

(Part II) Lab-session 8

- 1) Write a VBA code which computes the determinant of a (3×3) -matrix.
- Write the code in such a way that the matrix is read into the VBA code by assigning the values of a (3×3) -field on the Excel spreadsheet to an array variable in the code.
 - Compute the determinant and return the result to some cells on the Excel spreadsheet. (or alternatively as some MsgBox)
 - Verify your code for the matrices

$$A = \begin{pmatrix} 6 & 7 & 1 \\ 11 & 9 & 2 \\ 4 & 10 & 3 \end{pmatrix} \quad \text{and} \quad B = \begin{pmatrix} 3 & 2 & 12 \\ 6 & 1 & 5 \\ 8 & 9 & 5 \end{pmatrix}$$

You should obtain $\det A = -59$ and $\det B = 452$.

- 2) Write a VBA code which computes the transpose of a (3×3) -matrix.
- Write the code in such a way that the matrix is read into the VBA code by assigning the values of a (3×3) -field on the Excel spreadsheet to an array variable in the code.
 - Compute the transpose and return the result to some cells on the Excel spreadsheet.
 - Verify your code for the matrices A and B of task 1.
- 3) Write a VBA code which computes the product of two (3×3) -matrices.
- Write the code in such a way that the matrices are read into the VBA code by assigning the values of (3×3) -fields on the Excel spreadsheet to array variables in the code.
 - Compute the product and return the result to some cells on the Excel spreadsheet.
 - Test your code by multiplying the matrices A and B of task 1 and verify the result by using the Excel array function MMULT.
- 4) Write a VBA code which searches certain entries, say a string, on the Excel spreadsheet and returns the column and row where this string is situated.
- Write the code in such a way that all cells which are supposed to be searched are read into a VBA code by assigning the values on the Excel spreadsheet to array variables in the code. Search here the cells "A1:Z30" for the string "City".
 - If the string "City" is found return the column and row to the Excel spreadsheet otherwise return "Can not find City on the worksheet."