Lab4_Report

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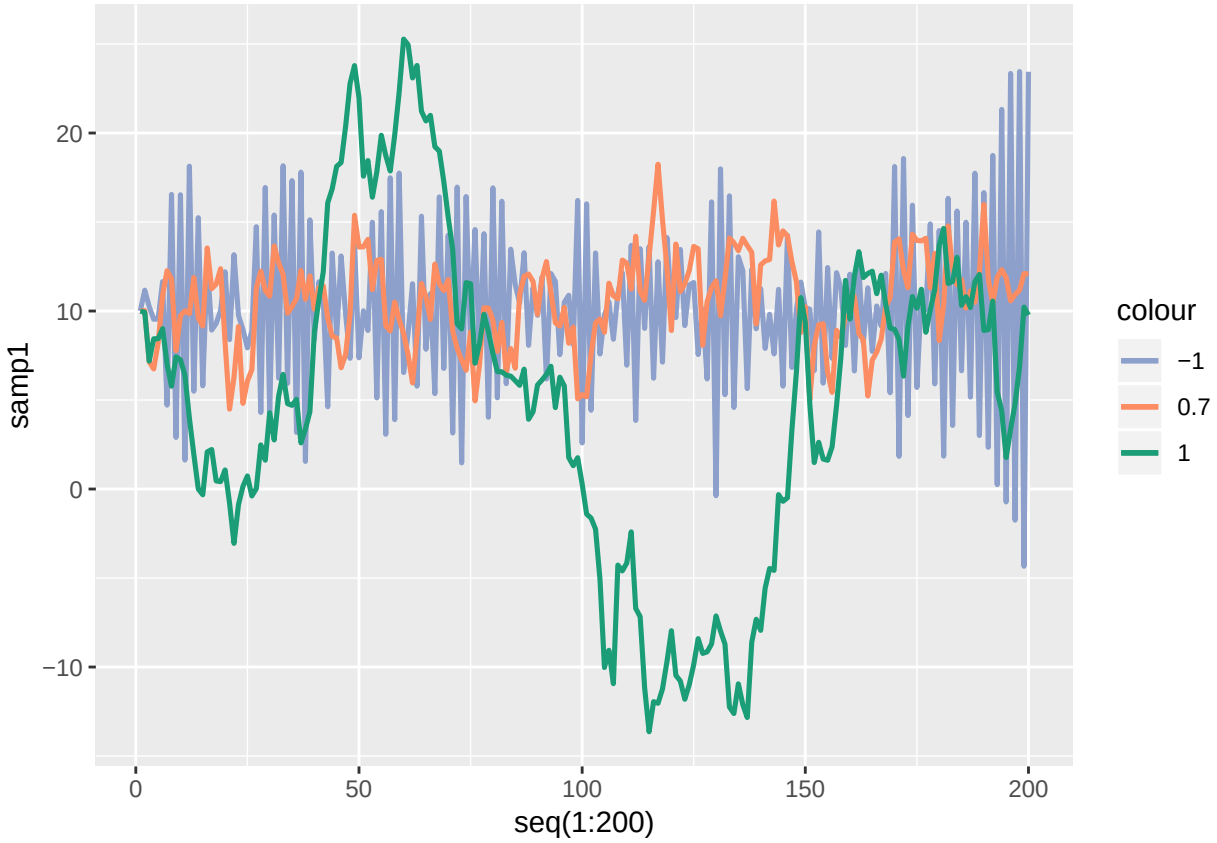
