

R Notebook

```
plot(cumsum(rnorm(100)), type="l", ylab="", xlab="Time", main="Random Walk")
```



```
set.seed(1)
e <- rnorm(150)
y = arima.sim(list(order=c(1, 0, 0), ar = 0.9), n=150, innov = e, n.start = 1, start.innov = 0)
```

```
ar1 <- arima(y, order = c(1, 0, 0))
```

```
ar1
```

```
##
## Call:
## arima(x = y, order = c(1, 0, 0))
##
## Coefficients:
##          ar1  intercept
##       0.8982    0.1667
## s.e.  0.0381    0.6940
##
## sigma^2 estimated as 0.8102:  log likelihood = -197.88,  aic = 401.76
```

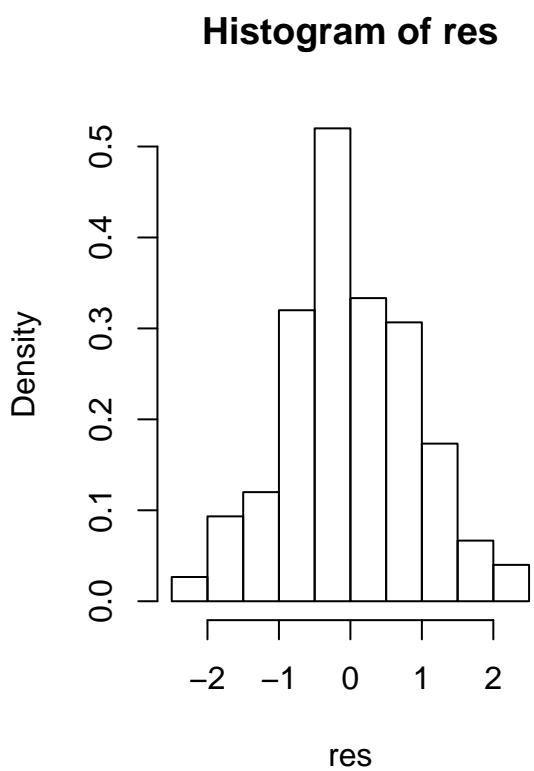
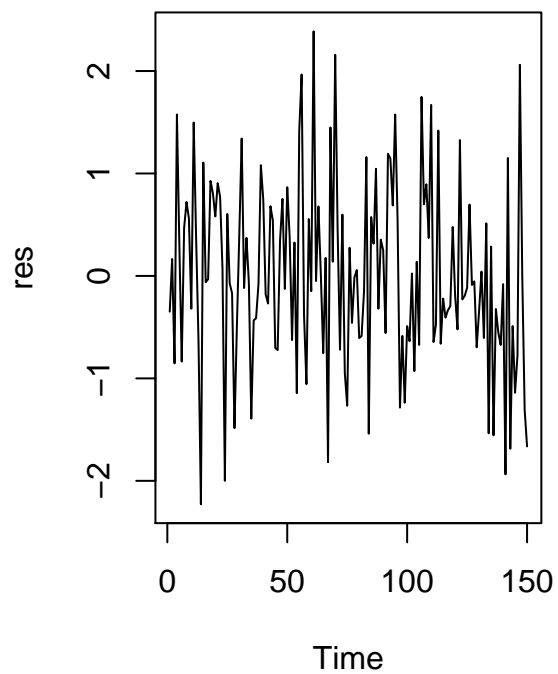
```
str(ar1)
```

```
## List of 14
## $ coef      : Named num [1:2] 0.898 0.167
```

