

%Repaso de vectores

```
x=[4 3 1 2 6 2]; %Procesa pero no muestra resultados
```

```
x(2:4)
```

```
ans =
```

```
3 1 2
```

%cuantos elementos son >3

```
x>3
```

```
ans =
```

```
1 0 0 0 1 0
```

```
sum(x>3)
```

```
ans =
```

```
2
```

%sumar los >3

```
x.*(x>3)
```

```
ans =
```

```
4 0 0 0 6 0
```

```
sum(x.*(x>3))
```

```
ans =
```

```
10
```

%por filtros

```
x(x>3)
```

```
ans =
```

```
4 6
```

```
sum(x(x>3))
```

```
ans =
```

```
10
```

```
x
```

```
x =
```

```
4 3 1 2 6 2
```

```
y=1:6
```

```
y =
```

```
1 2 3 4 5 6
```

```
y(x>3)
```

```
ans =
```

```
1 5
```

%sumar los >3

```
i=find(x>3)
```

```
i =
```

```
1 5
```

```
x(i)
```

```
ans =
```

```
4 6
```

```
sum(x(i))
```

```
ans =
```

```
10
```

%Entonces, la respuesta:

```
i=find(x>3);
```

```
sum(x(i))
```

```
ans =
```

```
10
```

```

x
x =
     4     3     1     2     6     2
max(x)
ans =
     6
min(x)
ans =
     1
mean(x)
ans =
     3
cumsum(x)
ans =
     4     7     8    10    16    18
x
x =
     4     3     1     2     6     2
x.*(2:7)
ans =
     8     9     4    10    36    14
x.*7
ans =
    28    21     7    14    42    14
x*7
ans =
    28    21     7    14    42    14
clc

```

%Matrices

```

a=[7 6 3;3 4 5;4,3+5 1]
a =
     7     6     3
     3     4     5
     4     8     1
a(3,2)
ans =
     8
a(6)      %con un solo índice
ans =
     8
a(6:8)
ans =
     8     3     5
a(1:9)
ans =
     7     3     4     6     4     8     3     5     1
a(:)
ans =
     7
     3
     4

```

```

        6
        4
        8
        3
        5
        1
a
a =
        7        6        3
        3        4        5
        4        8        1
a(3,2)
ans =
        8
a(2:3,2)
ans =
        4
        8
a(2:3,1:2)
ans =
        3        4
        4        8
a(1:3,2:3)
ans =
        6        3
        4        5
        8        1
a(1:end,2:end)
ans =
        6        3
        4        5
        8        1
a(:,2:end)
ans =
        6        3
        4        5
        8        1
a
a =
        7        6        3
        3        4        5
        4        8        1
a(:,end:-1:1)
ans =
        3        6        7
        5        4        3
        1        8        4
fliplr(a)
ans =
        3        6        7
        5        4        3
        1        8        4

```

```
a
a =
     7     6     3
     3     4     5
     4     8     1
a(end:-1:1,:)
ans =
     4     8     1
     3     4     5
     7     6     3
flipud(a)
ans =
     4     8     1
     3     4     5
     7     6     3
%orden de la matriz
x
x =
     4     3     1     2     6     2
length(x)
ans =
     6
length(a)      %da el mayor entre cantidad de filas y columnas
ans =
     3
[f c]=size(a)  %da dos resultados
f =
     3
c =
     3
[f c]=size(x)
f =
     1
c =
     6

%Cambiando elementos o filas o columnas
a =
     7     6     3
     3     4     5
     4     8     1
b=a
b =
     7     6     3
     3     4     5
     4     8     1
b(:,2)
ans =
     6
     4
     8
b(:,2)=0
```

```

b =
    7     0     3
    3     0     5
    4     0     1
b(:,1)=[1 2 3]
b =
    1     0     3
    2     0     5
    3     0     1
b(:,1)=[1 2 3] '
b =
    1     0     3
    2     0     5
    3     0     1
b(1,:)=b(3,:)
b =
    3     0     1
    2     0     5
    3     0     1
b(1,2)=[] % error
b(1,:)=[]
b =
    2     0     5
    3     0     1
b(:,2)=[]
b =
    2     5
    3     1
b=a
b =
    7     6     3
    3     4     5
    4     8     1
b(2:3,1:2)
ans =
    3     4
    4     8
b=a;
c=[b;3 4 5]
c =
    7     6     3
    3     4     5
    4     8     1
    3     4     5
c=[c [1 2 3 4] ' ] %c=[c [1;2;3;4]]
c =
    7     6     3     1
    3     4     5     2
    4     8     1     3
    3     4     5     4
b=a