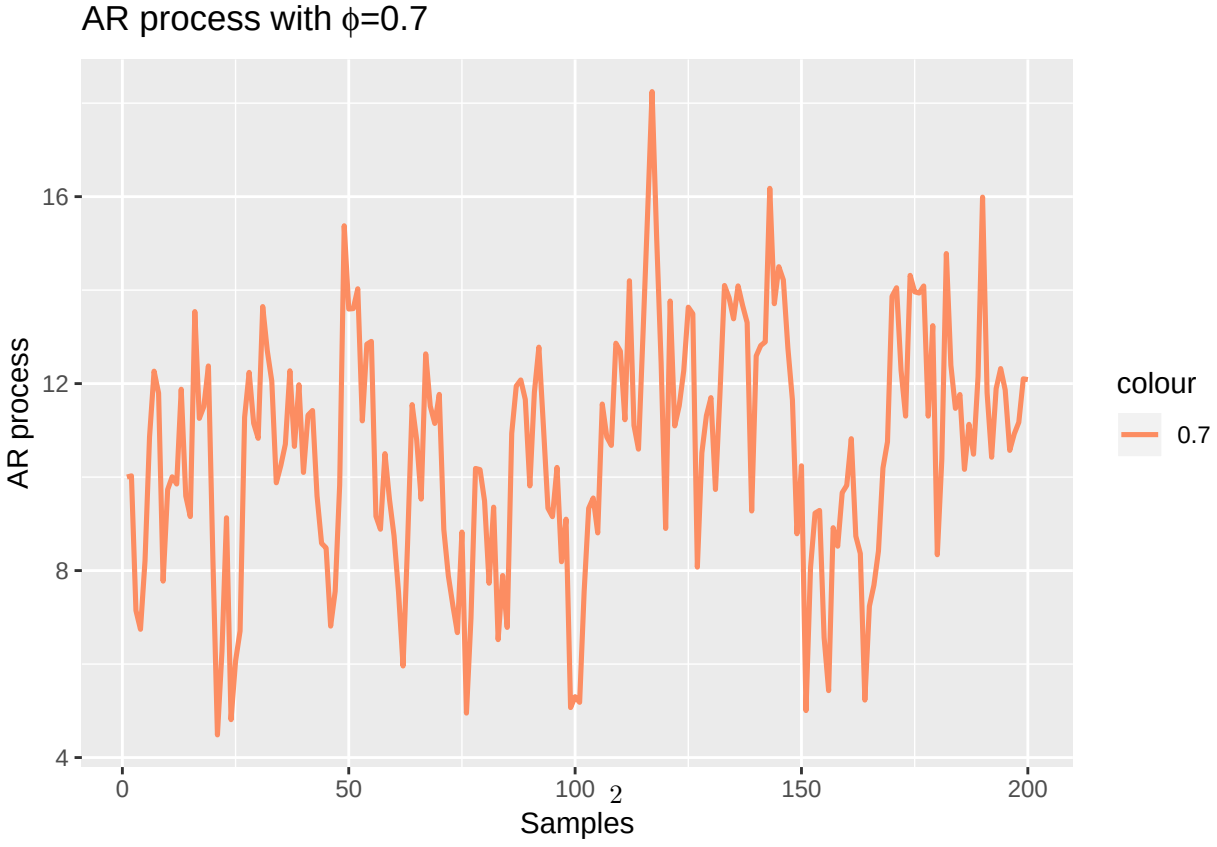
Question 1A : Write a function in R that simulates data from the AR(1)-process

