Assignment 2

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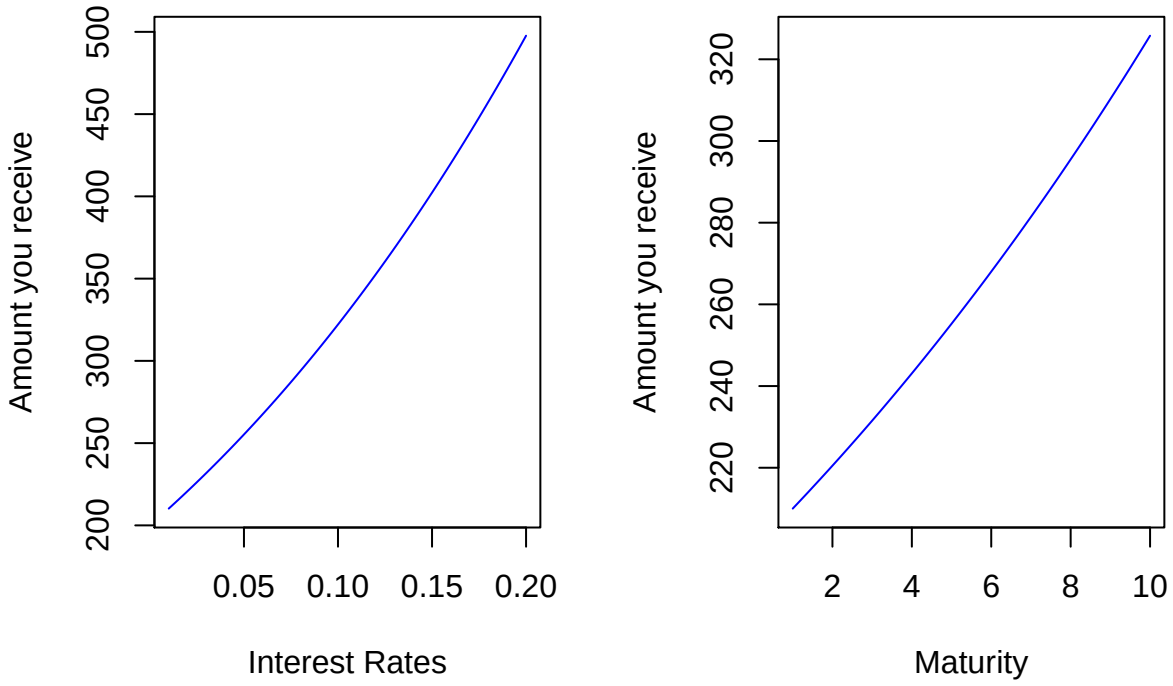