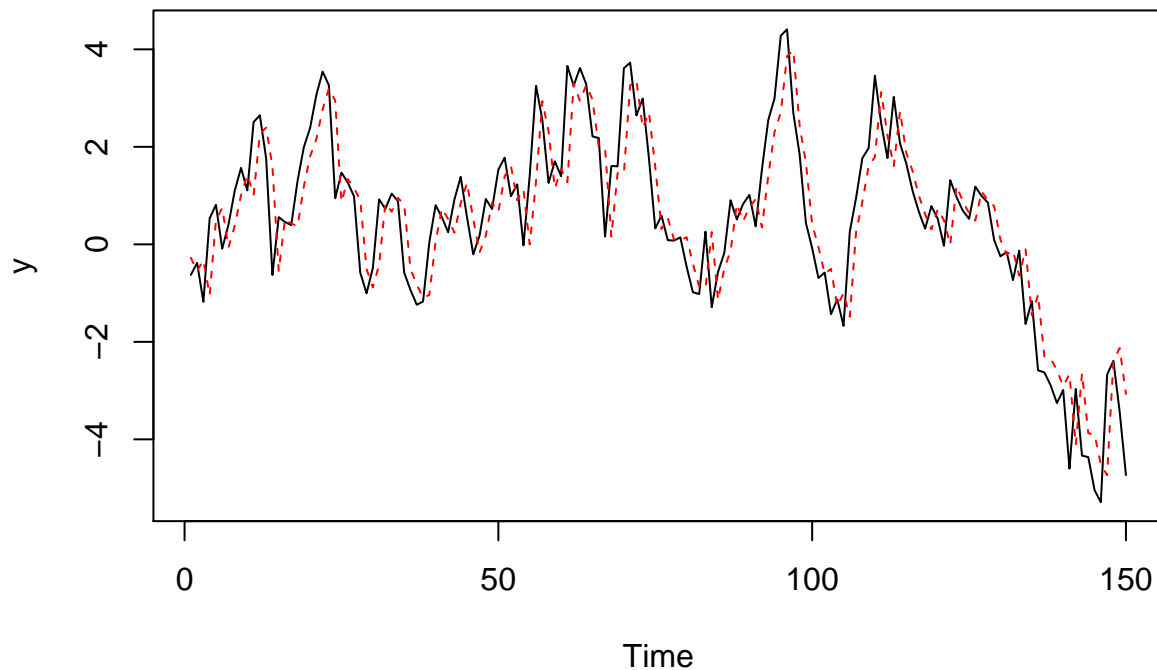
```
##  .- attr(*, "names")= chr [1:2] "ar1" "intercept"
##  $ sigma2      : num 0.81
##  $ var.coef    : num [1:2, 1:2] 0.00145 -0.00477 -0.00477 0.48167
##  .- attr(*, "dimnames")=List of 2
##  .. ..$ : chr [1:2] "ar1" "intercept"
##  .. ..$ : chr [1:2] "ar1" "intercept"
##  $ mask        : logi [1:2] TRUE TRUE
##  $ loglik      : num -198
##  $ aic         : num 402
##  $ arma        : int [1:7] 1 0 0 0 1 0 0
##  $ residuals: Time-Series [1:150] from 1 to 150: -0.349 0.166 -0.853 1.576 0.314 ...
##  $ call        : language arima(x = y, order = c(1, 0, 0))
##  $ series      : chr "y"
##  $ code        : int 0
##  $ n.cond      : int 0
##  $ nobs        : int 150
##  $ model       :List of 10
##  ..$ phi      : num 0.898
##  ..$ theta: num(0)
##  ..$ Delta: num(0)
##  ..$ Z        : num 1
##  ..$ a        : num -4.9
##  ..$ P        : num [1, 1] 0
##  ..$ T        : num [1, 1] 0.898
##  ..$ V        : num [1, 1] 1
##  ..$ h        : num 0
##  ..$ Pn       : num [1, 1] 1
##  - attr(*, "class")= chr "Arima"
```

```
res <- residuals(ar1)
```

```
par(mfrow = c(1, 2))
plot(res, type = "l")
hist(res, prob = TRUE)
```



```
plot(y, type="l")  
lines(y-res, lty=2, col="red")
```



```
library(stargazer)
```

```
##
## Please cite as:
## Hlavac, Marek (2018). stargazer: Well-Formatted Regression and Summary Statistics Tables.
## R package version 5.2.2. https://CRAN.R-project.org/package=stargazer
```

```
stargazer(ar1, type = "text")
```

```
##
## =====
##               Dependent variable:
##               -----
##               y
## -----
## ar1                0.898***
##                   (0.038)
##
## intercept          0.167
##                   (0.694)
##
## -----
## Observations              150
## Log Likelihood            -197.880
## sigma2                    0.810
## Akaike Inf. Crit.         401.761
```

```
## =====  
## Note:          *p<0.1; **p<0.05; ***p<0.01
```