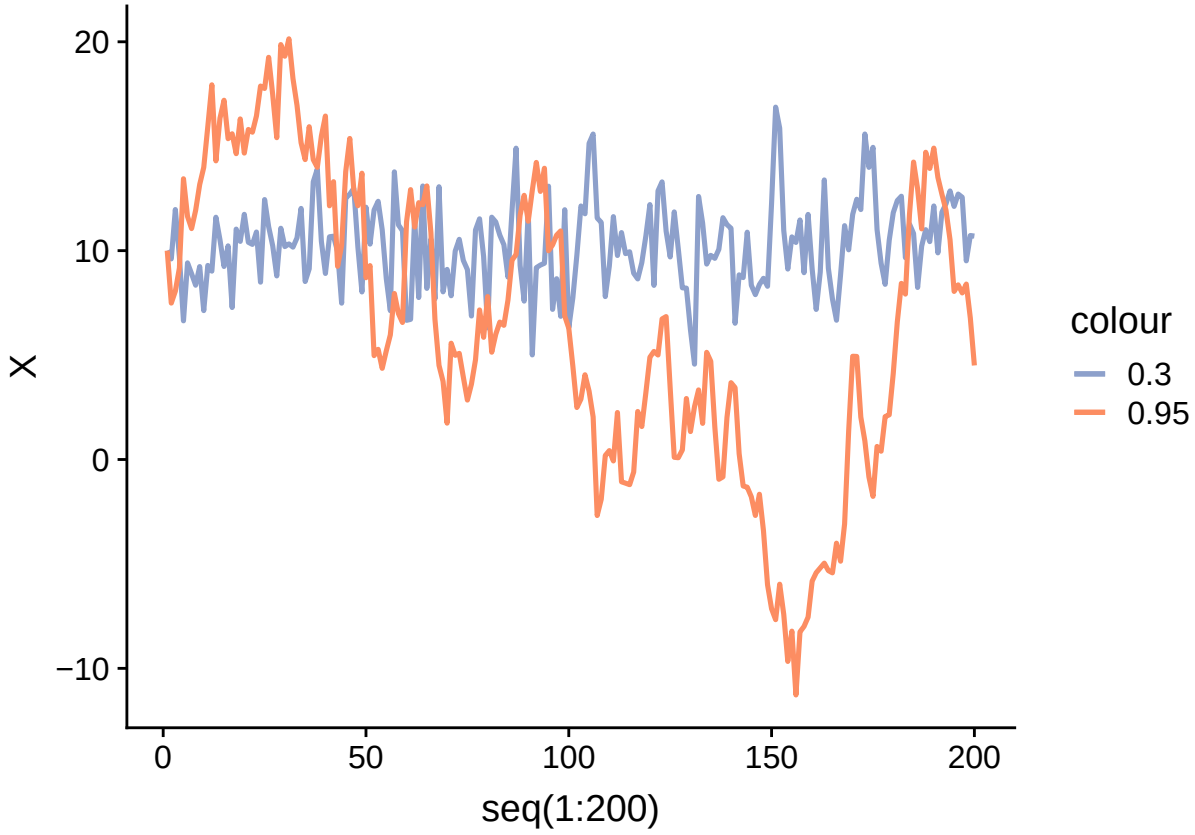




Question 1B :

