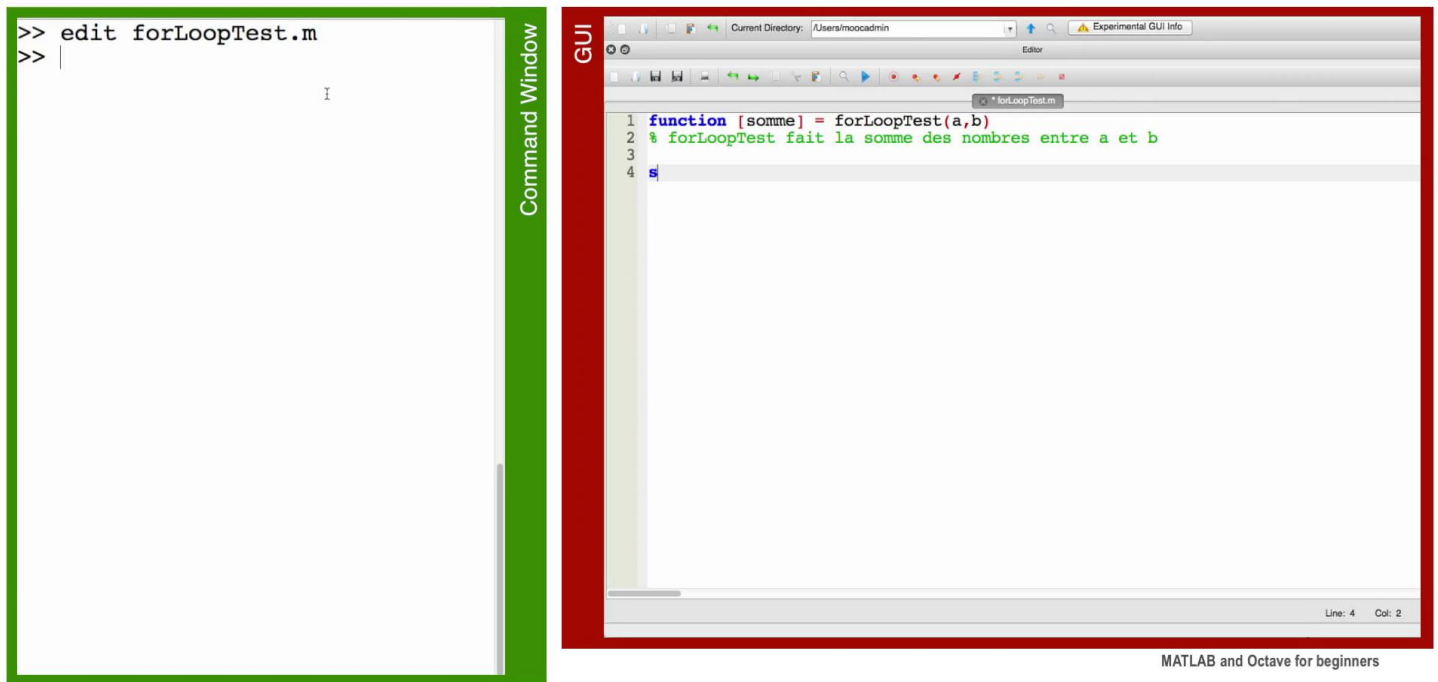


For ... end



MATLAB and Octave for beginners

When we implement an algorithm; that is when we write down the code that describes the algorithm, there are parts that are repeated several times in a similar manner. In this case we define a loop. loops can be written as do this for an index between five and ten. so you redo all the things for this several indexes. we use in this case a four loop. or another possibility is to continue executing the same graph of commands as far as the condition is true. This is called a While loop. Imagine you writing a function that sums the number between a and b. So we edit this function for loop test dot m then we start with a keyboard function the result is a sum but okay sum is the built-in function so we replace this by a french name sum and then the name of the function for loop test and then input are a and b good, then a little help loop for test sums the number between a and b so we start by defining the variable sum so, sum is equal to zero.

Notes

Summary



0m 04s

While ... end

```
>> edit whileTest.m  
>> whileTest(5)  
Devinez le nombre: 3  
>> |
```

Command Window

GUI

```
1 function [] = whileTest (number)  
2 % whileTest demande a l'utilisateur de deviner un nombre number  
3  
4 guess = input('Devinez le nombre: ');  
5 I  
6  
7  
8 end  
9
```

MATLAB and Octave for beginners

before you start the result is zero and then I need to do a loop from a to b so I say four an index i equal to a until b so here I use the columns I say that this sum is equal to sum plus i okay so, I do this sum equal to sum plus i for the indexes that are between a and b and then I end the loop and I end the function and now I can call this function with two numbers, one and three and then the sums of the numbers between one and three is six which is correct and then I can do the sum which in minus 10 and 10 and answer is zero. okay, so if I sum all the numbers in between minus 10 and 10 all the integer number. Another possibility is to use while loops Now we write the function that will continue to ask the user to enter number until it has guessed a selected number so we call the function with the parameter number and inside there is a loop okay so the input is the number that we want to guess and then we ask several times for I guess by the user. Are we doing first my guess is an input okay so I ask to ask the user to provide this guess okay the string is a guess the number so you ask this to the user I save and then I can test what happens with this input function so while test five and then here I am asked to guess the number good and so far so good you can continue now if the guess.

