

STA457PS1

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R Markdown

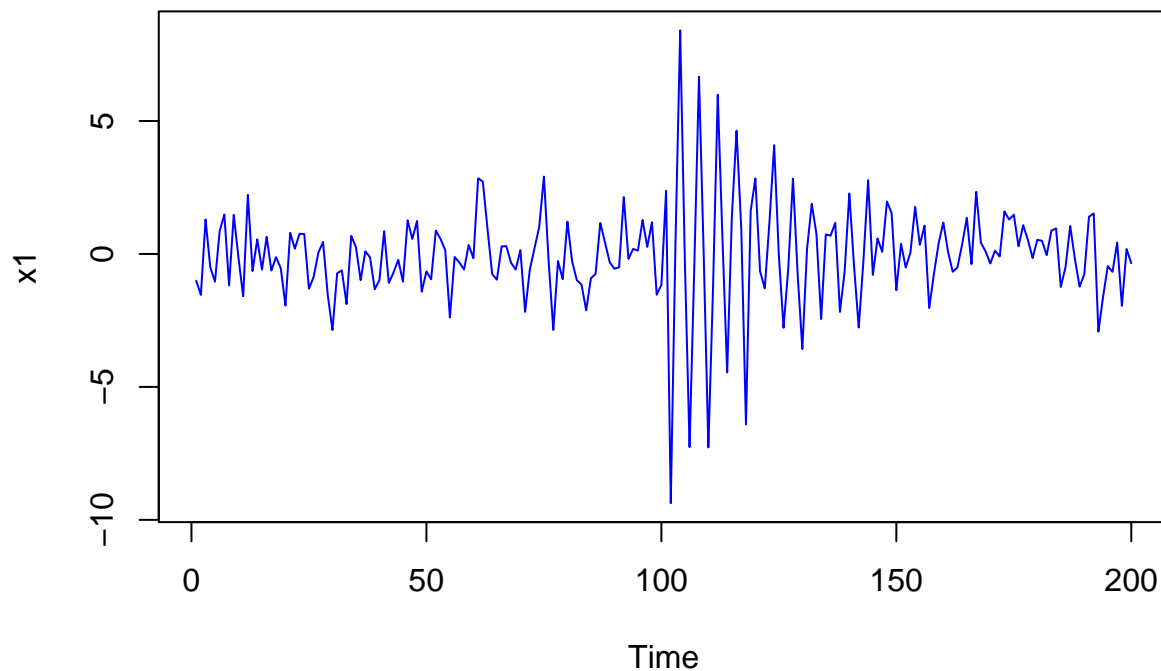
This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
set.seed(457)
#set a seed number
s1=c(rep(0,100), 10*exp(-(1:100)/20)*cos(2*pi*(1:100)/4))

# generate s1 as required
x1=ts(s1+rnorm(200))
# generate x1 based on s1
plot.ts(x1,main="plot on Q1",col="blue",ylab="x1")
```

plot on Q1