Compiling the model and generating data required

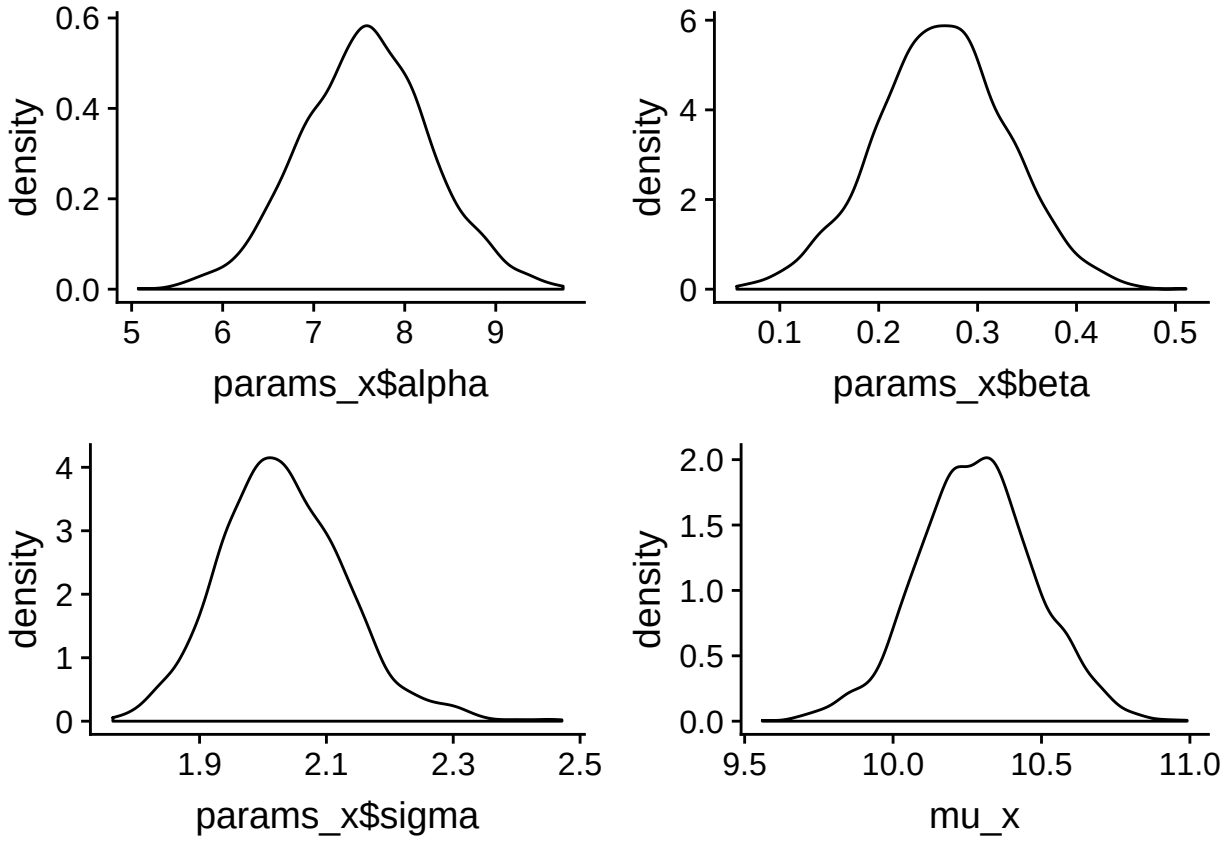
```
##           X         Y
## 1 10.000000 10.000000
## 2  9.604142  7.487759
## 3 11.968647  8.060511
## 4  9.707119  9.166665
## 5  6.638878 13.442361
## 6  9.414788 11.635259
```



Summary from model fit on data X

```
## [1] "95% confidence interval for MU"
```

```
##     2.5%    97.5%
##  9.87056 10.67337
```



