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Instituto Exemplo
Curso Exemplo
Disciplina: Disciplina Exemplo
Prof.: Francisco Zampirolli
Turma: CE-teste **Sala:** 123
Exame: Exam Test **Data:** 05-09-2019

Ass.: _____
Estudante: ACOLON CAPONI DE CAIRES SILVA **ID/RA:** 11201811685

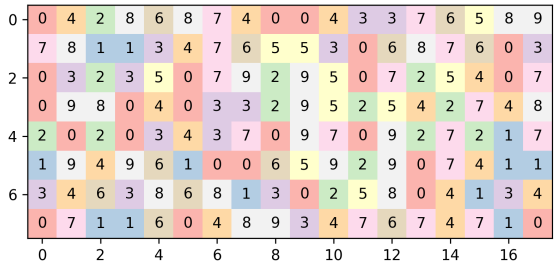
Instruções:

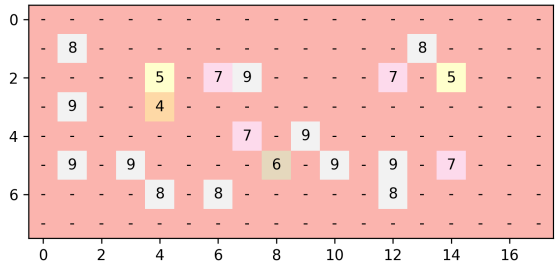
(a) turn off the cell phone

Questões Dissertativas:

1. An entry $a_0 = (i, j)$ of a matrix is called **Southwest lesser** if its value is lesser than the neighbouring ones positioned at a_5, a_6, a_7, as indicated in the following table. See left below an example $A = 8 \times 18$ and right below its corresponding **Southwest lesser** entries, where "-" means "-1".

a_8 = Northwest	a_1 = North	a_2 = Northeast
a_7 = West	$a_0 = (i, j)$	a_3 = East
a_6 = Southwest	a_5 = South	a_4 = Southeast





Escreva um programa completo com os seguintes **módulos chamados no bloco principal**:

(a) gerar uma matriz A de dimensões $A = 8 \times 18$ de inteiros aleatórios entre 0 e 9 (código fornecido abaixo *GeraMatriz*);
(b) criar um módulo chamado *imprimeMatriz*(A) e usar este módulo para imprimir a matriz A;
(c) criar um módulo para retornar a matriz **Southwest lesser** de A (imprimir o resultado, chamando o módulo anterior).

Java:

```
static void GeraMatriz(int Mat[][], int L, int C) {
    for (int i = 0; i < L; i++) {
        for (int j = 0; j < C; j++) {
            Mat[i][j] = (int) (Math.random() * 10);  // gera um numero entre 0 e 9
        } } }
```

Portugol:

```
funcao GeraMatriz(inteiro Mat[][], inteiro L, inteiro C) {
    para (inteiro i = 0; i < L; i++) {
        para (inteiro j = 0; j < C; j++) {
            Mat[i][j] = Util.sorteia(0,10)  // gera um numero entre 0 e 9
        } } }
```

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Instruções:

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Questões Dissertativas:

2. Simulate the execution of the PROGRAM below by performing a TABLE TEST. Note in the TABLE TEST table all rows that modify one of the values contained in the indicated variables until the algorithm ends. At the same time, write down in the OUTPUT column all outputs (write command) of the program. Consider as input a = 15 and b = 17. You do not have to repeat values when the variable has not been updated.

```
program { fuction begin() {
1   integer a=-1, b=-2, c=5, d=5
2   read(a)
3   read(b)
4   while (d>0) {
5     d=d-1
6     if (b<a) {
7       a=a-2
8       write("\n111")
9     }
10    if (b>a) {
11      write("\n222")
12    } else {
13      b=b+1
14      write("\n333")
15    }
16  }
}}
```

TABLE TEST					
row	a	b	c	d	OUT.

```
a0=15  a1=17
row  a  b  c d
   1   -1 -2 5 5
   2   -1 -2 5 5
   2   15 -2 5 5
   3   15 17 5 5
   3   15 17 5 4
   11              222
   3   15 17 5 3
   11              222
   3   15 17 5 2
   11              222
   3   15 17 5 1
   11              222
   3   15 17 5 0
   11              222
296
```

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Instruções:

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Questões Dissertativas:

3. Consider a matrix matGRADE of 150 rows and 4 columns, where each row represents a student and each column represents the concepts of the evaluations E, Activities, Project and E. This matrix must store in each element with A, B, C, D or F.

Note that the GeraMat function, which fills an array with randomly generated concepts, is now available for you to call your main program.

For each of the items below, you must write a function and make their respective call in the main program.

(a) Write the "GeneratesAverage"function to fill a vector with real numbers in which each element of the vector will represent the average of a student calculated from the concepts in their respective row of the matrix. To calculate the average of each student, consider A = 4.0, B = 3.0, C = 2.0, D = 1.0 and F = 0.0. Consider also the following weights: P1 = 30 %, Activities = 10 %, Project = 15 % and P2 = 45 %. The average of each student will be between 0.0 and 4.0. Example: If a row of the Matrix has A, A, B, D, the mean will be $(4*30)(4*10)+(3*15)+(1*45))/100 = 2.5$

(b) Write the FinalGrade function that should receive by parameter the VECTOR generated in item (a) and print on the screen the corresponding concept of each student considering the following rules:
if VALUE < 0.8, GRADE_FINAL = F, otherwise
if VALUE < 1.5, GRADE_FINAL = D, otherwise
if VALUE 2.5, GRADE_FINAL = C, otherwise
if VALUE 3.6, GRADE_FINAL = B, otherwise
GRADE _FINAL = A