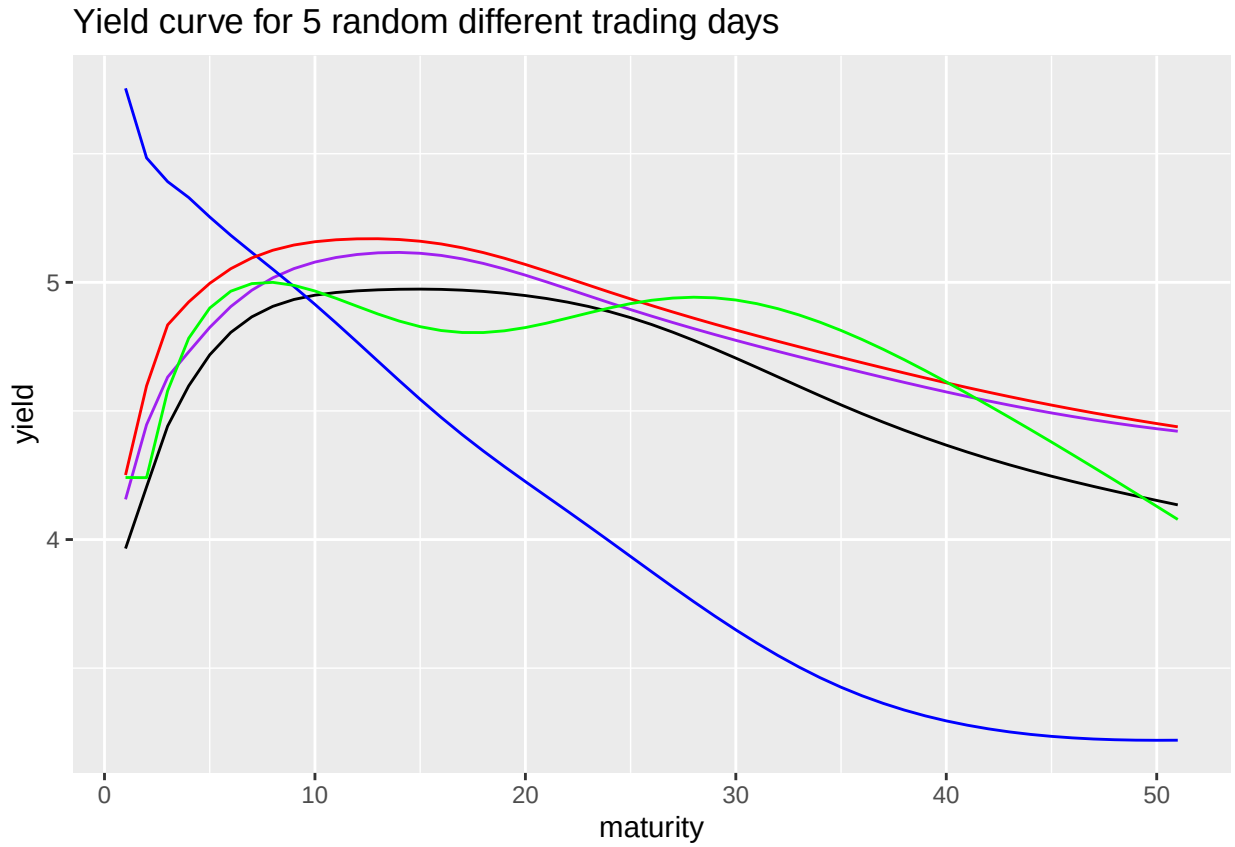
the data set

```
## [1] 1264   51
```

1

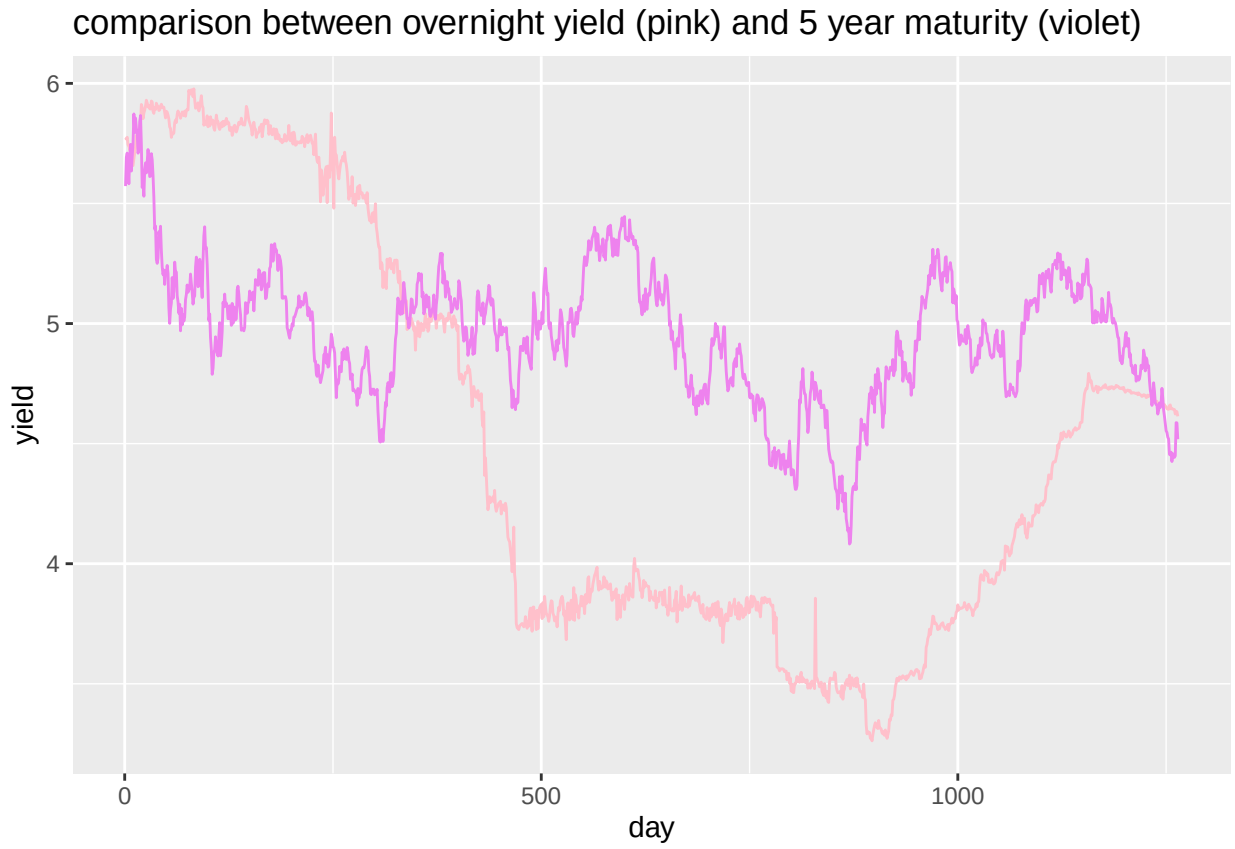
Make a plot with the yield