

ica20_syz

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2023-03-31

```
library(forecast)
```

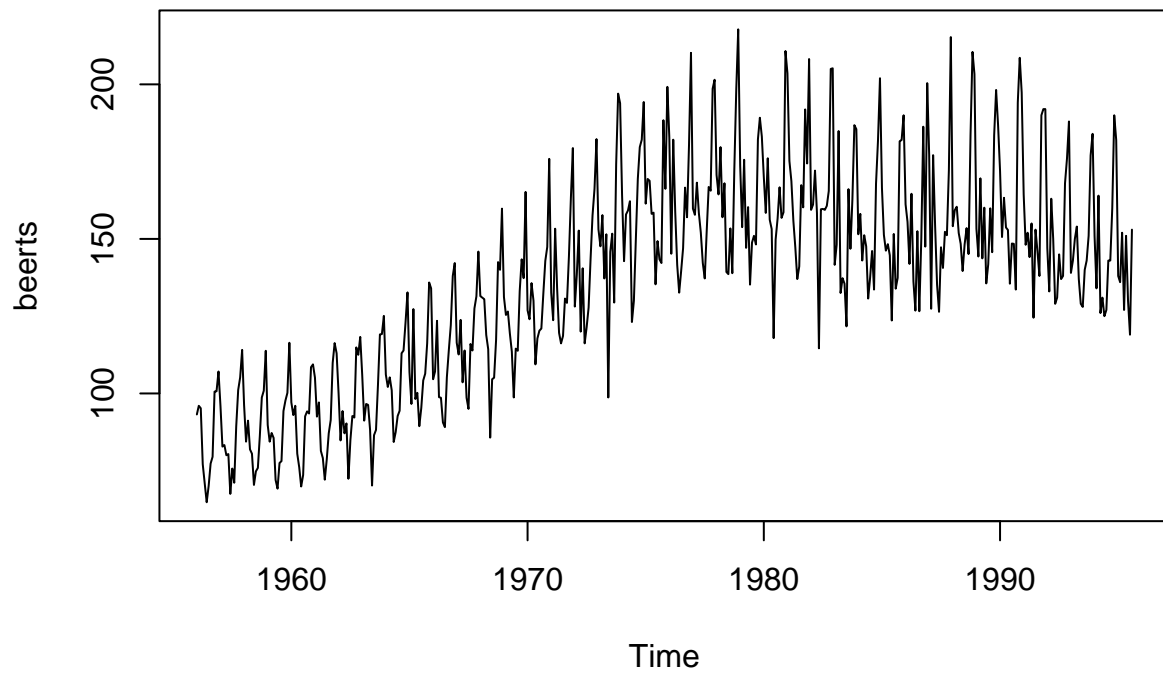
```
## Registered S3 method overwritten by 'quantmod':  
##   method      from  
##   as.zoo.data.frame zoo
```

```
beer <- read.csv("/Users/apple/Desktop/STT811_appl_stat_model/data/beer.csv")  
tail(beer)
```

```
##      Month Monthly.beer.production  
## 471 1995-03                      152  
## 472 1995-04                      127  
## 473 1995-05                      151  
## 474 1995-06                      130  
## 475 1995-07                      119  
## 476 1995-08                      153
```

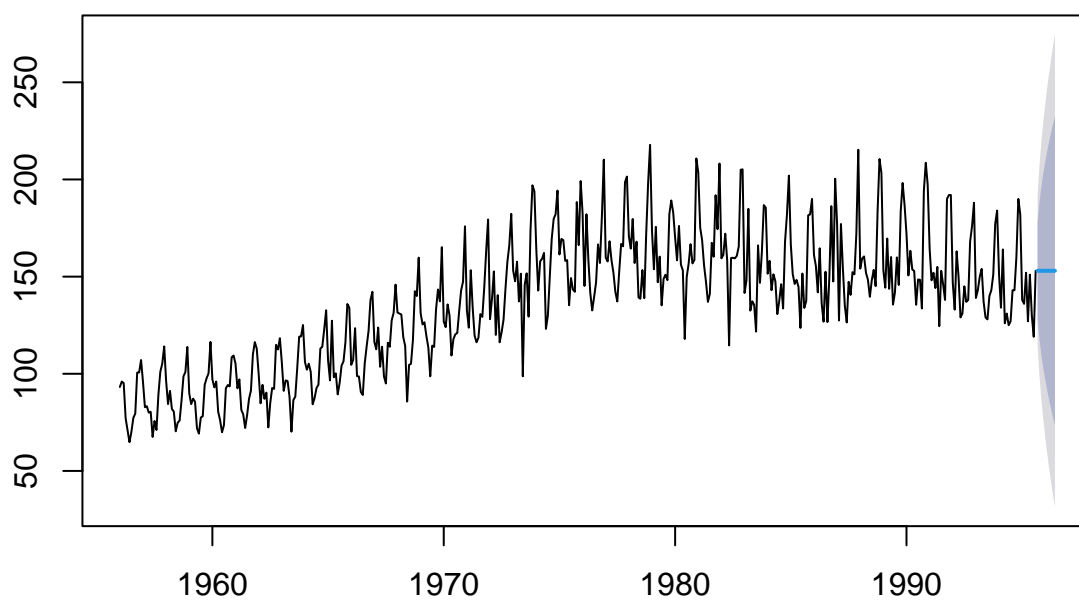
```
beerts <- ts(beer$Monthly.beer.production, frequency = 12, start = c(1956, 1), end = c(1995, 8))
```

```
plot(beerts)
```



```
naive_beer <- naive(beerts)
plot(naive_beer)
```

