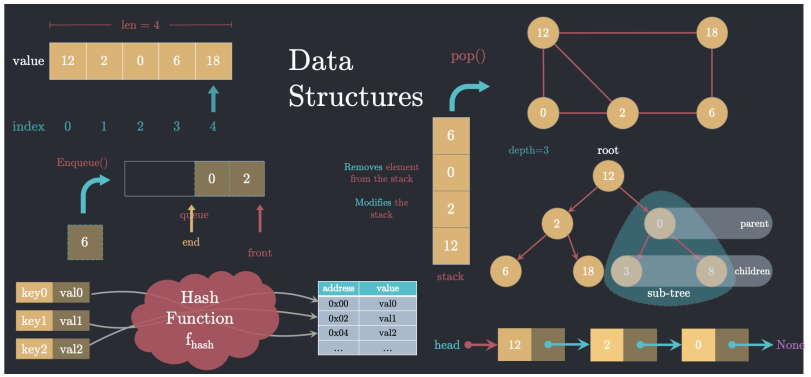
Arreglos

CI-0112 Programación 1

Sivana Hamer - sivana.hamer@ucr.ac.cr
Escuela de Ciencias de la Computación e Informática
Universidad de Costa Rica

UNIVERSIDAD DE COSTA RICA

Las estructuras de datos son colecciones organizadas de datos relacionados.

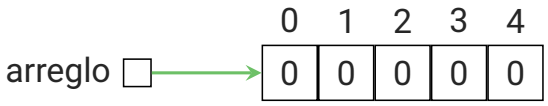


Un arreglo es una estructura de datos con una secuencia de valores, llamados elementos, con una posición numérica, llamado un índice.

Índices	0	1	2	3	4
Elementos	1	2	3	5	4

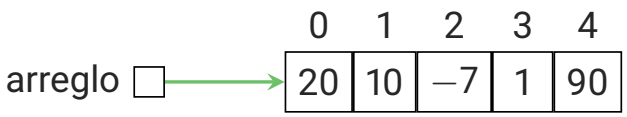
Crear un arrego

```
int [] arreglo = new int [5];
```



Acceder a elementos de un arreglo

```
arreglo[0] = 20;
arreglo[1] = arreglo[0]/2;
arreglo[2] -= 7;
arreglo[3]++;
arreglo[4] = 90;
```

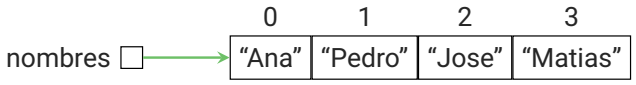


Mostrar elementos de un arreglo

```
for (int indice = 0; indice < arreglo.lenth ; indice++){
    System.out.print(arreglo[indice] + " ");
}
```

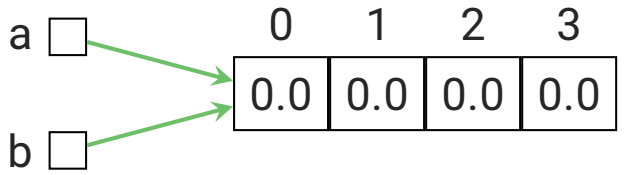

Literales en un arreglo

```
String [] nombres = {"Ana", "Pedro", "Jose", "Matias"};
```



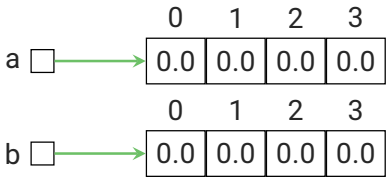
Copiar referencias en arreglos

```
double [] a = new double [4];
double [] b = a;
```



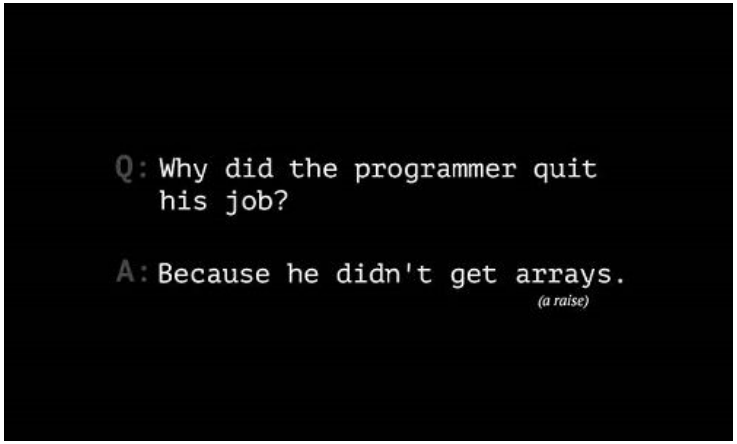
Copiar un arreglo

```
double [] a = new double [4];
double [] b = new double [4];
for (int i = 0; i < a.length; i++){
    b[i] = a[i];
}
```

