exper2.R

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```r
library(fpp2)
```

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

```
## -- Attaching packages ----------------------------------------- fpp2 2.4 --
```

```
## v ggplot2   3.3.3      v fma          2.4
## v forecast  8.14       v expsmooth  2.3
```

```
##
```

```r
library(forecast)
library(TSA)
```

```
## Registered S3 methods overwritten by 'TSA':
##    method          from
##    fitted.Arima  forecast
##    plot.Arima    forecast
```

```
##
## Attaching package: 'TSA'
```

```
## The following objects are masked from 'package:stats':
##
##      acf, arima
```

```
## The following object is masked from 'package:utils':
##
##      tar
```

```r
p.data <- read.table(file="./acc2",sep=" ",nrows=10000,header=TRUE)["accuracy"]
p <- ts(p.data)
m <- nls(p ~ I(c)-I(a)*exp(-I(b)*time(p)),
         start=list(b=.005,a=.05,c=.5),trace=T)
```

```
## 127.1264 :  0.005 0.050 0.500
## 49.52066 :  0.0004675976 0.0756290585 0.4739781405
## 13.16762 :  0.000648745 0.095839416 0.437967182
## 1.240864 :  0.0008555049 0.1258556655 0.4039533646
## 1.223941 :  0.0009174548 0.1324075122 0.4036481319
## 1.221905 :  0.0009438547 0.1339613096 0.4034222941
## 1.221522 :  0.0009555656 0.1345868821 0.4033194058
## 1.221448 :  0.0009607402 0.1348581767 0.4032729051
## 1.221434 :  0.0009630205 0.1349768914 0.4032522189
## 1.221432 :  0.0009640241 0.1350289847 0.4032430781
```

```
## 1.221431 :   0.0009644655 0.1350518698 0.4032390504
## 1.221431 :   0.0009646597 0.1350619282 0.4032372779
## 1.221431 :   0.0009647451 0.1350663500 0.4032364982
## 1.221431 :   0.0009647826 0.1350682942 0.4032361553
## 1.221431 :   0.0009647991 0.1350691488 0.4032360045
```

```
print(m)
```

```
## Nonlinear regression model
##   model: p ~ I(c) - I(a) * exp(-I(b) * time(p))
##    data: parent.frame()
##         b         a         c
## 0.0009648 0.1350691 0.4032360
##   residual sum-of-squares: 1.221
##
## Number of iterations to convergence: 14
## Achieved convergence tolerance: 8.991e-06
```

```
r.abs <- abs(resid(m))
plot(r.abs)
```
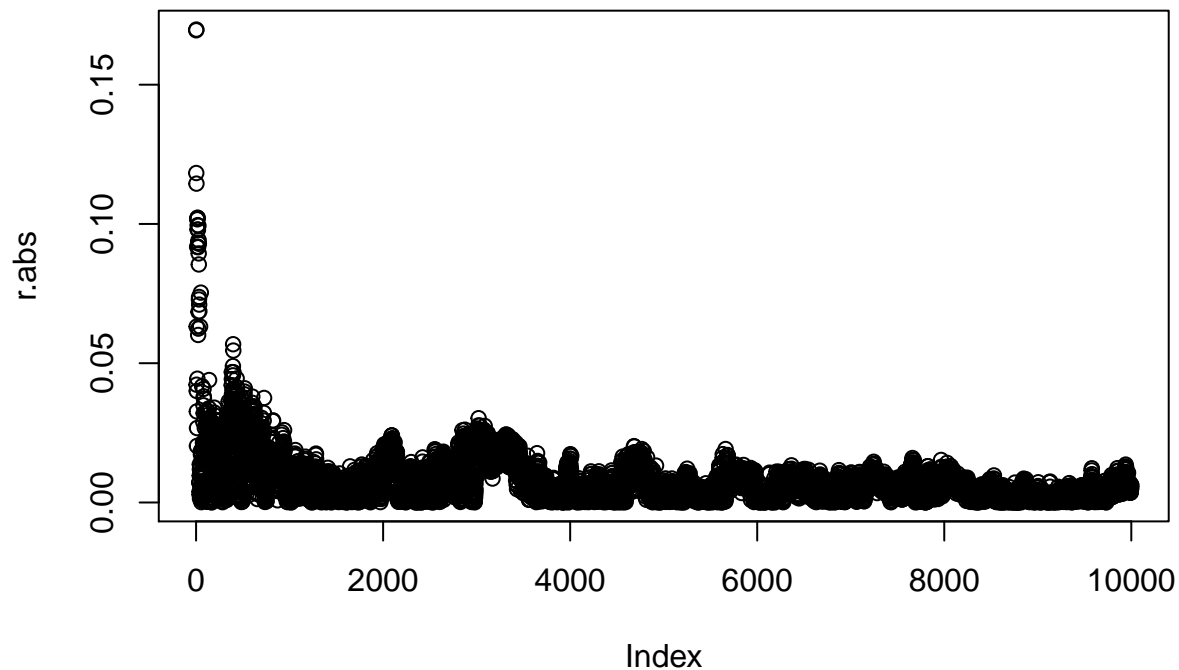


```
r.fit <- lm(r.abs ~ fitted(m))

fit_fn <- function(t)
{
  a <- coef(md)["a"]
  b <- coef(md)["b"]
  c <- coef(md)["c"]
  c - a * exp(-b*t)
}
```