Notes

Summary



1m 31s

While ... end

```
>> edit whileTest.m
>> whileTest(5)
Devinez le nombre: 3
>> whileTest(5)
Devinez le nombre: 3
>> whileTest(5)
Devinez le nombre: 5
Congratulations
>> whileTest(5)
Devinez le nombre: 3
Devinez le nombre: 4
Devinez le nombre: 8
Devinez le nombre: 5
Congratulations
>>
```

Command Window

```
1 function [] = whileTest (number)
2 % whileTest demande a l'utilisateur de deviner un nombre number
3
4 guess = input('Devinez le nombre: ');
5
6 while (guess ~= number)
7     guess = input('Devinez le nombre: ');
8 end
9
10 disp('Congratulations')
11
12
13 end
14
```

GUI

MATLAB and Octave for beginners

is equal to my number so this double sign equal is to check a whether it is equal or not. when then I can write congratulations and then I can end okay I can test again If my function is working the way I want so If I give three but I didn't get the five so I will do it again but now I gave five congratulations good job and here we didn't do any loop what would you like to do we would like it as far so why the guess and the numbers are different so here you see a I got to write down different then I have to continue asking for a new number. okay so I'd say while the guess is different from number that I should guess than I continue asking and then only at the end I say congratulations so because until I don't guess right well this while will go on okay, here and the fourth time I guess correctly the number and then it comes out of the loop and displays congratulations In the exercise there will be buildings of loops that are more complicated than the ladder Here are the basics then we must enrich the block located between while and and to perhaps help the use of saying no it's bigger no it's smaller. so you need to put it if after requesting number of the user. and this is in the exercises.

Notes

Summary



4m 01s

While ... end

```
>> edit whileTest.m
>> whileTest(5)
Devinez le nombre: 3
>> whileTest(5)
Devinez le nombre: 3
>> whileTest(5)
Devinez le nombre: 5
Congratulations
>> whileTest(5)
Devinez le nombre: 3
Devinez le nombre: 4
Devinez le nombre: 8
Devinez le nombre: 5
Congratulations
>>
```

Command Window

```
1 function [] = whileTest (number)
2 % whileTest demande a l'utilisateur de deviner un nombre number
3
4 guess = input('Devinez le nombre: ');
5 max_num_tries = 5;
6 tries = 1;
7
8 while (guess ~= number)
9     guess = input('Devinez le nombre: ');
10    tries = tries + 1;
11    if (tries > max_num_tries)
12        break
13    end
14 end
15
16
17 disp('Congratulations')
18
19
20 end
21
```

GUI

MATLAB and Octave for beginners

one possibility to interrupt a four loop and a while is the use, the keyword break so say that you want to let the user on the five trials so then you can set the number of tests max number of trials for example here I put this new variable max number of tests trials then is equal to five. so after five times then I have to stop my while and say you are not good so I put the tries as I did until now equal to 1 and within in the loop I will have to increase the tries. on my try I try 1 try 2 and so on so try is equal to tries plus 1 after the guess and if tries is equal to or larger and the max no of tries then I have to display some message and they can break my while so hear and stop in the loop ones tries is larger than max number of tries.

Notes

Summary



6m 00s

While ... end

```
>> edit whileTest.m
>> whileTest(5)
Devinez le nombre: 3
>> whileTest(5)
Devinez le nombre: 3
>> whileTest(5)
Devinez le nombre: 5
Congratulations
>> whileTest(5)
Devinez le nombre: 3
Devinez le nombre: 4
Devinez le nombre: 8
Devinez le nombre: 5
Congratulations
>> whileTest(6)
Devinez le nombre: 3
Devinez le nombre: 2
Devinez le nombre: 3
Devinez le nombre: 4
Devinez le nombre: 5
Devinez le nombre: 6
Congratulations
>>
```

Command Window

```
1 function [] = whileTest (number)
2 % whileTest demande a l'utilisateur de deviner un nombre number
3
4 guess = input('Devinez le nombre: ');
5 max_num_tries = 2;
6 tries = 1;
7
8 while (guess ~= number)
9     guess = input('Devinez le nombre: ');
10    tries = tries + 1;
11    if (tries > max_num_tries)
12        break
13    end
14 end
15
16 if ( guess == number)
17     disp('Congratulations')
18 else
19     disp('Sorry')
20 end
21
22 end
23
```

GUI

MATLAB and Octave for beginners

and now I have to make sure that the right message come out so if guess is equal to the number to be guessed then I can say congratulations otherwise else I have to say something like you didn't guessed sorry end of the if statement and now I can try a function after that I saved we want to guess the number six so first I try with three, with two, with three, with four with five with six good a six time it was okay some here indeed I have asked once time too much I can change the number, maximum number of tries to do then I say while test and guess the number for ten and guess the number three, four two then sorry so I was asked three times and then I stopped now just two.

Notes

Summary



7m 42s

While ... end

```
>> whileTest(10)
Devinez le nombre: 3
Devinez le nombre: 4
Devinez le nombre: 2
Sorry
>> whileTest(10)
Devinez le nombre: 1
Devinez le nombre: 3
Sorry
>>
```

Command Window

GUI

```
1 function [] = whileTest (number)
2 % whileTest demande a l'utilisateur de deviner un nombre number
3
4 guess = input('Devinez le nombre: ');
5 max_num_tries = 1;
6 tries = 1;
7
8 while (guess ~= number)
9     guess = input('Devinez le nombre: ');
10    tries = tries + 1;
11    if (tries > max_num_tries)
12        break
13    end
14 end
15
16 if ( guess == number)
17     disp('Congratulations')
18 else
19     disp('Sorry')
20 end
21
22 end
23
```

MATLAB and Octave for beginners

why? because first it was asked outside the loop and then twice within the loop so if I really want to have two tests or two tries then we must change and say that max number of tries is just two minus one guess the one then will have to okay, so now I will only have two guess give Once you did the exercise about the speeches you will be able to..

Notes

Summary



9m 04s

4.3 Loops



the program The next chapter is the construction of a program while you will use several functions and inside the function there will be loops and condition and computations

Notes

Summary



9m 40s