



INFORMATICA I

Matriz dinamica con **malloc**

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Ejemplo para armar una matriz (N x N) en forma dinamica utilizando malloc.

En éste ejemplo la matriz será de (2 x 3) quedando de la siguiente forma:

$$\begin{bmatrix} 11 & 12 & 13 \\ 21 & 22 & 23 \end{bmatrix}$$

Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

[illegible]

```

1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main (void)
5 {
6     int file=0,row=0,i=0,j=0;
7     int **mtz;
8
9     printf("ingrese filas y columnas \n");
10    scanf ("%d %d",&file,&row);
11    mtz=(int **)malloc( file*sizeof( int *));
12    for (i=0 ; i<file ; i++){
13        mtz[i]=(int *)malloc(row*sizeof(int));
14    }
15    for (i=0 ; i<file ; i++){
16        for (j=0 ; j<row ; j++){
17            printf("file %d rows %d\n",i,j);
18            scanf ("%d",&mtz[i][j]);
19        }
20    }
21    printf("\n");
22    for (i=0 ; i<file ; i++){
23        for (j=0 ; j<row ; j++){
24            printf ("%d \t",mtz[i][j]);
25        }
26    }
27    for (i=0 ; i<file ; i++){
28        free(mtz[i]);
29    }
30    free(mtz);
31    return (0);
32 }

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Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

[illegible]

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30    free(mtz);
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```

Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

i	0
j	0
file	2
row	3
mtz	0x5E1D4A80
	.
0x5E1D4A80	
0x5E1D4A84	
	.
	.
	.
	.
	.
	.

```
1 #include <stdio.h>
2 #include <stdlib.h>
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	:	
0x5E1D4A80	0x5E1D4AA0	mtz[0]
0x5E1D4A84		
	:	
0x5E1D4AA0		
	:	
	:	
	:	

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	:	
	:	
0x5E1D4A80	0x5E1D4AA0	mtz[0]
0x5E1D4A84	0x5E1D4AC0	mtz[1]
	:	
	:	
0x5E1D4AA0		
	:	
	:	
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	:	
	:	
0x5E1D4AA0		
	:	
	:	
0x5E1D4AC0		
	:	
	:	

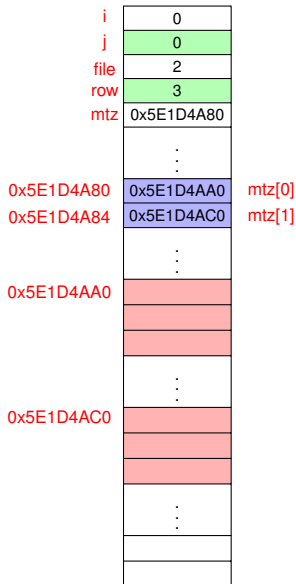
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0x5E1D4A84	0x5E1D4AC0	mtz[1]
	⋮	
0x5E1D4AA0	11	mtz[0][0]
	⋮	
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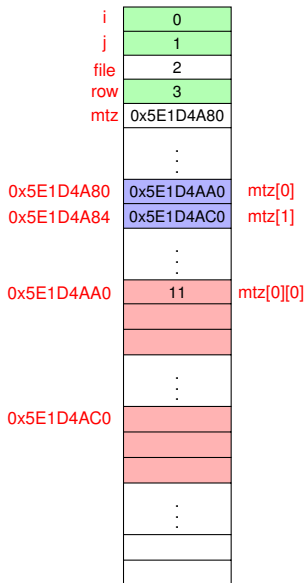
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ejemplo para matriz (2 x 3)



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Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

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j	1	
file	2	
row	3	
mtz	0x5E1D4A80	
	⋮	
0x5E1D4A80	0x5E1D4AA0	mtz[0]
0x5E1D4A84	0x5E1D4AC0	mtz[1]
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0x5E1D4AA0	11	mtz[0][0]
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row	3	
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0x5E1D4A80	0x5E1D4AA0	mtz[0]
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```

Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

i	0	
j	3	
file	2	
row	3	
mtz	0x5E1D4A80	
	⋮	
0x5E1D4A80	0x5E1D4AA0	mtz[0]
0x5E1D4A84	0x5E1D4AC0	mtz[1]
	⋮	
0x5E1D4AA0	11	mtz[0][0]
	12	mtz[0][1]
	13	mtz[0][2]
	⋮	
0x5E1D4AC0		
	⋮	

```

1  #include <stdio.h>
2  #include <stdlib.h>
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No cumple la condicion y sale del ciclo for		
0x5E1D4A80	13	mtz[0][2]
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	:	
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	:	
	:	
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Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

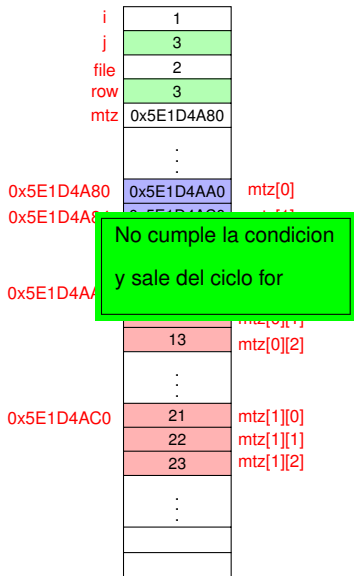
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j	3	
file	2	
row	3	
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	⋮	
0x5E1D4A80	0x5E1D4AA0	mtz[0]
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0x5E1D4AC0	21	mtz[1][0]
	22	mtz[1][1]
	23	mtz[1][2]
	⋮	