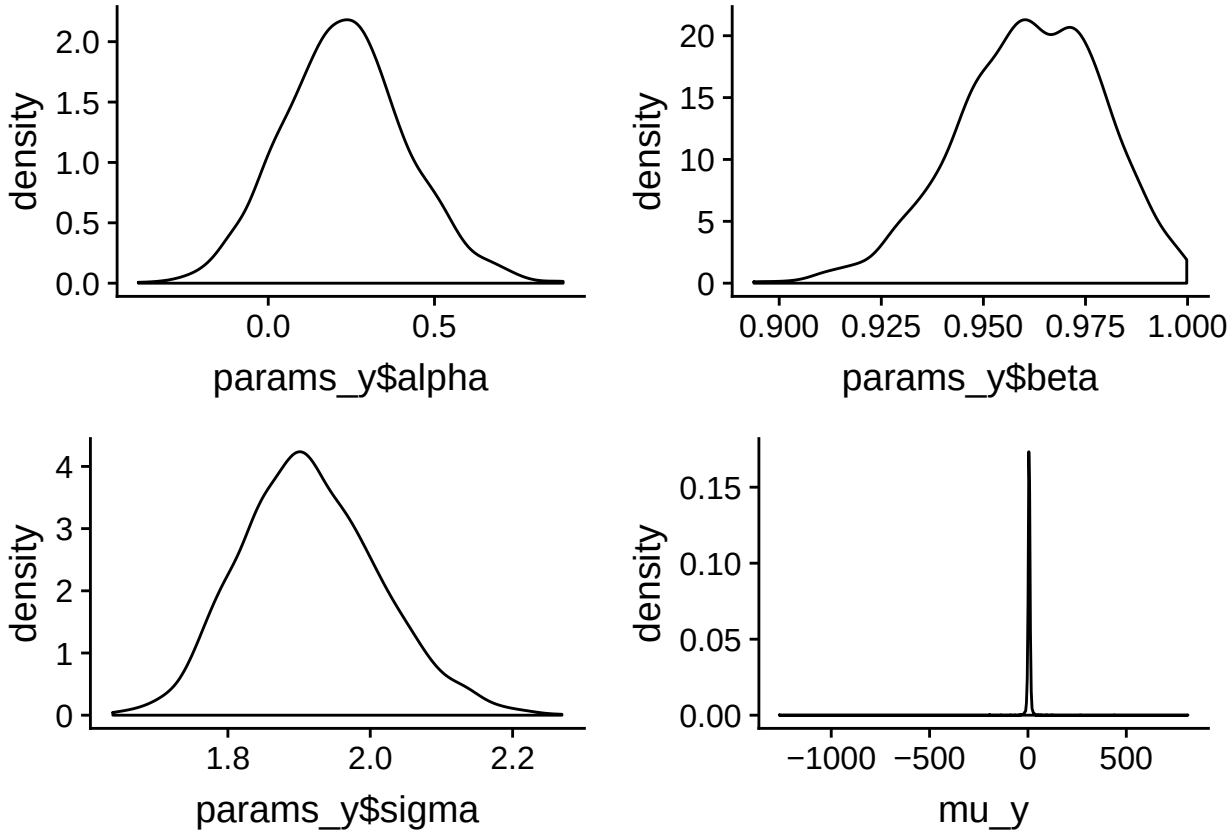

```
## [1] "95% confidence intervals for alpha, beta, sigma"
```

```
##         mean   2.5%  97.5%
## alpha 7.5703 6.1794 8.9906
## beta  0.2637 0.1315 0.3959
## sigma 2.0317 1.8470 2.2522
```

Summary from model fit on data Y

```
## [1] "95% confidence interval for MU"
```

