Octave Programming Tutorial

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From the Octave website at Octave.

> Octave is a high-level language, primarily intended for numerical computations. It provides a convenient command line interface for solving linear and nonlinear problems numerically, and for performing other numerical experiments using a language that is mostly compatible with Matlab. It may also be used as a batch-oriented language.
> Octave has extensive tools for solving common numerical linear algebra problems, finding the roots of non-linear equations, integrating ordinary functions, manipulating polynomials, and integrating ordinary differential and differential-algebraic equations. It is easily extensible and customizable via user-defined functions written in Octave's own language, or using dynamically loaded modules written in C++, C, Fortran, or other languages.

The purpose of this collection of tutorials is to get you through most (and eventually all) of the available Octave functionality from a basic level.

A longer and more advanced Wikibook related to Octave Programming is the MATLAB Programming Wikibook. Those familiar with MATLAB that want to jump into Octave should consult MATLAB Programming/Differences between Octave and MATLAB.

Indeed, Octave is often viewed as a system for numerical computations with a language that is mostly compatible with Matlab, but that is available as free software under the GNU GPL, and that can replace it in many circumstances. This is why, only one advanced programming Wikibook is being written; but therein the differences between MATLAB and Octave languages are presented.

The available tutorials are

- Getting started (complete)
- Vectors and matrices (complete)
- Plotting
- Text and file output (complete)

- General mathematical functions
- Loops and conditions
- Writing functions
- Vectorization
- Linear algebra (complete)
- Differential equations
- Polynomials (complete)
- Sets
- Filter design

Complete beginners should follow the suggested roadmap:

1. Getting started
2. Vectors and matrices
3. Plotting
4. Text and file output
5. General mathematical functions
6. Loops and conditions
7. Writing functions
8. Vectorization

Thereafter, you can do the more specialized sections

- Linear algebra
- Differential equations
- Polynomials
- Sets

in any order.

Authors

- Henri Amuasi (updated by Carl Scheffler and Mike Pickles)

References

- Octave A great deal of this tutorial has been copied from this location, that is GFDL.