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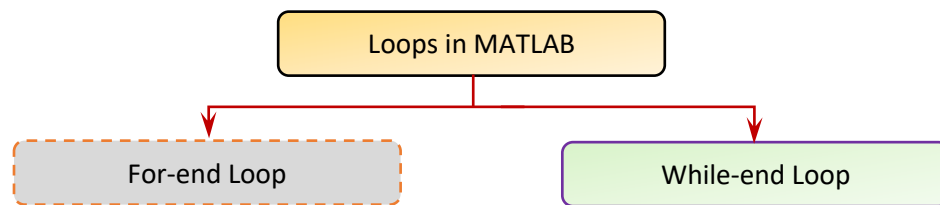2nd Year Civil Engineering / Hydraulics / Public Works

Course N°6

The while-end Loop

in MATLAB

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1. Repetitive execution/operation

MATLAB features two of the most common loop structures: counter loops (*for*) and conditional loops (*while*).

Unlike other languages, MATLAB only has two types of loop, *for* and *while*. For loops should be used when the number of iterations is known beforehand - as in 'Loop over these statements five times. When the required number of iterations is unknown, or may be different for each run of the program, use a while loop.

```
┌─────────────────────────────┐
│      Loops in MATLAB        │
└─────────────────────────────┘
```

```
┌─────────────────────┐    ┌─────────────────────┐
│    For-end Loop     │    │   While-end Loop    │
└─────────────────────┘    └─────────────────────┘
```

2. The *while-end* Loop

2.1. General loop structure

A while loop is used to repeat an operation until a condition is met.

An alternative to the *for loop* is the *while loop*. If an index in the program is required, the use of the while loop statement (unlike the for-loop statement requires that the program generates its own index. The basic syntax for a 'while' loop is as follows:

```
while (condition/expression)

….Loop statements…..;

end
```

Note.

➢ The while loop is very useful, for example, to reach process convergence.

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3.List of References

Kattan, Peter Issa. Matlab for Beginners: A gentle approach. Petra books, 2008.

Etter, Delores M., David C. Kuncicky, and Douglas W. Hull. Introduction to MATLAB. Vol.4. Hoboken, NJ, USA: Prentice Hall, 2002.

Attaway, Stormy. Matlab: a practical introduction to programming and problem solving. Butterworth-Heinemann, 2013.

Driscoll, Tobin A. Learning Matlab. Society for Industrial and Applied Mathematics, 2009.

Butt, Rizwan. Introduction to numerical analysis using MATLAB. Laxmi Publications, Ltd.,2008.

Sigmon, Kermit. Matlab: aide-mémoire. Springer Science & Business Media, 1999.

Chapman, Stephen J. Essentials of MATLAB programming. Cengage Learning, 2016.