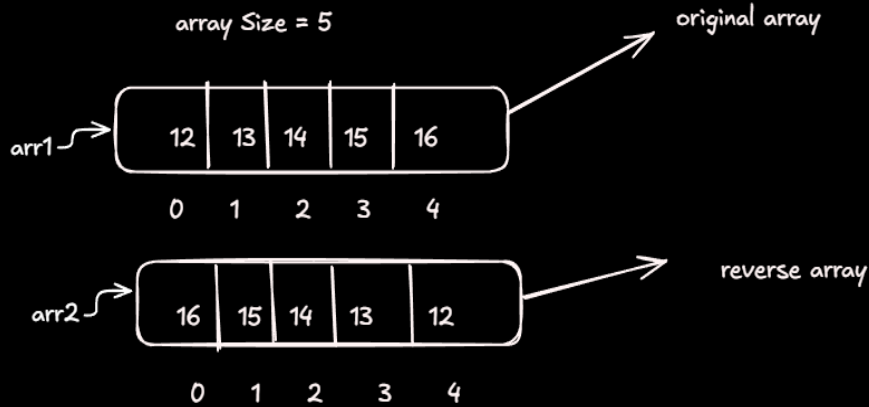


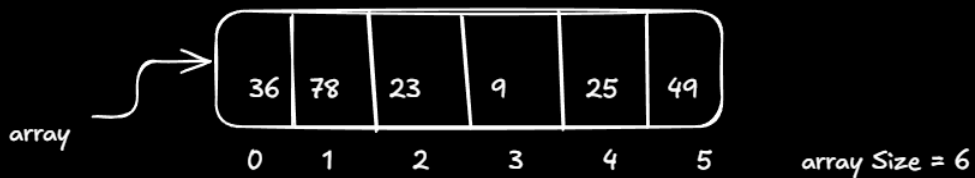
Reverse an array



when compare two arrays , to reverse from last to first in below array, but how?\

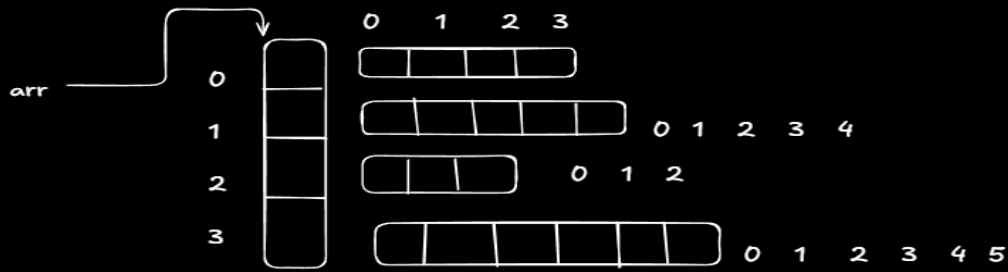
```
int j = arr2.length-1;
for(int i=0;i<=arr1.length-1;i++) {
    arr1[i] = arr2[j];
    j--;
}
```

Find the maximum value in given array or take from user data



```
max = array[0]
for(int i = 1; i <= array.length-1; i++)
{
    if(array[i] > max)
    {
        max = array[i];
    }
}
```

Jagged 2d array



```
int [ ][ ] arr = new int[3][ ];
```

here the solution,

```
arr[0] = new int [3];
```

```
arr[1] = new int [4];
```

```
arr[2] = new int [2];
```

```
arr[3] = new int[5];
```

code redundancy

```
for(int i = 0; i <= array.length-1; i++)
{
    array[i] = new int[sc.nextInt()];
}
```

Principal diagonal elements

$$x = \begin{matrix} & \begin{matrix} 0 & 1 & 2 \end{matrix} \\ \begin{matrix} 0 \\ 1 \\ 2 \end{matrix} & \begin{bmatrix} 2 & 3 & 4 \\ 2 & 3 & 4 \\ 2 & 3 & 4 \end{bmatrix} \end{matrix} \longrightarrow \text{diagonal elements are } 2 \ 3 \ 4.$$

my approach

```
for(int i = 0; i < x.length-1; i++) {
    System.out.print(x[i][i]+" ");
}
```

Anti-diagonal Elements

```
for(int i = 0; i <= x.length-1; i++) {
    System.out.print(x[i][arr.length-1-i])
}
```

