UNIT – I

History of MATLAB

1. MATLAB was not a programming language but was a simple interactive calculator.
2. 1970 there was EISPACK (Matrix Eigon System PACKage) and LINPACK (LINear Equation PACKage) which was invented and was invented in FORTRAN.
3. After invention of these 2 packages the MATLAB was invented in late of 1970's by **CLEVE MOLER,** he was working in computer science department at university of New Mexico.
4. After this he tried to develop MATix LABoratory (Software Libraries for numerical Computing using FORTRAN).
5. Cleve Molar with Jack Little and Steve Bangret worked in MATLAB using C and founded MathWorks.
6. In 1984 rewrote to MATLAB using C and the software libraries were known as JACKPACK and LINPACK.
7. In every 6 months they launch new version and updates.

Features of MATLAB.

1. MATLAB is a high-level language.
    a. Study Data Structures
    b. Control Flow Statements
    c. Object Oriented Programming
    d. Create and Solve Complex and large application.
2. MATLAB provides interactive environment
    a. MATLAB allows interactive exploration, design and problem solving.
    b. It consists of bunch of toolboxes.
    c. It also consists of tools for development, handling, debugging, and profiling files.
3. Handling Graphics
    a. It offers built in graphics
    b. Tools for generating customized plots
    c. Data visualization
    d. 2D and 3D animations
    e. Image Processing
    f. Graphical Representation
4. Accessing Data
    a. Supports sensor, video, image, telemetry, binary, and various real time data.
        i. JDBC/ODBC Databases
    b. Can read data from csv files
5. Application Program Interface (API)
6. Toolboxes
    a. There are many toolboxes in MATLAB depending what kind of work we do.
    b. Image Processing Toolbox
    c. Aerospace Toolbox
    d. Deep Learning
    e. Simulink
7. Large libraries of mathematical functions
    a. Integration
    b. Trigonometric Functions

    c. Logical Functions
8. Interaction with other languages
9. Simulink
    a. Designing Based Library Package
    b. Design Control System power system etc
10. Interface with other languages.

Advantages of MATLAB

1. Has Easy User Interface
2. Various types of inbuilt functions / libraries
3. Predefined Algorithms
4. Data Visualization
5. Debugging of codes
6. Huge Committee of MATLAB
7. Platform Independent

Disadvantages of MATLAB

1. Very Expensive
2. All the errors are not much informative
3. Cross-Compilation of Languages is difficult
4. It needs fast computers

MATLAB as a good programming language

1. Use various types of variables / codes / tables / inbuilt functions / inbuilt libraries etc.
2. Use of Descriptive variable names
3. Write own functions and can-do things over again
4. Write our own scripts
5. