.8) # changing the intercept
#High and small values of a
iNodePrev <- c(49, 45, 20) # The number of years for reduced model
aVarstag = 2
iNodetag = 2
mcmcRun <- FALSE #use mcmc or nimbleSMC for reduced Model
pfTypeRun = "auxiliary"

sim2 <- function(a, b, c, t, mu0){
  x <- y <- numeric(t)
  x[1] <- rnorm(1, mu0, 1 )
  y[1] <- rnorm(1, x[1], 1)
```

```

    for(k in 2:t){
      x[k] <- rnorm(1, a*x[k -1] + b, 1)
      y[k] <- rnorm(1, x[k-1]*c, 1)# + (sig0E * (sqrt(df -2)/df) * rt(1, df))
    }
    return(list(x=x, y=y))
  }

  message("simulating data for a = ", aVars[aVarstag])

```

simulating data for a = 0.8

```

simData <- sim2(a = aVars[aVarstag],
               b = 1,
               c = 1.5,
               t = nyears,
               mu0 = 0.2)

str(simData)

```

List of 2

```

$ x: num [1:50] 1.6 2.48 4.28 2.94 4.32 ...
$ y: num [1:50] 1.88 1.26 4.49 7.64 4.15 ...

```

The `echo: false` option disables the printing of code (only output is displayed).