```
#plot x1
```

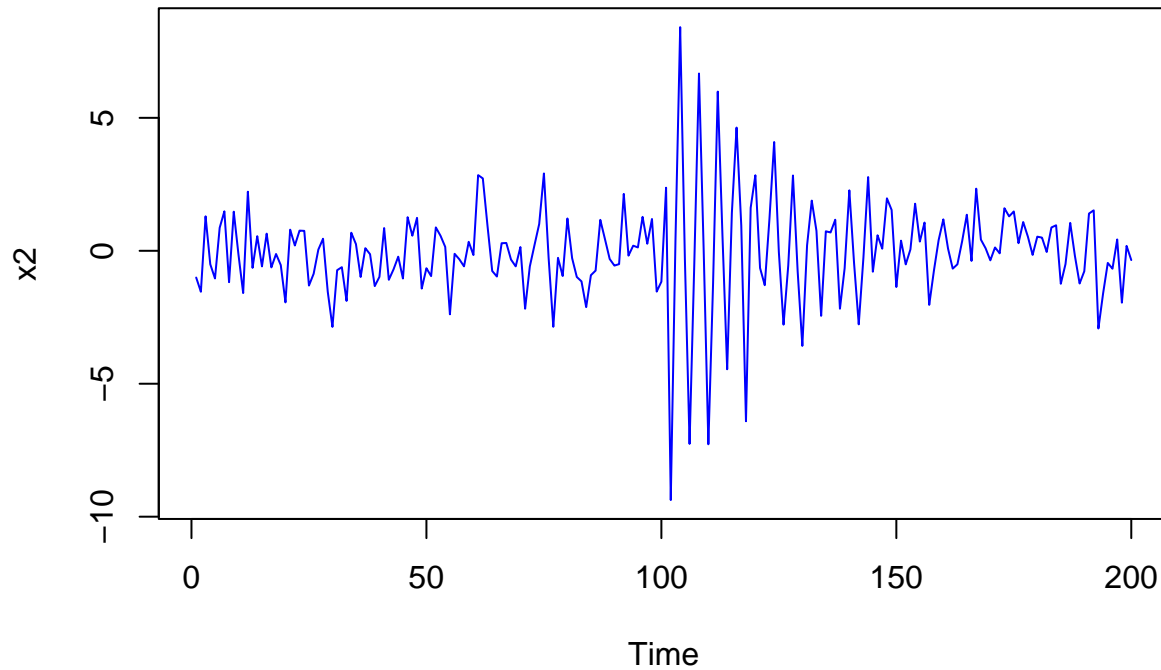
```

set.seed(457)
s2=c(rep(0,100), 10*exp(-(1:100)/200)*cos(2*pi*(1:100)/4))
#generate s2

x2=ts(s1+rnorm(200))
# generate x2
plot.ts(x2,main="plot on Q2",col="blue",ylab="x2")

```

plot on Q2



```

# plot against x2

```

```

#Q3

```

#The 2 graphs looks similar in the behavior. They were both oscillating around a fixed range from -3 to