curve for 5 different trading days.

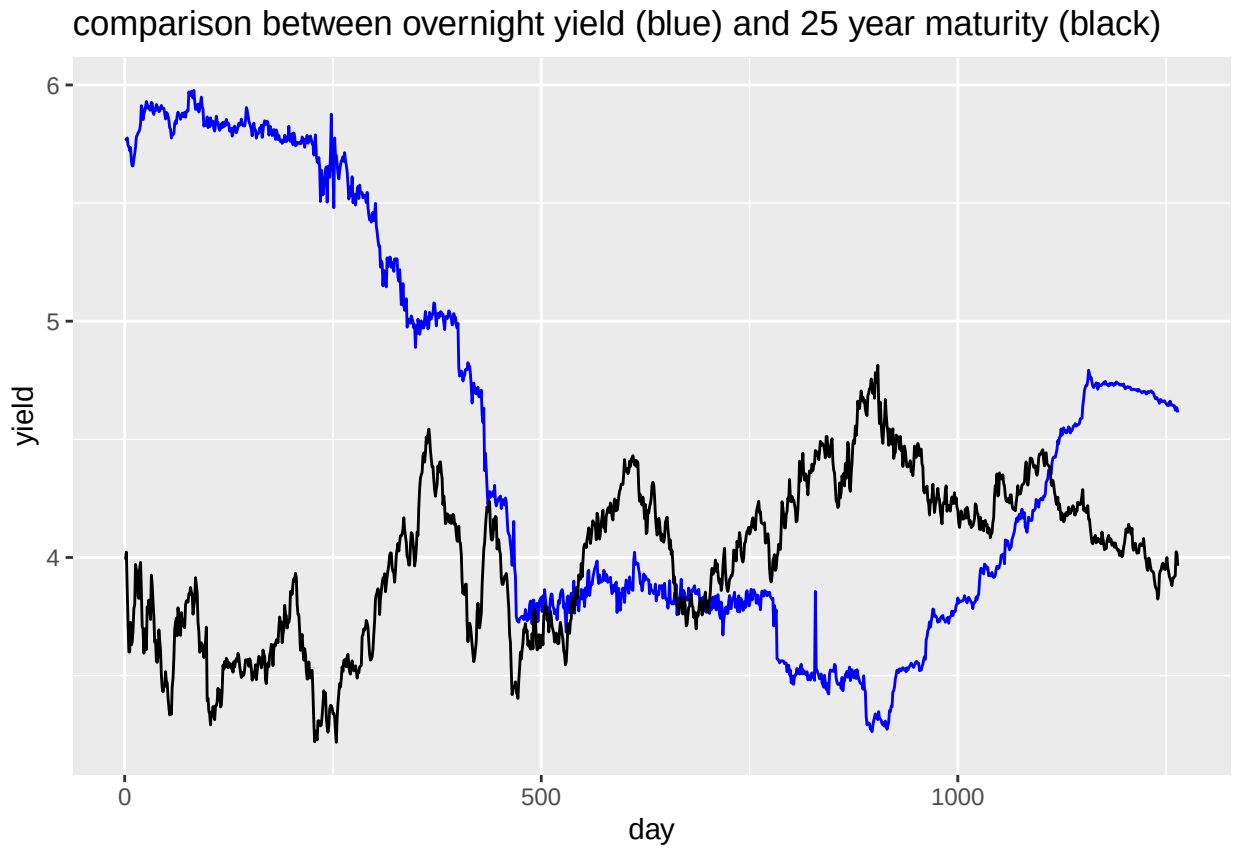
```
## Warning: package 'ggplot2' was built under R version 4.0.5
```