```

```
b =  
    7    6    3  
    3    4    5  
    4    8    1  
sum(b)  
ans =  
    14    18    9  
max(b)  
ans =  
    7    8    5  
sum(sum(b))  
ans =  
    41  
max(max(b))  
ans =  
    8  
x  
x =  
    4    3    1    2    6    2  
cumsum(x)  
ans =  
    4    7    8   10   16   18  
b  
b =  
    7    6    3  
    3    4    5  
    4    8    1  
cumsum(b)  
ans =  
    7    6    3  
   10   10    8  
   14   18    9  
x  
x =  
    4    3    1    2    6    2  
sort(x)  
ans =  
    1    2    2    3    4    6  
-sort(-x)  
ans =  
    6    4    3    2    2    1  
sort(b)  
ans =  
    3    4    1  
    4    6    3  
    7    8    5  
-sort(-b)  
ans =  
    7    8    5  
    4    6    3  
    3    4    1
```

```
b
b =
     7     6     3
     3     4     5
     4     8     1

%sortrows ordena, pero mantiene las filas
sortrows(b)
ans =
     3     4     5
     4     8     1
     7     6     3

sortrows(b,1)
ans =
     3     4     5
     4     8     1
     7     6     3

sortrows(b,2)
ans =
     3     4     5
     7     6     3
     4     8     1

sortrows(b,3)
ans =
     4     8     1
     7     6     3
     3     4     5

%matrices notables:
ones(2)
ans =
     1     1
     1     1

ones(1,2)
ans =
     1     1

ones(2,2)
ans =
     1     1
     1     1

zeros(2,1)
ans =
     0
     0

eye(3)
ans =
     1     0     0
     0     1     0
     0     0     1

eye(2,3)
ans =
     1     0     0
     0     1     0

b=a
```

```

b =
     7     6     3
     3     4     5
     4     8     1

1
ans =
     1
b(1:2:end,1:2:end)
ans =
     7     3
     4     1
clc

```

%Ejercicio de matrices 33a

```

M=4;N=6;
a33=ones(M,N)
a33 =
     1     1     1     1     1     1
     1     1     1     1     1     1
     1     1     1     1     1     1
     1     1     1     1     1     1
a33(1:2:end,1:2:end)=0
a33 =
     0     1     0     1     0     1
     1     1     1     1     1     1
     0     1     0     1     0     1
     1     1     1     1     1     1
a33(2:2:end,2:3:end)=0
a33 =
     0     1     0     1     0     1
     1     0     1     1     0     1
     0     1     0     1     0     1
     1     0     1     1     0     1

```

```

clc
M=4;N=6;
a33=ones(M,N);
a33(1:2:end,1:2:end)=0;
a33(2:2:end,2:3:end)=0
a33 =
     0     1     0     1     0     1
     1     0     1     1     0     1
     0     1     0     1     0     1
     1     0     1     1     0     1

```

```

M=4;N=6;
c=ones(M,N)
c =
     1     1     1     1     1     1
     1     1     1     1     1     1
     1     1     1     1     1     1
     1     1     1     1     1     1
cumsum(c)

```

```
ans =
     1     1     1     1     1     1
     2     2     2     2     2     2
     3     3     3     3     3     3
     4     4     4     4     4     4
```

```
c=ones(M,N)
```

```
c =
     1     1     1     1     1     1
     1     1     1     1     1     1
     1     1     1     1     1     1
     1     1     1     1     1     1
```

```
c(1,:)=1:6
```

```
c =
     1     2     3     4     5     6
     1     1     1     1     1     1
     1     1     1     1     1     1
     1     1     1     1     1     1
```

```
cumsum(c)
```

```
ans =
     1     2     3     4     5     6
     2     3     4     5     6     7
     3     4     5     6     7     8
     4     5     6     7     8     9
```

```
a
```

```
a =
     7     6     3
     3     4     5
     4     8     1
```

```
cumsum(a) %Suma vertical
```

```
ans =
     7     6     3
    10    10     8
    14    18     9
```

```
cumsum(a,2) %Suma horizontal
```

```
ans =
     7    13    16
     3     7    12
     4    12    13
```

```
a
```

```
a =
     7     6     3
     3     4     5
     4     8     1
```

```
%Cuantos elementos son >4
```

```
a>4
```

```
ans =
     1     1     0
     0     0     1
     0     1     0
```

```
sum(sum(a>4))
```

```
ans =
     4
```

```
a
a =
     7     6     3
     3     4     5
     4     8     1
a(a>4)
ans =
     7
     6
     8
     5
length(a(a>4))
ans =
     4
%matrices con valores aleatorios
rand(2)
ans =
     0.8147     0.1270
     0.9058     0.9134
rand(2)
ans =
     0.6324     0.2785
     0.0975     0.5469
rand(2,3)
ans =
     0.9575     0.1576     0.9572
     0.9649     0.9706     0.4854
rand(2,3)*5
ans =
     4.0014     2.1088     3.9610
     0.7094     4.5787     4.7975
randi(5)           %número aleatorio uniforme de 1 a 5
ans =
     4
randi(5,2)         %números de 1 a 5, matriz de 2*2
ans =
     4     4
     1     1
randi(5,2)
ans =
     2     1
     1     5
randi(5,2)
ans =
     4     5
     2     1
randi(5,2,3)
ans =
     3     4     1
     2     4     3
a
a =
```

```

    7     6     3
    3     4     5
    4     8     1
%sumar los elementos >4
a>4
ans =
     1     1     0
     0     0     1
     0     1     0
a.*(a>4)
ans =
     7     6     0
     0     0     5
     0     8     0
sum(sum(a(a>4)))
ans =
    26
%otra forma
a(a>4)
ans =
     7
     6
     8
     5
sum(a(a>4))
ans =
    26
clc
x
x =
     4     3     1     2     6     2
x(x==2)
ans =
     2     2
find(x==2)
ans =
     4     6
a
a =
     7     6     3
     3     4     5
     4     8     1
%posiciones de los >4
find(a>4)
ans =
     1
     4
     6
     8
[f c]=find(a>4)    %posiciones con filas y columnas
f =
     1

