

MATLAB - THE FOR LOOP

http://www.tutorialspoint.com/matlab/matlab_for_loop.htm

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A **for loop** is a repetition control structure that allows you to efficiently write a loop that needs to execute a specific number of times.

Syntax

The syntax of a **for loop** in MATLAB is –

```
for index = values
    <program statements>
    ...
end
```

values has one of the following forms –

Format	Description
<i>initval:endval</i>	increments the index variable from <i>initval</i> to <i>endval</i> by 1, and repeats execution of <i>program statements</i> until <i>index</i> is greater than <i>endval</i> .
<i>initval:step:endval</i>	increments <i>index</i> by the value <i>step</i> on each iteration, or decrements when <i>step</i> is negative.
<i>valArray</i>	creates a column vector <i>index</i> from subsequent columns of array <i>valArray</i> on each iteration. For example, on the first iteration, <i>index</i> = <i>valArray</i> (:, 1). The loop executes for a maximum of <i>n</i> times, where <i>n</i> is the number of columns of <i>valArray</i> , given by <i>numel(valArray)</i> , 1, :. The input <i>valArray</i> can be of any MATLAB data type, including a string, cell array, or struct.

Example 1

Create a script file and type the following code –

```
for a = 10:20
    fprintf('value of a: %d\n', a);
end
```

When you run the file, it displays the following result –

```
value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
value of a: 16
value of a: 17
value of a: 18
value of a: 19
value of a: 20
```

Example 2

Create a script file and type the following code –

```
for a = 1.0: -0.1: 0.0
    disp(a)
```

```
end
```

When you run the file, it displays the following result –

```
1
9/10
4/5
7/10
3/5
1/2
2/5
3/10
1/5
1/10
0
```

Example 3

Create a script file and type the following code –

```
for a = [24, 18, 17, 23, 28]
    disp(a)
end
```

When you run the file, it displays the following result –

```
24
18
17
23
28
```

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