Sum of 2 matrices

here I have first matrix

$$\begin{matrix} & 0 & 1 & 2 \\ \begin{matrix} 0 \\ 1 \end{matrix} & \begin{bmatrix} 1 & 2 & 3 \\ 5 & 6 & 4 \end{bmatrix} \end{matrix}$$

second matrix

$$\begin{matrix} & 0 & 1 & 2 \\ \begin{matrix} 0 \\ 1 \end{matrix} & \begin{bmatrix} 2 & 3 & 1 \\ 4 & 2 & 5 \end{bmatrix} \end{matrix}$$

code:

```
int [][] sum = new int[rows][columns];
for(int i = 0; i <= rows-1; i++) {
    for(int j = 0; j <= columns-1; j++) {
        sum[i][j] = arr1[i][j] + arr2[i][j];
    }
}
```

here, i want to add 2 matrices

like in first matrix first row first column (0,0) + second matrix first row first column(0,0)= 1+2=3;

like in first matrix first row first column (0,1) + second matrix first row first column(0,1)= 2+3=5;

like in first matrix first row first column (0,2) + second matrix first row first column(0,2)= 3+1=4;

like in first matrix first row first column (1,0) + second matrix first row first column(1,0)= 5+4=9;

like in first matrix first row first column (1,1) + second matrix first row first column(1,1)= 6+2=8

like in first matrix first row first column (1,2) + second matrix first row first column(1,2)= 4+5=9;

here,

$$\begin{bmatrix} 3 & 5 & 4 \\ 9 & 8 & 9 \end{bmatrix}$$

Multiplication of 2 arrays

arr1 =

$$\begin{matrix} & 0 & 1 & 2 \\ \begin{matrix} 0 \\ 1 \\ 2 \end{matrix} & \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \end{matrix}$$

arr2=

$$\begin{matrix} & 0 & 1 & 2 \\ \begin{matrix} 0 \\ 1 \\ 2 \end{matrix} & \begin{bmatrix} 3 & 2 & 4 \\ 1 & 1 & 4 \\ 4 & 5 & 1 \end{bmatrix} \end{matrix}$$

arr1*arr2=

$$\begin{bmatrix} 17 & 19 & 15 \\ 41 & 42 & 43 \\ 65 & 67 & 69 \end{bmatrix}$$

result(0,0)=(1*3)+(2*1)+(3*4)=3+2+12=17

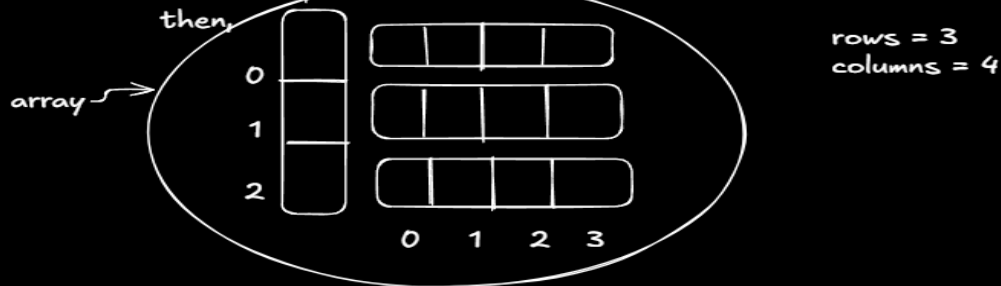
result(0,1)=(1*2)+(2*1)+(3*5)=2+2+15=19

like this and so on.....

```
int [][] multiply = new int[rows1][columns2];
for (int i = 0; i < rows1; i++) {
    for (int j = 0; j < columns2; j++) {
        multiply[i][j] = 0;
        for (int k = 0; k < columns1; k++) {
            multiply[i][j] += arr1[i][k] * arr2[k][j];
        }
    }
}
```

2 Dimensional Array:
it represents like this

```
int [ ][ ] array = new int[rows][columns];
```



```
int [ ][ ] array = new int[3][4];  
for(int i = 0; i <= array.length-1; i++)  
{  
    for(int j = 0; j <= array[i].length-1; j++)  
    {  
        System.out.print(array[i][j] + " ");  
    }  
    System.out.println();  
}
```

Transpose of matrix



interchanging it's rows into columns or
columns into rows.

```
for (int i = 0; i < rows; i++) {  
    for (int j = 0; j < columns; j++) {  
        arr2[j][i] = arr1[i][j]; // Swap rows and columns  
    }  
}
```