SESSION 2: CONTROL STRUCTURES. SELECTION

GOAL:

Practice with the selection control structures ***if-else*** and ***switch***.

EXERCISE:

Given two integers (i,j) representing a position in a matrix of dimension nxm, (n and m greater than or equal to two),

- Decide whether the position (i,j) represents a cell on the border of the matrix. Print a 1 if it is in the top border; 2 if it is in the bottom border; 3 if it is in the left border; 4 if it is in the right border; and 0 if it is not in the border.
- Decide if the position is in a corner by printing a 13 if it is in the top left corner, a 14 if it is in the top right corner; a 23 if it is in the bottom left corner and a 24 if it is in the bottom right corner.

Considerations:

- The integers n and m must be read from the keyboard and must be greater than or equal to 2. If either does not meet the condition, the program will terminate.
- The integers i, j must be read from the keyboard. If i is outside the range [1,n] or j is outside the range [1,m] the program will terminate.
- Use if-else statements.

Version 2 of the program:

- Use, where possible, switch statements, and print the string "in top border" instead of a 1; "in bottom border" instead of a 2; and so on.
- The dimension of the matrix is given by two **constants**: n=4 and m=5.

In addition, the program must be properly documented, including representative names for the defined variables, and the interaction with the user must be properly explained.

EXAMPLES OF EXECUTION:

- *In the case that for n, m, i and j the user chooses the values 4, 6, 1 and 6 respectively, a possible execution of the program would be the following:*

```
Introduce the number of rows for the matrix: 4
Introduce the number of columns for the matrix: 6
Introduce the row for the position: 1
Introduce the column for the position: 6
The position is in 14
End of the program...
```

- *Version 2 of the program, for values i =3 and j=5*

```
The matrix has 4 rows and 5 columns
Introduce the row for the position: 3
Introduce the column for the position: 5
The position is in right border
End of the program...
```