```

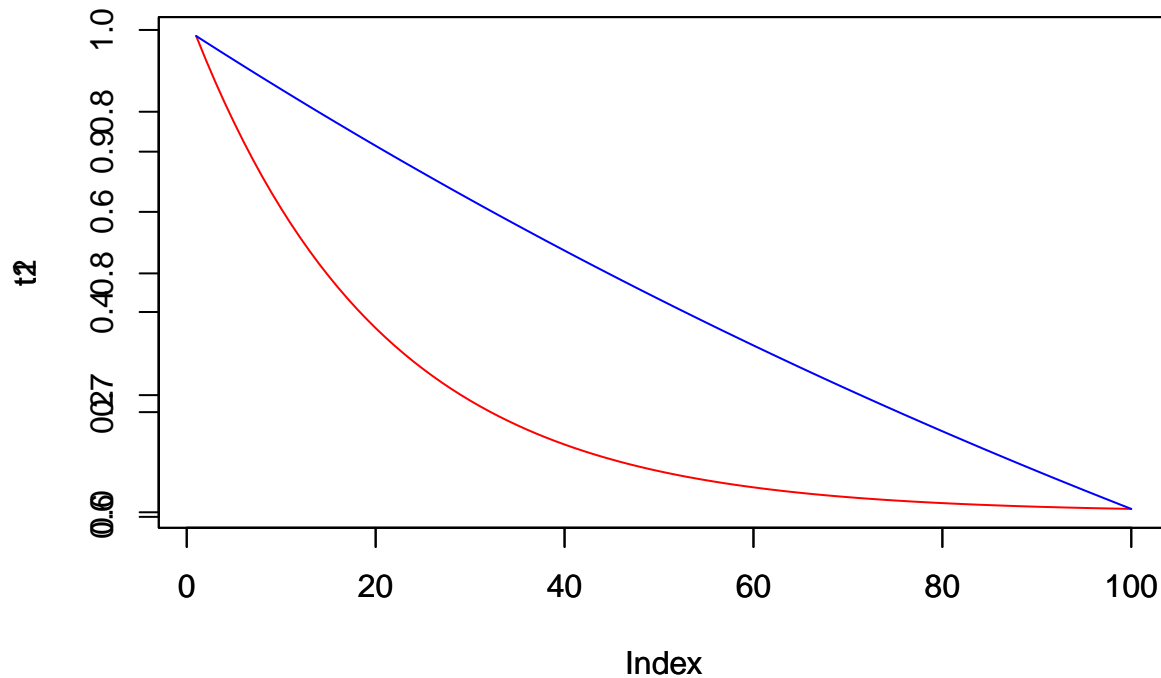
#Q4

```

```

t1=c(exp(-(1:100)/20))
t2=c(exp(-(1:100)/200))
plot(t1,type="l",col="red")
par(new=TRUE)
plot(t2,type="l",col="blue")

```

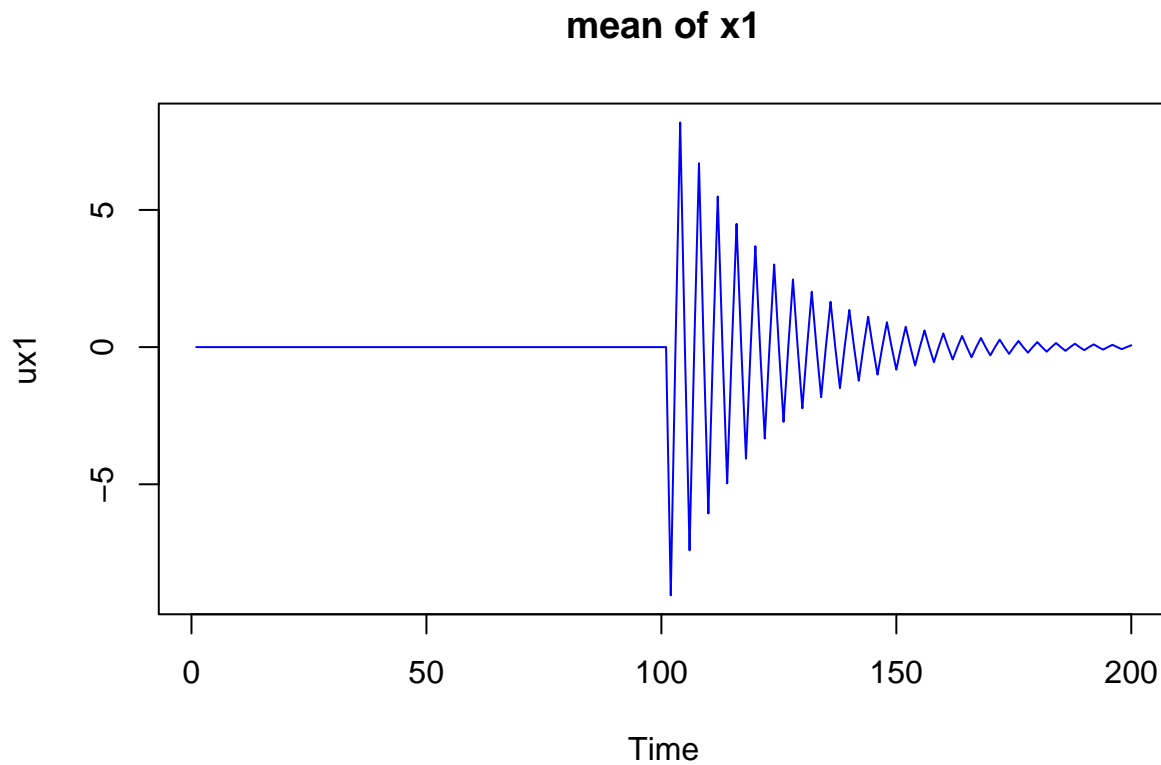


For

comparison, t_1 tends to be more flat while t_2 tends to be more like a straight line.