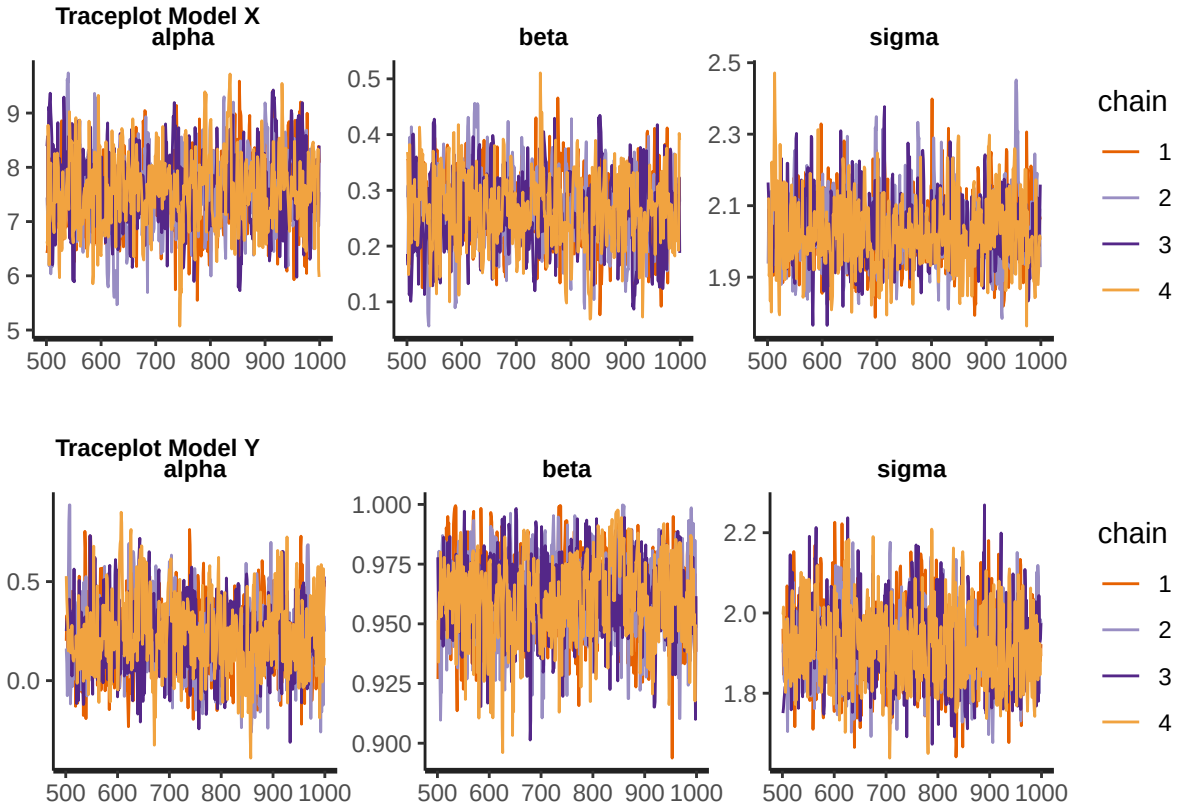
```
##     2.5%    97.5%
## -6.99199 18.10410
```




```
## [1] "95% confidence intervals for alpha, beta, sigma"
```

```
##         mean    2.5%  97.5%
## alpha 0.2309 -0.1161 0.6145
## beta  0.9614  0.9255 0.9931
## sigma 1.9156  1.7442 2.1231
```