Forecasts from Naive method

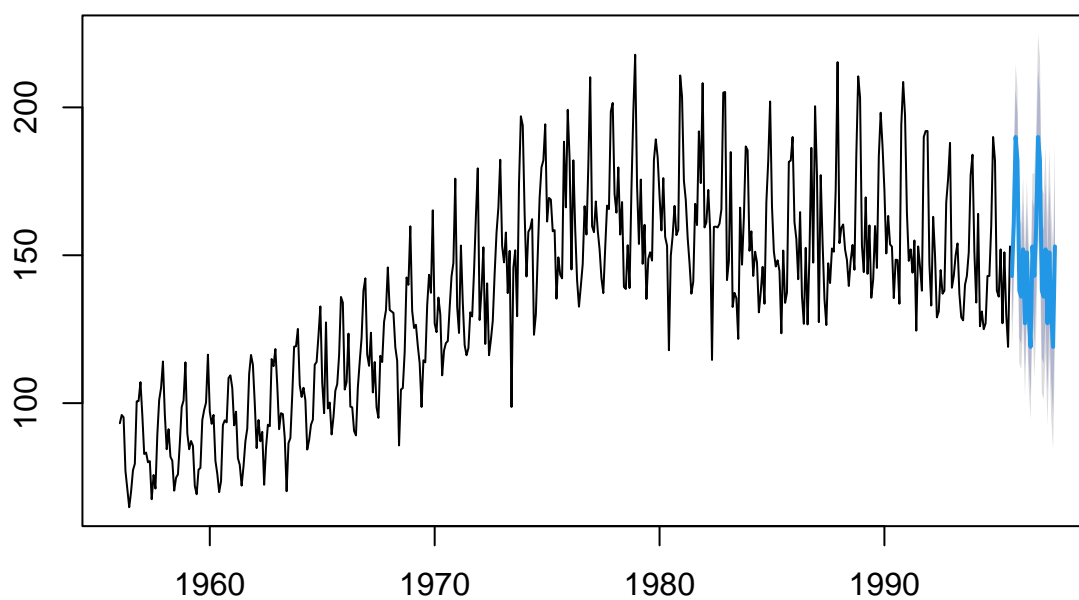


```
mean(abs(na.omit(naive_beer$residuals))/beerts)
```

```
## [1] 0.1081055
```

```
snaive_beer <- snaive(beerts)  
plot(snaive_beer)
```

Forecasts from Seasonal naive method

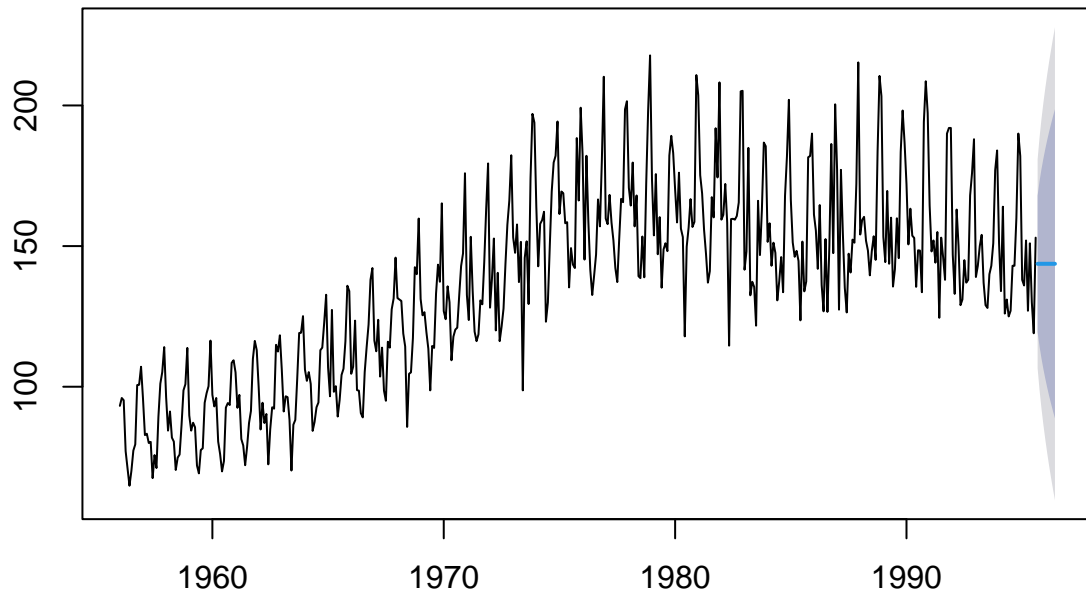


```
mean(abs(na.omit(snaive_beer$residuals))/beerts)
```

```
## [1] 0.06683027
```

```
ses_beer <- ses(beerts)  
plot(ses_beer)
```

