

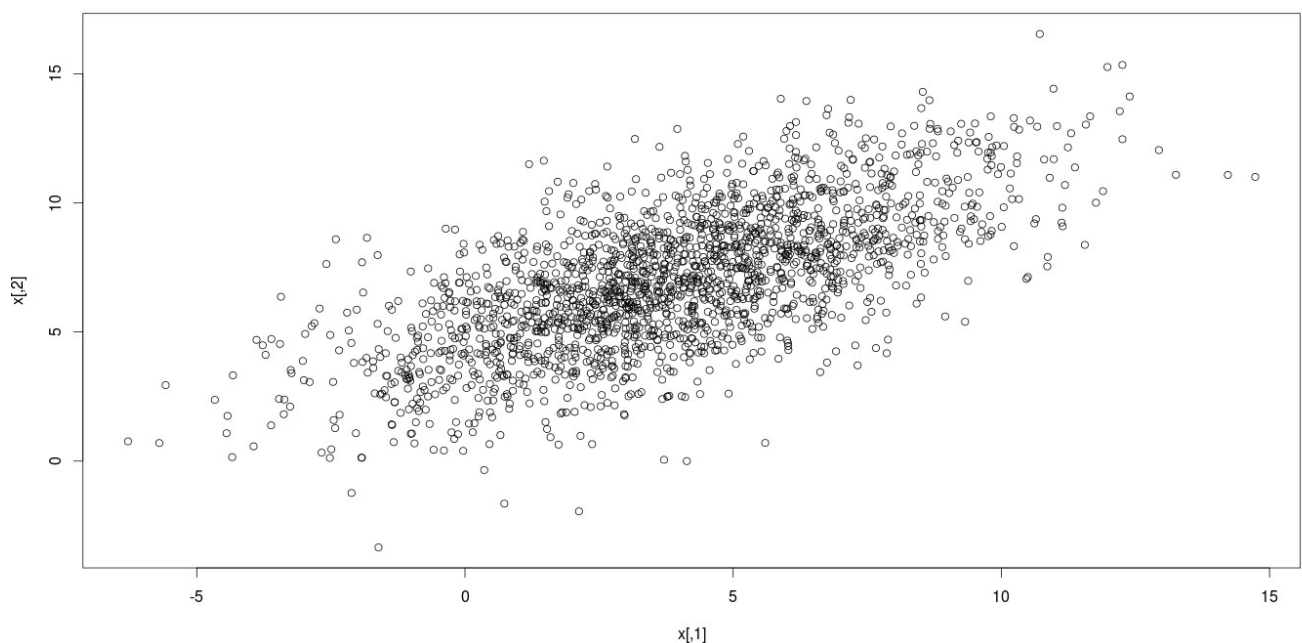
MS-E2112 - Multivariate statistical analysis - Home exercise 2

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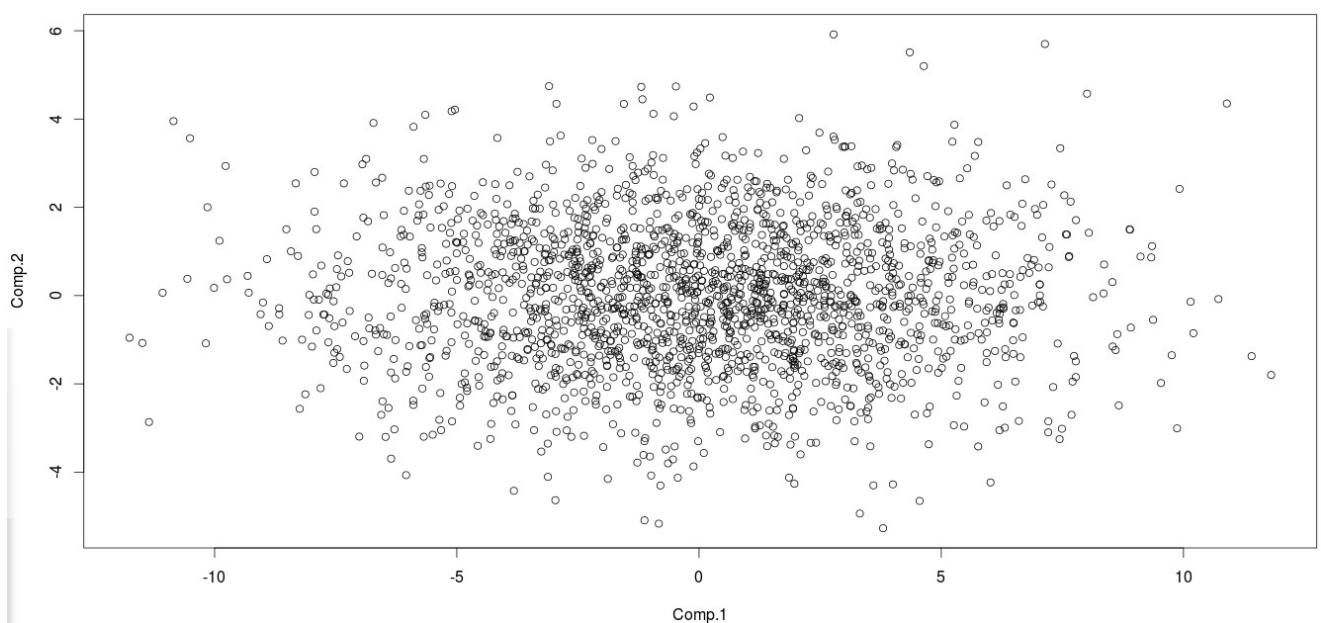
Problem 1

- a) Using the **mvtnorm** package the 2000 observations were sampled with the mean and covariance provided. The plot of the data is given below.



- b) The **princomp** function was used with “corr = F” to get the covariance PCA transformation of the data

- c) The plot of the transformed data is given below.



d) The observations we can make from the transformed data is that :

1. The axes of the data is changed.
2. The transformation has made the data zero mean.

The inferences that can be made are :

1. The direction of the data is the first principal component of the covariance matrix of the data.
2. The direction has been chosen which gives the maximum variance of the data. In other words, this direction gives maximum information.

e) The direction of first principal component of the data is given below.