Traceplots for the fit models

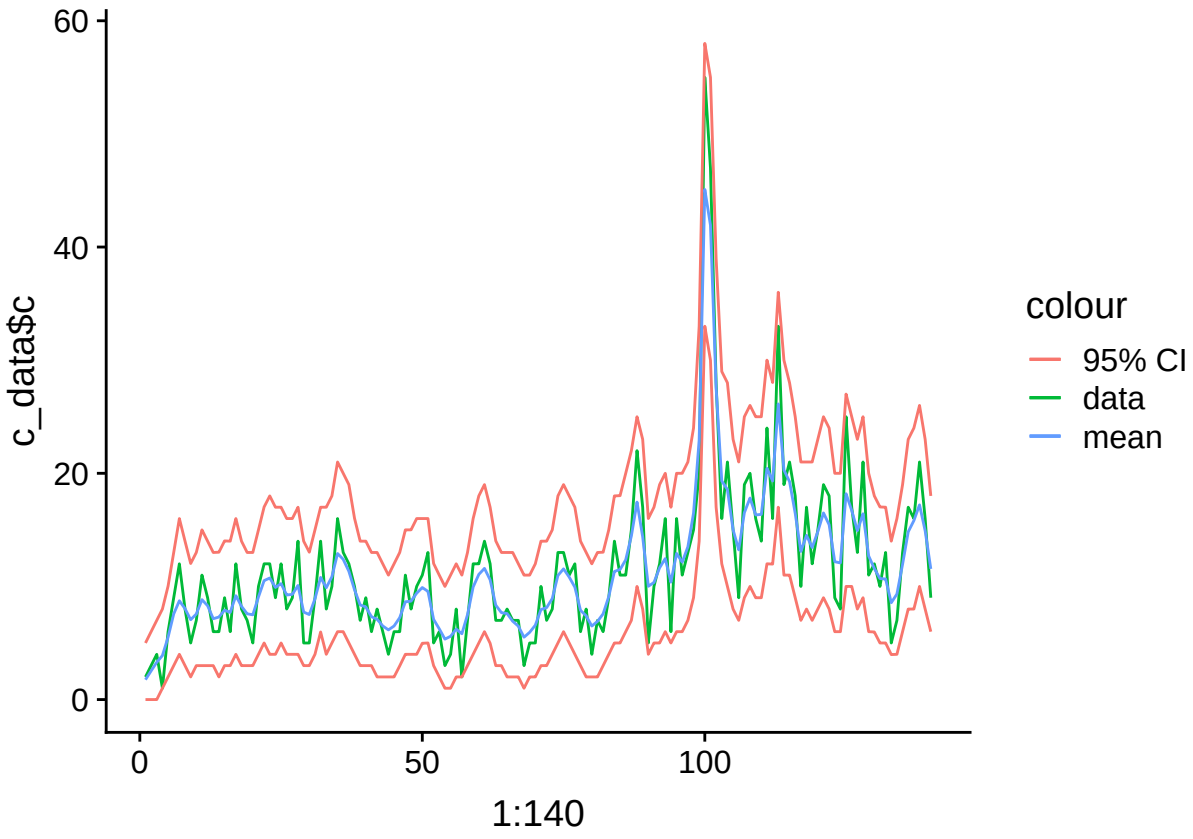


Question 1C :