Yield curve for 5 random different trading days
yield
5
4
0
10
20
30
40
50
maturity

2

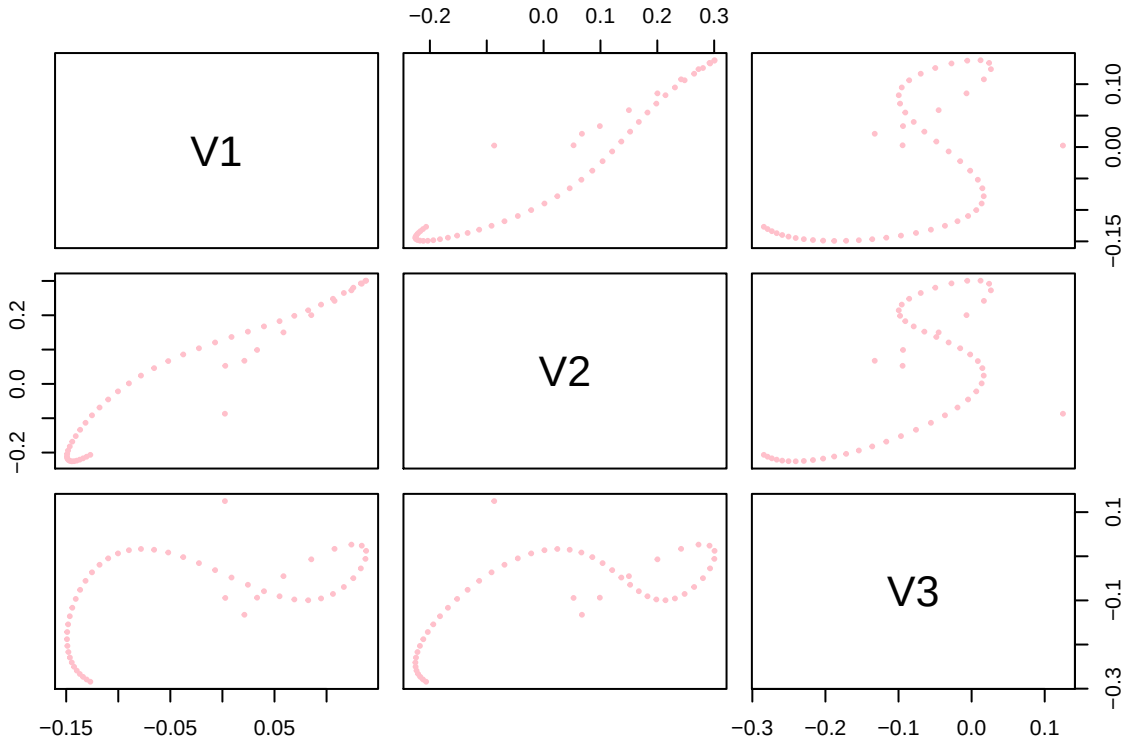
Make a plot with the overnight yield over time. Add another maturity to this plot. What do you see?





