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# MATLAB/GNU OCTAVE

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## ABSTRACT

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## 1 Introduction

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## 2 History

### 2.1 why was the language designed

Octave helps in solving linear and nonlinear problems numerically, and for performing other numerical experiments using a language that is mostly compatible with MATLAB.

### 2.2 who designed it

Developer: John W. Eaton and many others

### 2.3 what is its current status

It is a good language for now and still being used by many programmers.

## 3 Control Structures

There are many control structures inside Matlab. Just like many other basic language Java, C, python. Matlab has same control structures like for loop, if and else, while loop and so on. There are some similarities and differences.

The similarities between them is the structure looks the same, for loop, if else, and while loop are all having the same structure like Java or C. The unique part of Matlab is there is an extra element 'end' after each control structure. GNU Octave Beginner's Guide [4] has showed an example of if and else structure.

```
if condition 1
do something (body)
elseif condition 2
do something else (body)
else
do something else if if condition not met (body)
endif
```

The example above shows exactly how an if and else control structure looks in Matlab. The only unique part is the `endif`, by using the `'endif'` toward the end of the structure declares that the if and else statement ends here. This unique `'end'` not only helps to tell the structure ends here, but also can be used in many different structure. There are also `'endwhile'`, `'endfor'` and so on. It will help to tell programmer when does the specific structure ends. There are some more examples shows while loop and for loop.

for loop:

```
for i = 1 : 20
```

```
fprintf(i);
```

```
endfor
```

while loop:

```
i = 1;
```

```
while i < 11
```

```
fprintf(i);
```

```
i++;
```

```
endwhile
```

The above shows for loop and while loop control structure. The unique shows `'endfor'` and `'endwhile'` to declare these two structures end.

## 4 Data Types

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## 5 Subprograms

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## 6 Summary

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## References

- [1] Gnu octave: Simple examples.
  - [2] Matlab - gnu octave tutorial - tutorialspoint.
  - [3] John Wesley Eaton, David Bateman, and Søren Hauberg. *Gnu octave*. Network theory London, 1997.
  - [4] Jesper Schmidt Hansen. *GNU Octave: Beginner's Guide: Become a Proficient Octave User by Learning this High-level Scientific Numerical Tool from the Ground Up*. Packt Publishing Ltd, 2011.
- [4] [3] [2] [1]