Read data and compile model

Fitting the model on the data

Summary from the model fit on campy data

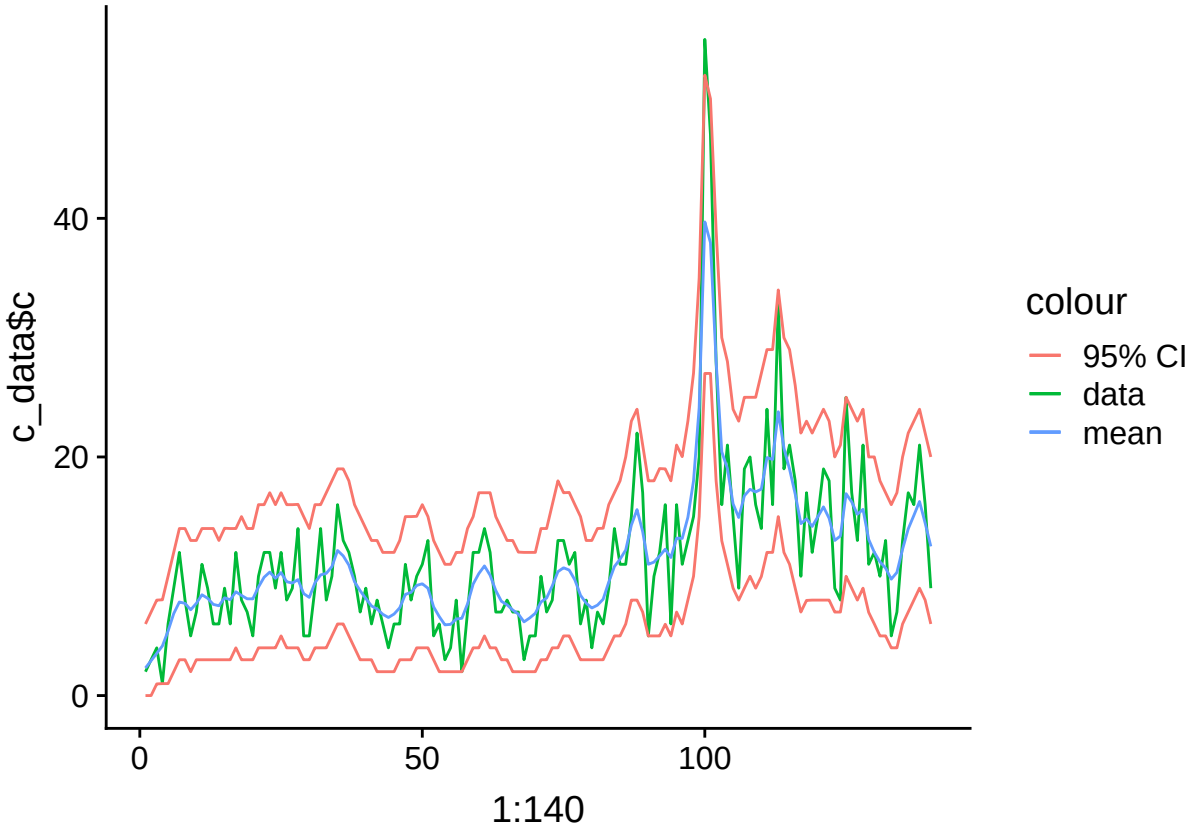


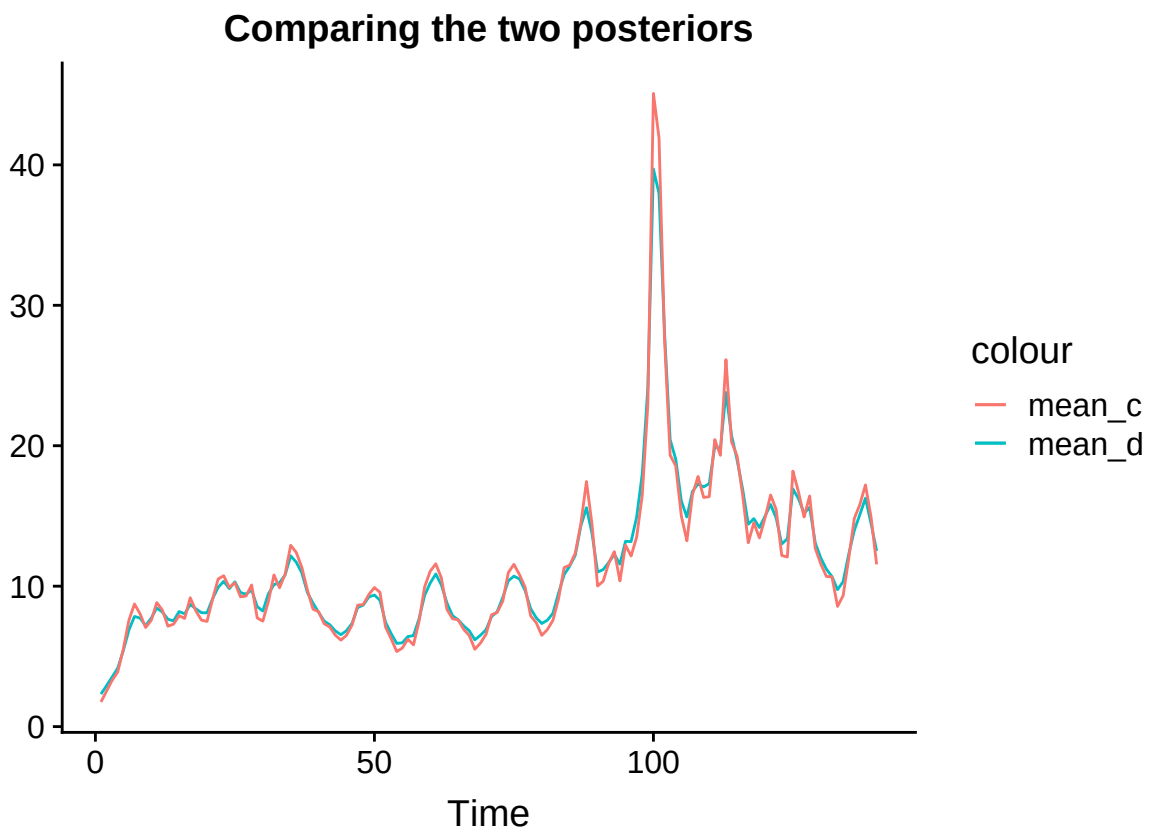
Question 1D :

Compile Model

Fit model on data

Summary from fitted model


c_data$c
40
20
0
0
50
100
1:140
colour
95% CI
data
mean


Comparing the two posteriors
40
30
20
10
0
0
50
100
Time
colour
mean_c
mean_d