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MATLAB
Unit 1-Lecture 10

BTech (CSBS) -Semester VII

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*few figures/content have been prepared/referred from internet source/books

Introduction to MATLAB

- History,
- basic features,
- strengths and weaknesses,
- good programming practices
- plan your code

Advantages of MATLAB

- Easy to use interface: A user-friendly interface with features you want to use is one click away.
- A large inbuilt database of algorithms: MATLAB has numerous important algorithms you want to use already built-in, and you just have to call them in your code.
- Extensive data visualization and processing: We can process a large amount of data in MATLAB and visualize them using plots and figures.

Advantages of MATLAB

- Debugging of codes easy: There are many inbuilt tools like analyzer and debugger for analysis and debugging of codes written in MATLAB.
- Huge community: It has huge community support where many of the questions will be answered
- Platform-independent: MATLAB is platform independent and hence it can be installed on different Operating Systems such as Windows, Vista, Linux and Macintosh.

Disadvantages of MATLAB

- Sometimes, the error messages are not much informative, so you have to figure out the error yourself.
- Matlab is more expensive. The license is very costly, and users need to buy each and every module and need to pay for the same.
- Cross-compiling of Matlab code to other languages is very difficult and requires deep Matlab knowledge to deal with errors produced.

Disadvantages of MATLAB

- Matlab is used mainly for scientific research and is not suitable for development activities that are user-specific.
- Matlab is an interpreted language; thus, it can be very slow.Poor programming practices can contribute to making Matlab unacceptably slow.
- It requires fast computer with sufficient amount of memory. This adds to the cost for individuals willing to use it for programming.

MATLAB good programming practices

- Use variables instead of hard coded numbers. Put these numbers at the top of your scripts and functions
- Write functions for things you do over and over again
- Use descriptive variable names
- Put in comments to describe tricky parts of your code
- Document your functions

MATLAB good programming practices

- Use MATLAB built-in functions when they are available.
- Learn how to use structures and cell arrays well
- Check your code
- Learn how to use the MATLAB debugger functions.
- Write scripts for each figure you need to make.
- Always indent the body of an if construct by two or more spaces to improve the readability of the code

MATLAB good programming practices