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Ass.: _____
Estudante: Acsa Santos Sousa **ID/RA:** 11201721630

Instruções:

(a) turn off the cell phone

Questões Dissertativas:

1. Simulate the execution of the PROGRAM below by performing a TABLE TEST. Note in the TABLE TEST table all rows that modify one of the values contained in the indicated variables until the algorithm ends. At the same time, write down in the OUTPUT column all outputs (write command) of the program. Consider as input a = 17 and b = 17. You do not have to repeat values when the variable has not been updated.

```
program { fuction begin() {
1   integer a=-1, b=-2, c=5, d=4
2   read(a)
3   read(b)
4   while (d>0) {
5     d=d-1
6     if (b<a) {
7       a=a-1
8       write("\n111")
9     }
10    if (b>a) {
11      write("\n222")
12    } else {
13      b=b+2
14      write("\n333")
15    }
16  }
}}
```

TABLE TEST					
row	a	b	c	d	OUT.

```
a0=17  a1=17
row  a  b  c d
   1   -1 -2 5 4
   2   -1 -2 5 4
   2   17 -2 5 4
   3   17 17 5 4
   3   17 17 5 3
   13  17 19 5 3
   14              333
   3   17 19 5 2
   11              222
   3   17 19 5 1
   11              222
   3   17 19 5 0
   11              222
273
```

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Estudante: Acsa Santos Sousa **ID/RA:** 11201721630

Instruções:

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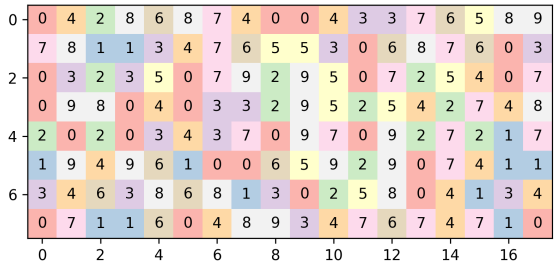
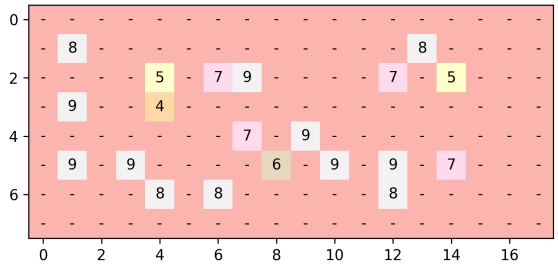
Questões Dissertativas:

2. An entry $a_0 = (i, j)$ of a matrix is called **North greater** if its value is greater than the neighbouring ones positioned at a_8, a_1, a_2, as indicated in the following table. See left below an example $A = 7 \times 18$ and right below its corresponding **North greater** entries, where "-" means "-1".

a_8 = Northwest	a_1 = North	a_2 = Northeast
a_7 = West	$a_0 = (i, j)$	a_3 = East
a_6 = Southwest	a_5 = South	a_4 = Southeast





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(a) gerar uma matriz A de dimensões $A = 7 \times 18$ de inteiros aleatórios entre 0 e 9 (código fornecido abaixo *GeraMatriz*);
(b) criar um módulo chamado *imprimeMatriz*(A) e usar este módulo para imprimir a matriz A;
(c) criar um módulo para retornar a matriz **North greater** de A (imprimir o resultado, chamando o módulo anterior).

Java:

```
static void GeraMatriz(int Mat[][], int L, int C) {
    for (int i = 0; i < L; i++) {
        for (int j = 0; j < C; j++) {
            Mat[i][j] = (int) (Math.random() * 10);  // gera um numero entre 0 e 9
        } } }
```

Portugol:

```
funcao GeraMatriz(inteiro Mat[][], inteiro L, inteiro C) {
    para (inteiro i = 0; i < L; i++) {
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Ass.: _____
Estudante: Adan Alves Siqueira **ID/RA:** 11001816

Instruções:

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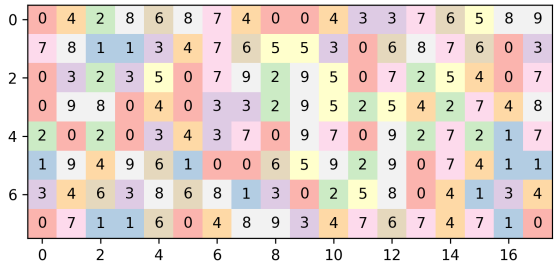

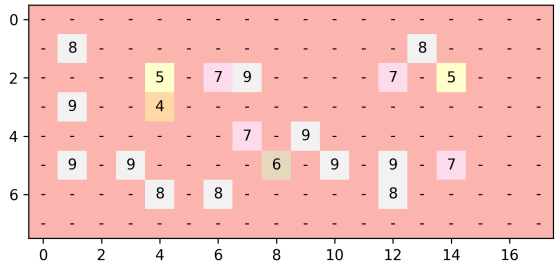

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Java:

```
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†**webMCTest:** gerador e corretor de exames disponível para professores de instituições cadastradas em vision.ufabc.edu.br:8000

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```
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3   read(b)
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```

TABLE TEST					
row	a	b	c	d	OUT.

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```
a0=15  a1=17
row  a  b  c d
   1   -1 -2 5 5
   2   -1 -2 5 5
   2   15 -2 5 5
   3   15 17 5 5
   3   15 17 5 4
   11              222
   3   15 17 5 3
   11              222
   3   15 17 5 2
   11              222
   3   15 17 5 1
   11              222
   3   15 17 5 0
   11              222
296
```

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