3

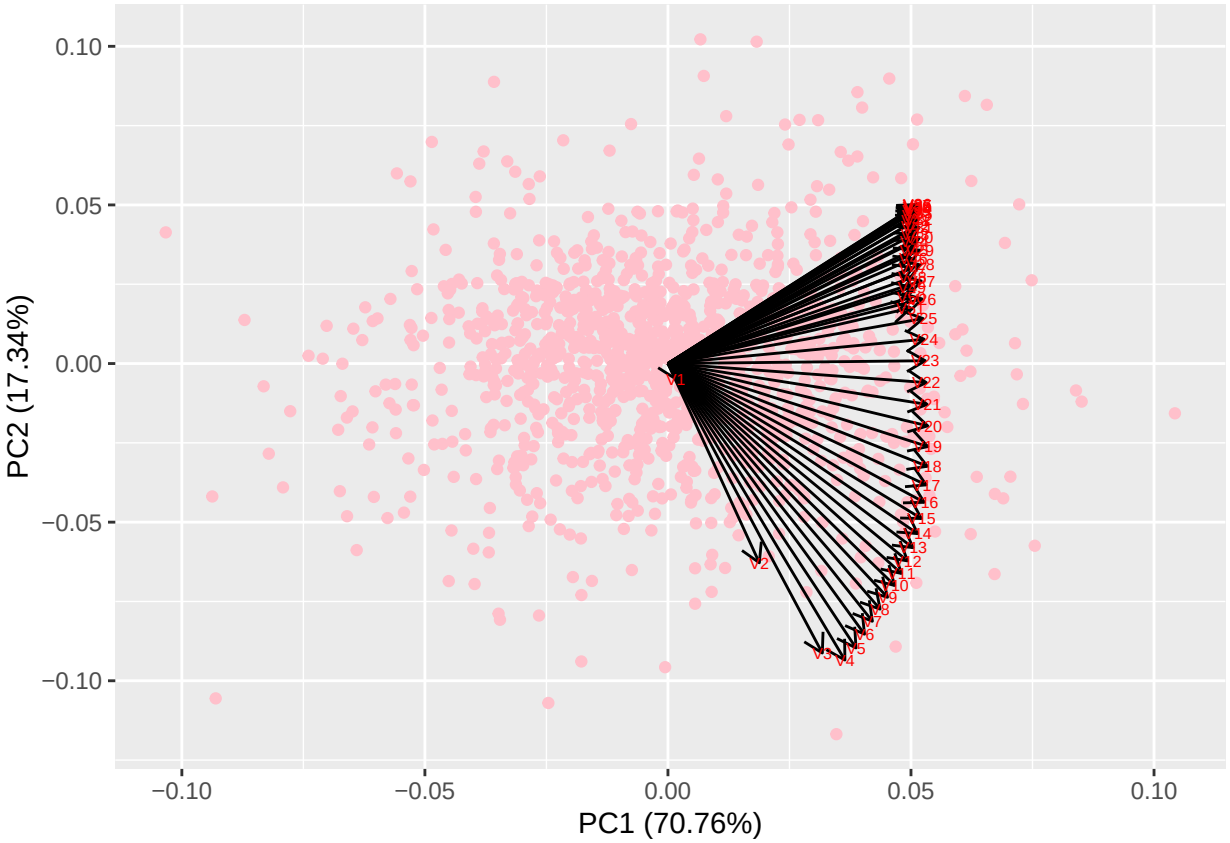
Investigate the dependencies between the yield changed for different maturities. Visualize the dependence of the change in the one year, 5 year and 10 year yield with yield changes in the other maturities.

