Introduction to MATLAB bootcamp

Week 3 Lecture 6

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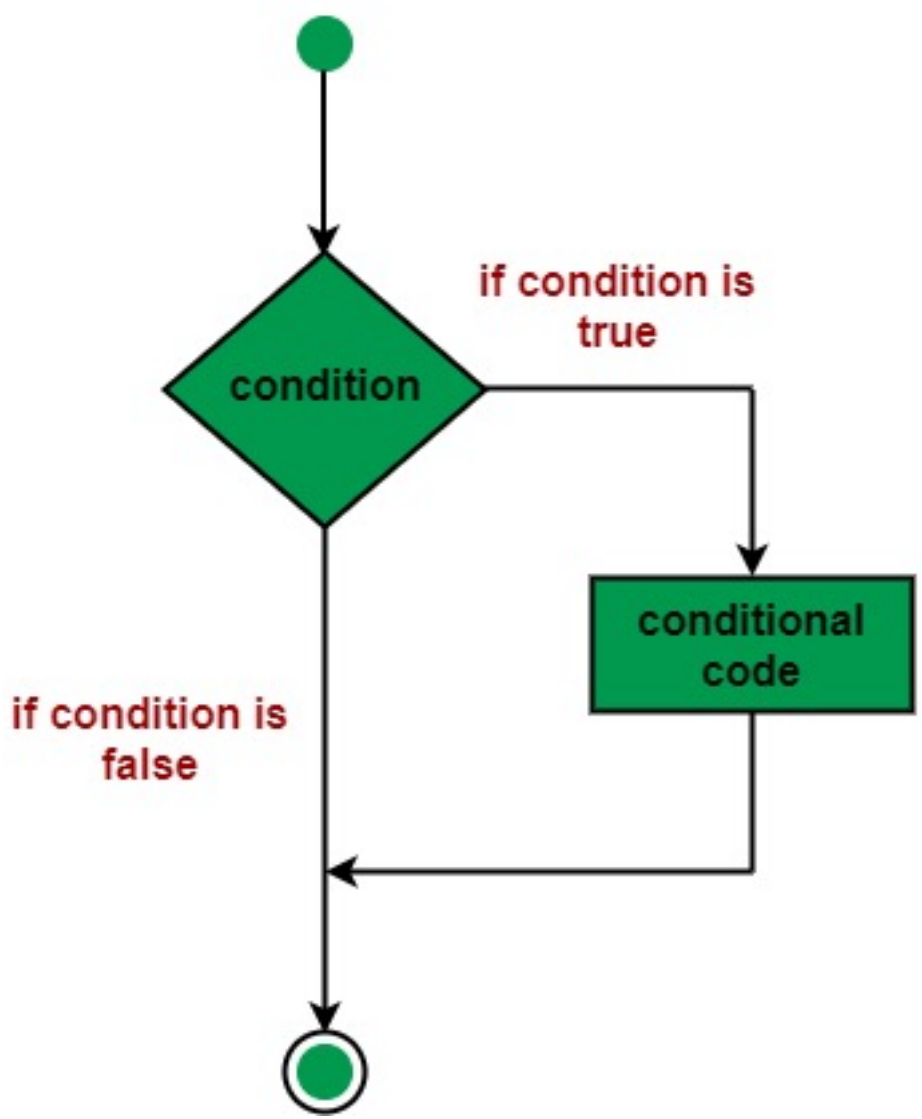
Topics for today’s class