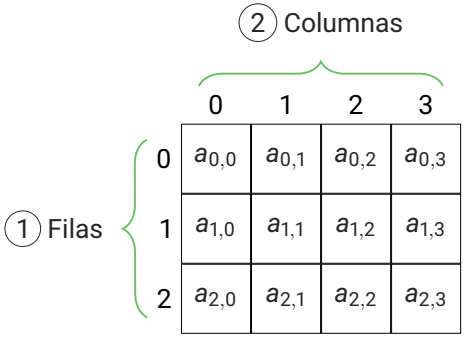


Foreach

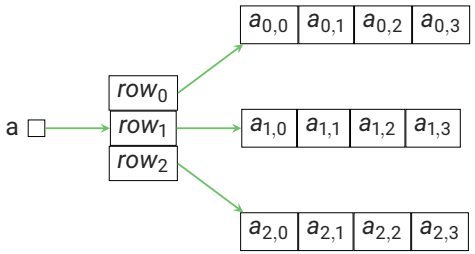
```
char [] letras = {'a', 'b', 'c', 'd'};
for (char letra : letras){
    System.out.println(letra);
}
```

Las matrices son una estructura de datos de elementos ordenados que tienen dos dimensiones.



En Java no existen matrices “de verdad” en Java, son arreglos de referencias a otros arreglos.

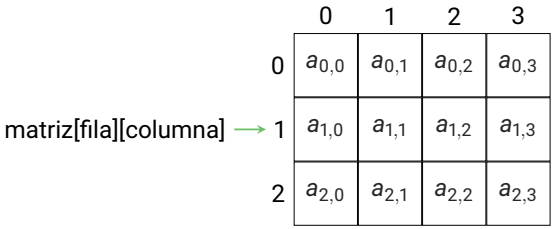


Crear matrices

```
//Crear normal
//4 filas y 3 columnas
String [][] matriz = new String [4][3];
//Crear con elementos
boolean [][] matrizBooleana = { {true, false},
                                {false, true}
                              };
```

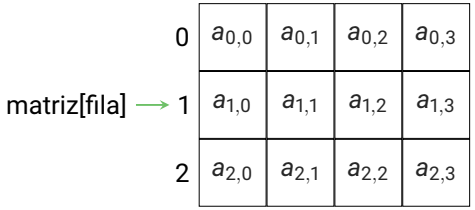

Acceder a un elemento de una matriz

```
//Accede al elemento de la fila 1 columna 0
matriz[1][0] = "Hello";
```



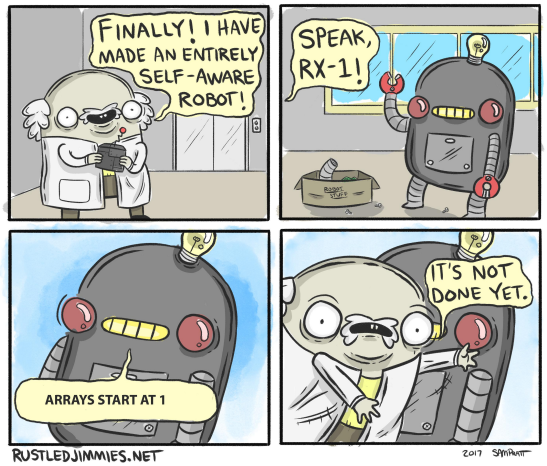
Acceder a una fila

```
//Accede a la fila 0
System.out.println(matriz[0]);
```



Iterar sobre una matriz

```
//Iterar sobre las filas
for (int i = 0; i < matriz.lenght; i++){
    //Iterar sobre las columnas
    for (int j = 0; j < matriz[i].length; j++){
        System.out.println();
    }
}
```



Referencias I

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