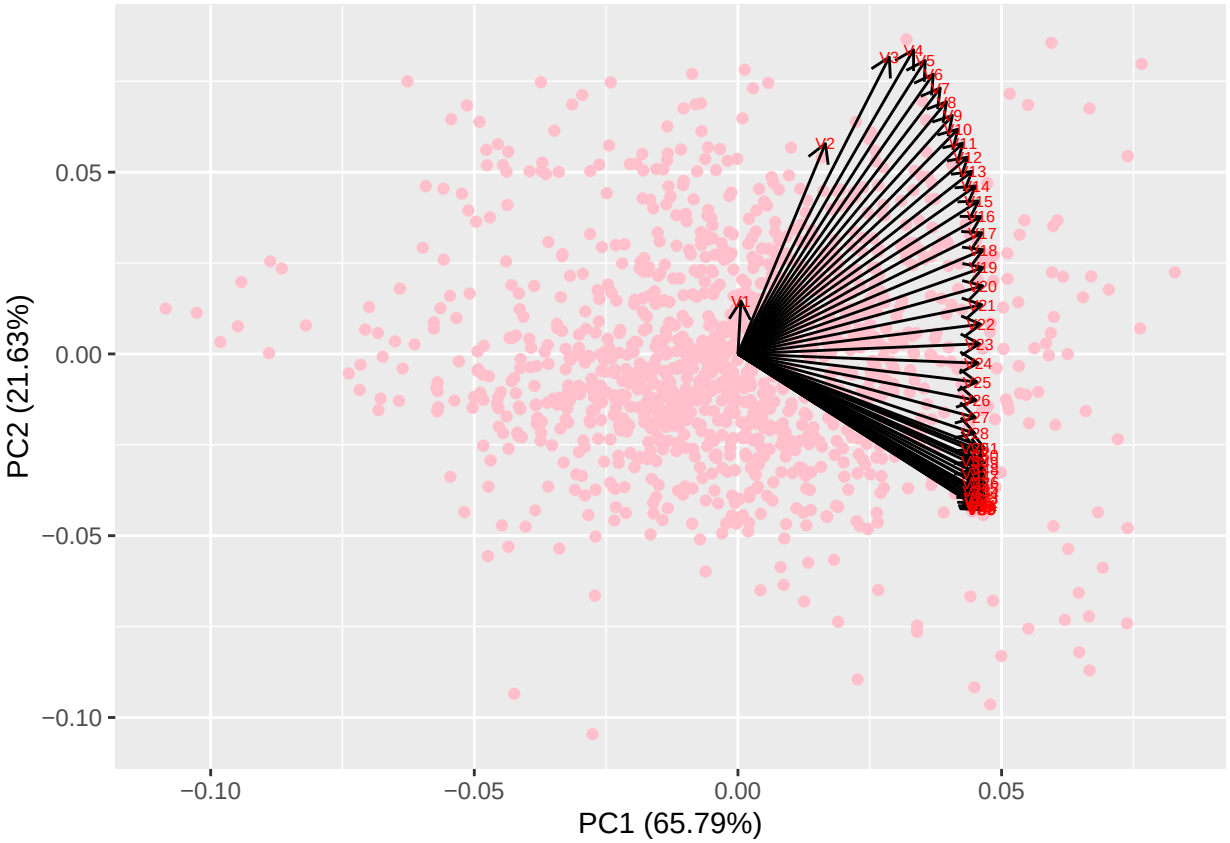


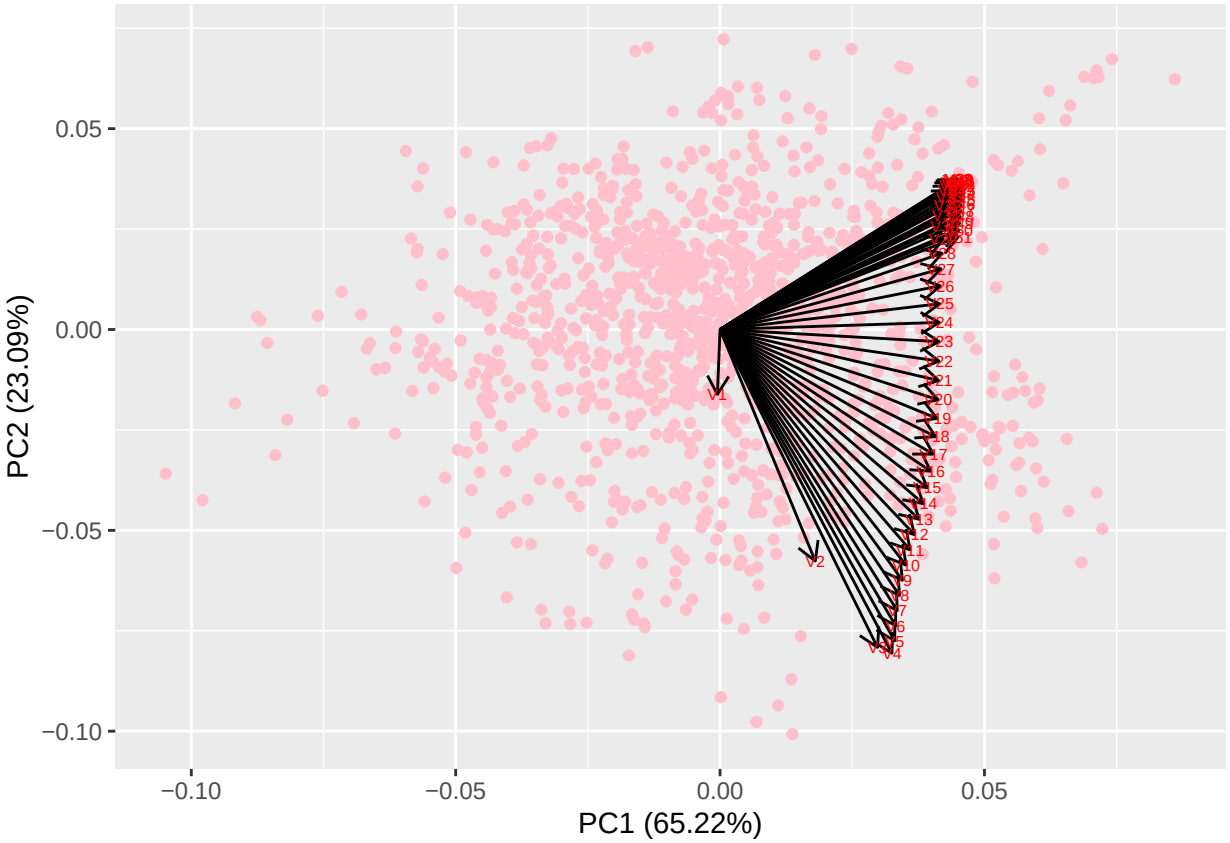
4

Perform a principal component analysis for the changes in the yield curve. Explain why, in this particular case, there is no need to standardize the data. Hint: Useful plots are a biplot, a plot of the important PCs in function of the original variables. Tables showing the variance explained can help you to determine the number of principal components.

```
## Warning: package 'ggfortify' was built under R version 4.0.5
```


0.10
0.05
0.00
−0.05
−0.10
PC2 (17.34%)
−0.10
−0.05
0.00
0.05
0.10
PC1 (70.76%)


0.05
0.00
−0.05
−0.10
PC2 (21.63%)
−0.10
−0.05
0.00
0.05
PC1 (65.79%)



5

Use the principal component analysis to explain the changes in the yield curve over time.