Forecasts from Simple exponential smoothing

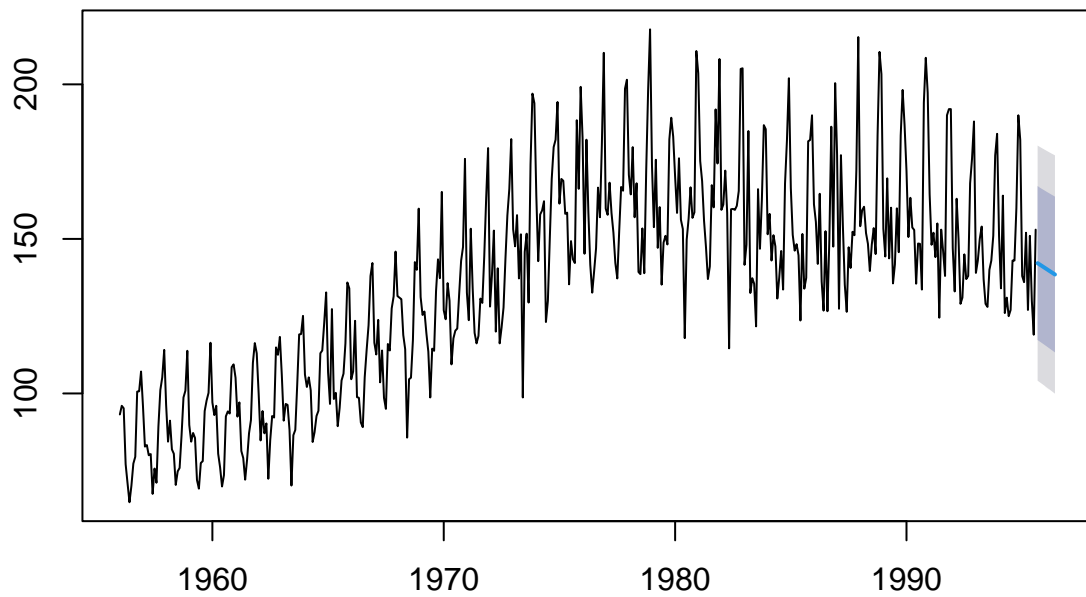


```
mean(abs(na.omit(ses_beer$residuals))/beerts)
```

```
## [1] 0.1091268
```

```
holt_beer <- holt(beerts)  
plot(holt_beer)
```

Forecasts from Holt's method

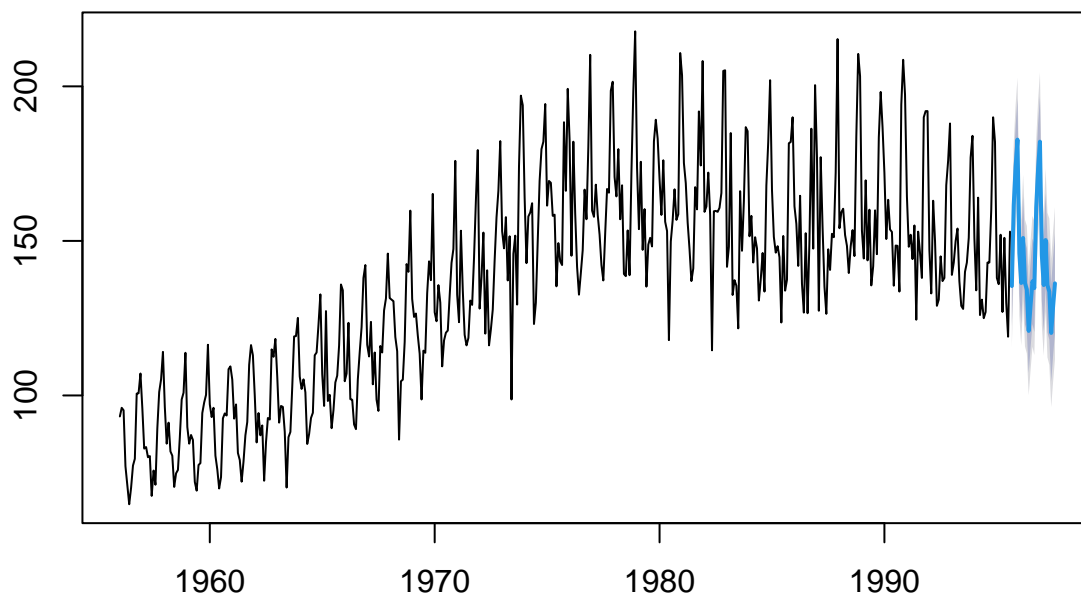


```
mean(abs(na.omit(holt_beer$residuals))/beerts)
```

```
## [1] 0.1135599
```

```
hw_beer <- hw(beerts)  
plot(hw_beer)
```

Forecasts from Holt–Winters' additive method



```
mean(abs(na.omit(hw_beer$residuals))/beerts)
```

```
## [1] 0.05449987
```