1. Follow the R codes to explain how to conduct multivariate normal test.
2. Testing using T^2 statistic

5.11 Test $H_0: \boldsymbol{\mu}' = (6, 11)$ using the data

$$\mathbf{Y} = \begin{pmatrix} 3 & 10 \\ 6 & 12 \\ 5 & 14 \\ 10 & 9 \end{pmatrix}.$$

Please work on this problem by hands (except that you can compute the sample covariance matrix using R or your calculator)

3. Real example on datasets (nutrient.txt as attached): background: the real dataset collects different intakes of nutritions for a sequence of women. Here is the recommend intake

Variable	Recommended Intake (μ_o)
Calcium	1000 mg
Iron	15mg
Protein	60g
Vitamin A	800 µg
Vitamin C	75 mg

Based on the analysis, check whether women meet the requirements.