```
#Q5
set.seed(457)
#set a seed number
ux1=c(rep(0,100), 10*exp(-(1:100)/20)*cos(2*pi*(1:100)/4))

# calculate mean of x1
plot.ts(ux1,main="mean of x1",col="blue",ylab="ux1")
```



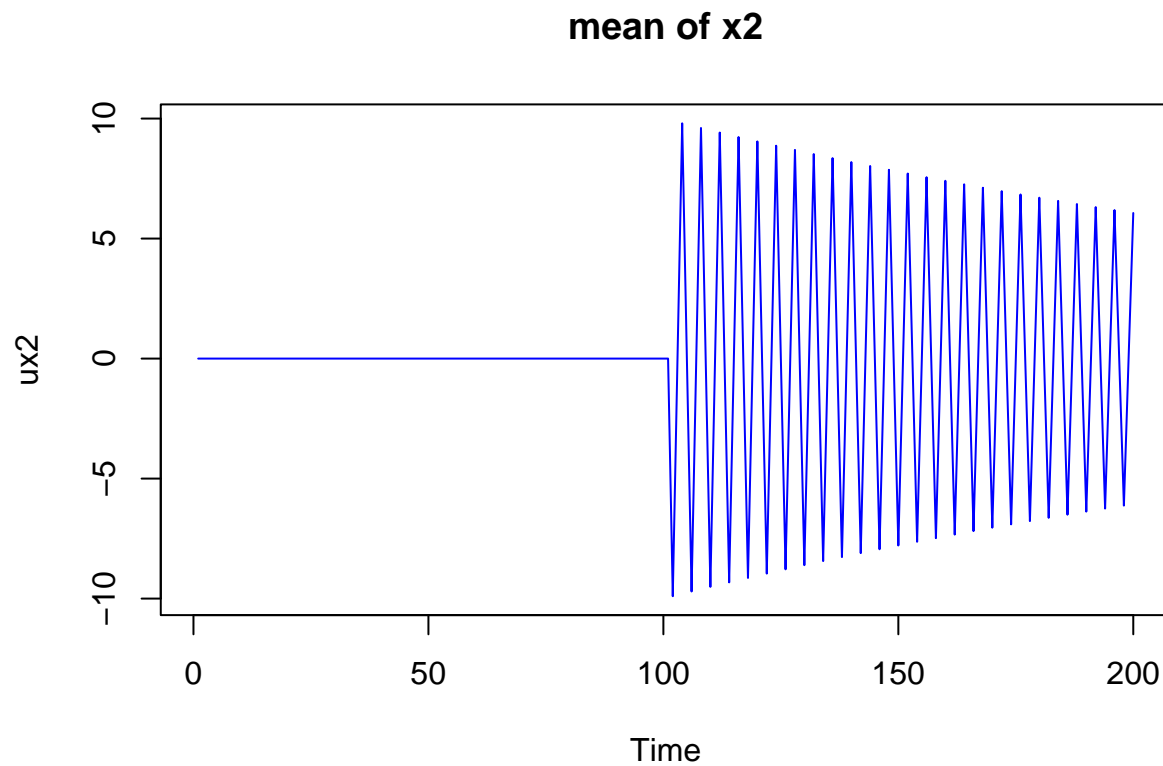
```

#plot mean of x1

#Q5
set.seed(457)
#set a seed number
ux2=c(rep(0,100), 10*exp(-(1:100)/200)*cos(2*pi*(1:100)/4))

# calculate mean of x2
plot.ts(ux2,main="mean of x2",col="blue",ylab="ux2")

```



```

#plot mean of x1

```