```

1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main (void)
5  {
6      int file =0,row=0,i=0,j=0;
7      int **mtz;
8
9      printf("ingrese filas y columnas \n");
10     scanf("%d %d",&file,&row);
11     mtz=(int **)malloc(file*sizeof(int *));
12     for (i=0 ; i<file ; i++){
13         mtz[i]=(int *)malloc(row*sizeof(int));
14     }
15     for (i=0 ; i<file ; i++){
16         for (j=0 ; j<row ; j++){
17             printf("file %d rows %d\n",i,j);
18             scanf("%d",&mtz[i][j]);
19         }
20     }
21     printf("\n");
22     for (i=0 ; i<file ; i++){
23         for (j=0 ; j<row ; j++){
24             printf("%d \t",mtz[i][j]);
25         }
26     }
27     for (i=0 ; i<file ; i++){
28         free(mtz[i]);
29     }
30     free(mtz);
31     return (0);
32 }
```


Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)



```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main (void)
5 {
6     int file =0,row=0,i=0,j=0;
7     int **mtz;
8
9     printf("ingrese filas y columnas \n");
10    scanf("%d %d",&file,&row);
11    mtz=(int **)malloc(file*sizeof(int *));
12    for (i=0 ; i<file ; i++){
13        mtz[i]=(int *)malloc(row*sizeof(int));
14    }
15    for (i=0 ; i<file ; i++){
16        for (j=0 ; j<row ; j++){
17            printf("file %d rows %d\n",i,j);
18            scanf("%d",&mtz[i][j]);
19        }
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21    printf("\n");
22    for (i=0 ; i<file ; i++){
23        for (j=0 ; j<row ; j++){
24            printf("%d \t",mtz[i][j]);
25        }
26    }
27    for (i=0 ; i<file ; i++){
28        free(mtz[i]);
29    }
30    free(mtz);
31    return (0);
32 }
```

Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

i	2	
j	3	
file	2	
row	3	
mtz	0x5E1D4A80	
	⋮	
0x5E1D4A80	0x5E1D4AA0	mtz[0]
0x5E1D4A84	0x5E1D4AC0	mtz[1]
	⋮	
0x5E1D4AA0	11	mtz[0][0]
	12	mtz[0][1]
	13	mtz[0][2]
	⋮	
0x5E1D4AC0	21	mtz[1][0]
	22	mtz[1][1]
	23	mtz[1][2]
	⋮	

```

1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main (void)
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16         for (j=0 ; j<row ; j++){
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18             scanf("%d",&mtz[i][j]);
19         }
20     }
21     printf("\n");
22     for (i=0 ; i<file ; i++){
23         for (j=0 ; j<row ; j++){
24             printf("%d \t",mtz[i][j]);
25         }
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```

Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

i	2	
j	3	
file	2	
row	3	
mtz	0x5E1D4A80	
	⋮	
0x5E1D4A80	0x5E1D4AA0	mtz[0]
0x5E1D4A84	0x5E1D4AC0	mtz[0][1]
	⋮	
0x5E1D4A8C	13	mtz[0][2]
	⋮	
0x5E1D4AC0	21	mtz[1][0]
	22	mtz[1][1]
	23	mtz[1][2]
	⋮	

No cumple la condicion y
sale del ciclo for de i

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main (void)
5 {
6     int file =0,row=0,i=0,j=0;
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18            scanf("%d",&mtz[i][j]);
19        }
20    }
21    printf("\n");
22    for (i=0 ; i<file ; i++){
23        for (j=0 ; j<row ; j++){
24            printf("%d \t",mtz[i][j]);
25        }
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27    for (i=0 ; i<file ; i++){
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29    }
30    free(mtz);
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```

Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

i	2	
j	3	
file	2	
row	3	
mtz	0x5E1D4A80	
	⋮	
0x5E1D4A80	0x5E1D4AA0	mtz[0]
0x5E1D4A84	0x5E1D4AC0	mtz[1]
	⋮	
0x5E1D4AA0	11	mtz[0][0]
	12	mtz[0][1]
	13	mtz[0][2]
	⋮	
0x5E1D4AC0	21	mtz[1][0]
	22	mtz[1][1]
	23	mtz[1][2]

11	12	13
21	22	23

```
1 #include <stdio.h>
2 #include <stdlib.h>
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30    free(mtz);
31    return (0);
32 }
```

Matriz NxN con malloc en Arquitectura X86-32 bits

ejemplo para matriz (2 x 3)

i	2
j	3
file	2
row	3
mtz	0XXXXXXXXX
	:
	:
	:
	:
	11
	12
	13
	:
	:
	21
	22
	23

Libero toda la memoria
pedida con malloc

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main (void)
5 {
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22    for (i=0 ; i<file ; i++){
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27    for (i=0 ; i<file ; i++){
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29    }
30    free(mtz);
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```