MATLAB: A Matrix Laboratory

MATLAB is a high-level language and interactive environment for numerical computation, visualization, and programming.

History:

- Development started in the late 1970's by Cleve Moler.
- Originally only for matrix computations.
- MathWorks was founded in 1984 to continue its development.

MATLAB can be used to analyze data, develop algorithms, and create models and applications.

Some features of MATLAB:

- Quick and easy coding.
- Minimal attention needed for data structure. No need of declaration for arrays.
- An interactive interface: allows rapid experimentation and easy debugging.
- High-quality graphics and visualization facilities.
- Portable MATLAB M-files.
- Toolboxes can be added
- Support object-oriented programming
- Interfacing with other languages

Shortcoming:
MATLAB is an *interpreted* language, less efficient than compiled languages.
But built-in performance acceleration techniques can be used to reduce inefficiency. You can generate readable and portable C code from your MATLAB code and compile it into a MEX-function.

Some points you should keep in mind when you use MATLAB:

- MATLAB is case sensitive.
- Typing the name of a variable will cause MATLAB to display its current value.
- A semicolon at the end of a command suppresses the screen output.
- MATLAB uses ( ) and [ ], and they are not interchangeable.
- $\uparrow$ and $\downarrow$ on the keyboard can be used to scroll through the previous commands.
- When creating a MATLAB function, the name of the file should match the name of the first function in the file.

There are many free MATLAB tutorials available on the Internet.