- If statement
- While loop
- for loop

If statement

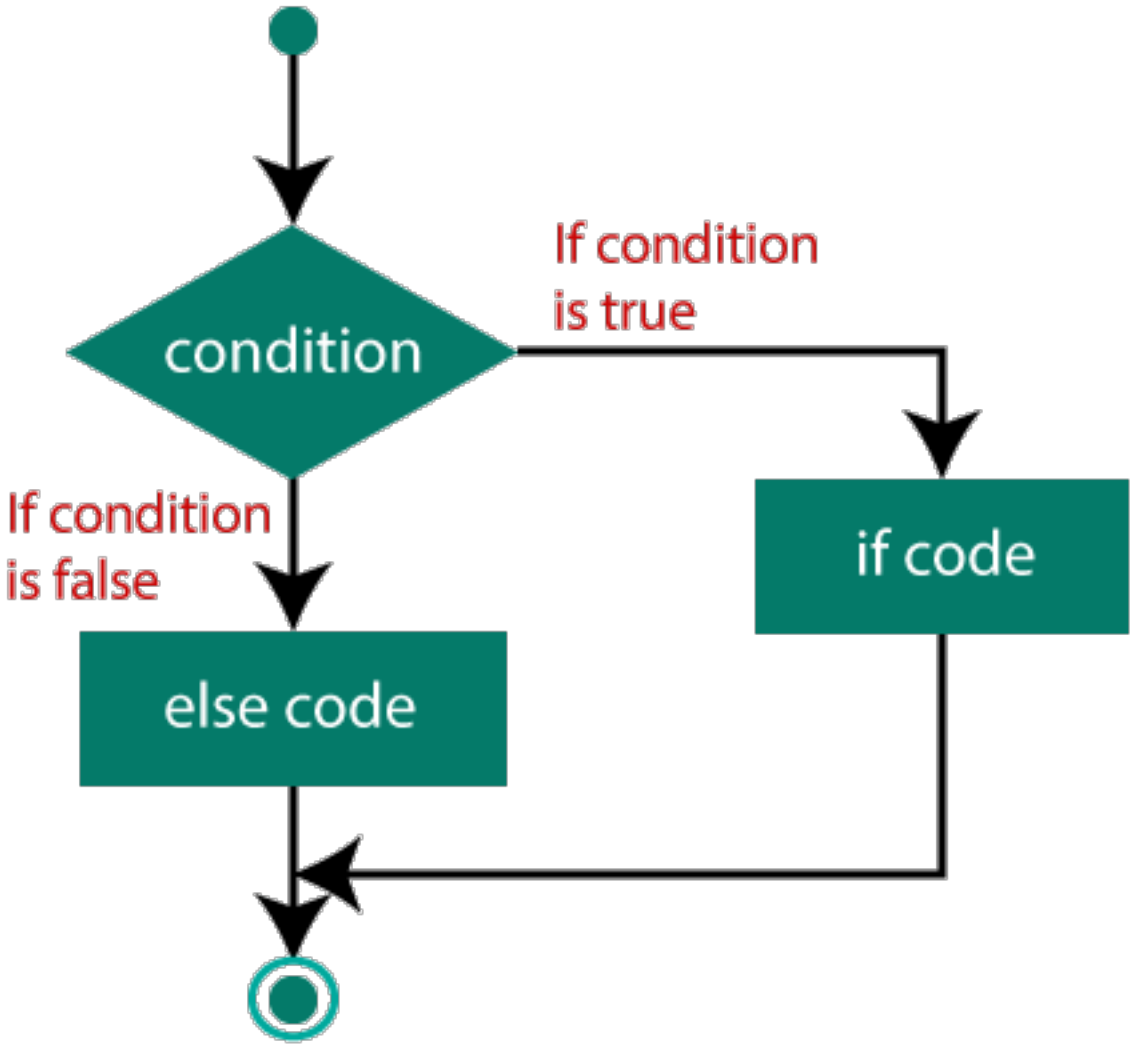



```
%%% if statement
number=0;

if number==0
    disp('number is zero')
else
    disp('number is not zero')
end
```

Image: https://www.javatpoint.com/matlab-if-end-statement

If else statement




```
%%%% if and elseif statement

clear
clc

num2=10;  %% try NaN, Inf, -Inf

if num2>0
    disp('positive number')
elseif num2<0
    disp('negative number')
else
    disp('zero')
end
```

Image: https://www.javatpoint.com/matlab-if-else-end-statement

While loop

```
iteration=1;

while iteration<10

    ('matlab calcultion here');
    iteration=iteration+1;

end
```

While loop

```
%% while loop increasing increment

itr=1;
while itr<5
    disp(['current iteration is: ' num2str(itr)])
    itr=itr+1;
end
```

```
%% while loop decreasing increment
clc

itr=10;
while itr>1
    disp(['current iteration is: ' num2str(itr)])
    itr=itr-1;
end
```

```
%% while loop in different incremental steps
clc

itr=1;
while itr<10
    disp(['current iteration is: ' num2str(itr)])
    itr=itr+2;
end
```

While and if loop

```
%%%% combine while loop and if loop
clc
clear

array=[-5 -2 -5 -4 4 2 -2 5 0 -1];

i=1;
while i<11
    test_num=array(1,i);
    if test_num>0
        disp([num2str(test_num) ' is a positive integer'])
    elseif test_num<0
        disp([num2str(test_num) ' is a negative integer'])
    else
        disp([num2str(test_num) ' is zero'])
    end
    i=i+1;
end
```

For loop

```
for iteration= 1:10

    ('matlab calcultion here');

end
```

For loop

```
for i=1:10
    disp(['current iteration is: ' num2str(i)])
end

for i=10:-1:1
    disp(['current iteration is: ' num2str(i)])
end

for i=3:2:10
    disp(['current iteration is: ' num2str(i)])
end

for i=[1 5 7 10]
    disp(['current iteration is: ' num2str(i)])
end
```

For loop

```
%%% adding the elements of two matrices

mat_1=randi([-6 6],3,4)
mat_2=randi([-6 6],3,4)

for i=1:3
    for j=1:4
        sum_matrix(i,j)=mat_1(i,j)+mat_2(i,j);
    end
end

sum_matrix
```