Sri Lanka Institute of Information Technology
Discrete Mathematics
LabSheet 04
Year 2 , Semester 2

Loops

There are two basic types of loops in OCTAVE. Loops can be used to execute a set of statements repeatedly.

`while...end` – **Runs as long as the specified condition is satisfied.**

`for...end` – **Runs for a fixed number of times.**

While Loops

```
while(condition)

   body

endwhile
```

Example:

```
1  i=1;
2  j=12;
3
4  while(j>i)
5  disp('Hello')
6  i=i+1;
7  endwhile
8
9
10
11
12
```

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For Loops

The for statement makes it more convenient to count iterations of a loop. The general form of the for statement looks like this:

```
for var = expression

        body

endfor
```

Example:

```
4  for i=1:5
5      disp('Hello')
6  endfor
7
8
9
```

Break Statement

The break statement is used to terminate the execution of a **for or while loop**.

Example :

```
for a = [10, 20, 16, 18, 12, 14]
  if (a == 18)
    break;
  end
  printf('value of a: %d\n', a);
end
```

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Exercise

1. Write an Octave program to display numbers from 1 to 10 (**Use While loop**)

2. Write an Octave program that will display the numbers from **5 to 50** with a **step of 5.** The program should display **5,10,15,20, 25,30,35,40,45,50**. (**Use While loop**).

3. Modify the program of Exercise 2 so that the numbers from **50 to 5** with a **step of -5** are displayed. The program should display **50,45,40,35,30,25,20,15,10, and 5**. Use (**While loop**) to solve this problem.

4. Using **While loop** and **Break Statement** write an octave program to display numbers **less than 20.**

5. Program to print the Fibonacci series up to 10 elements using **for loop**

6. Write an Octave Program to compute the square, cube, and fourth power of all integers **between 6 and 12**. **(Use for loop)**

7. Write an Octave Program only modify the first 5 values in row vector using the **for loop and break statement**.

8. Write a program to get the sum of the first 10 positive integers and Extend the program to get the sum of any positive integers numbers. (**Use for loop**)