```

```

1
3
2
c =
1
2
2
3
a
a =
7     6     3
3     4     5
4     8     1
[f c]
ans =
1     1
1     2
3     2
2     3
a
a =
7     6     3
3     4     5
4     8     1
%sumarle 1 al mayor elemento
i=find(a==max(max(a)))
i =
6
a(i)=a(i)+1
a =
7     6     3
3     4     5
4     9     1
%otra forma
[f c]=find(a==max(max(a)))
f =
3
c =
2
a(f,c)=a(f,c)+1
a =
7     6     3
3     4     5
4    10     1
a(3,1)=10
a =
7     6     3
3     4     5
10    10     1
i=find(a==max(max(a)))
i =
3

```

```

        6
a(i)=a(i)+1
a =
     7     6     3
     3     4     5
    11    11     1
[f c]=find(a==max(max(a)))
f =
     3
     3
c =
     1
     2
a(f,c)=a(f,c)+1
a =
     7     6     3
     3     4     5
    12    12     1

clear all
clc
%Se computan las unidades vendidas de 3 productos, a cargo
%de 4 vendedores.
%u=matriz de 4 * 3, 4 filas corresponden a a 4 vendedores
%3 columnas corresponden a 3 tipos de producto
u=randi(6,4,3)-1
u =
     2     1     0
     3     4     2
     4     3     5
     4     0     2
%Tambien tenemos los precios unitarios de cada producto
%y no cambian
p=[2 3 4]
p =
     2     3     4
%Total de unidades vendidas por producto
sum(u)
ans =
    13     8     9
%Total de unidades vendidas por vendedor
sum(u')
ans =
     3     9    12     6
sum(u')'
ans =
     3
     9
    12
     6
%Hallar c, el total de unidades vendidas por vendedor
c=sum(u')'
```

```

c =
    3
    9
   12
    6

%Calcular el monto total de ventas
u
u =
    2    1    0
    3    4    2
    4    3    5
    4    0    2

p
p =
    2    3    4

p'
ans =
    2
    3
    4

m=u*p'
m =
    7
   26
   37
   16

%este el monto de ventas en $, por cada vendedor
sum(m) %es el monto total
ans =
    86

u
u =
    2    1    0
    3    4    2
    4    3    5
    4    0    2

p
p =
    2    3    4

u.*p
ans =
    4    3    0
    6   12    8
    8    9   20
    8    0    8

%Esto serian los montos de venta por vendedor-producto
%monto total de ventas:
sum(sum(u.*p))
ans =
    86

%Cuantas unidades se vendieron, considerando solo
%aquellos que se vendieron mas de 3 unidades

```

```

u(u>3)
ans =
     4
     4
     4
     5
sum(u(u>3))
ans =
    17
%Total de unidades vendidas por producto, solo cuando son >3
u
u =
     2     1     0
     3     4     2
     4     3     5
     4     0     2
u>3
ans =
     0     0     0
     0     1     0
     1     0     1
     1     0     0
u.*(u>3)
ans =
     0     0     0
     0     4     0
     4     0     5
     4     0     0
sum(u.*(u>3))
ans =
     8     4     5
%calcular los montos de cada venta
m=u.*p
m =
     4     3     0
     6    12     8
     8     9    20
     8     0     8
%Calcular las bonificaciones al vendedor, por cada venta
%es el 10%, salvo que haya vendido mas de 10 dólares, en
%cuyo caso es el 20%
b=(m<=10).*m*0.1+(m>10).*m*0.2
b =
    0.4000    0.3000         0
    0.6000    2.4000    0.8000
    0.8000    0.9000    4.0000
    0.8000         0    0.8000

```