



Medical Physics

Second Stage

Lec6

Array Operations

MS.c Mortada Sabri

MS.c Lubna Ali

Array Operations

The matrix consists of a number of rows and a number of columns, each of which is symbolized by a transformation. We use matrices in many engineering applications to solve complex problems. The elements of the matrix can be real or complex values, and the rows are usually symbolized by

Matricname(m,n)

Where: **m** is the number of rows, **n** is the number of columns.

- Create a (4,4) matrix named A

A = [3 4 4 3 ; 4 5 6 7 ; 5 6 7 4 ; 4 5 6 7]

3	4	4	3
4	5	6	7
5	6	7	4
4	5	6	7

-Recall an element from an array by row number and column number.

To call the second element from the third row, we write:

For example

A(3,2) ans = 6

- Recall an element from an array by sorting it.

A(8) ans = 5

*Where counting is done from the top of the column to the bottom and in order.

- Recall a row from an array.

$A(3,:)$ ans = 5 6 7 4

- Recall a column from an array.

$A(:,4)$

Ans =

3
7
4
7

- Recall the second row that contains the last three elements (without the first element).

$A(2,2:4)$ ans = 5 6 7

- Recall the first and last elements of the third row.

$A(3,1:3:4)$ ans = 5 4

- Add a column at the end of the array.

$A(:,5) = [3 \ 5 \ 0 \ 0]$

3	4	4	3	3
4	5	6	7	5
5	6	7	4	0
4	5	6	7	0

- Delete the second column from the new matrix.

$$A(:,2) = []$$

The matrix becomes as shown

3	4	3	3
4	6	7	5
5	7	4	0
4	6	7	0

- Replace an element of the matrix with a new element.

$$A(3,4) = 11$$

The matrix becomes as shown

3	4	3	3
4	6	7	5
5	7	4	11
4	6	7	0

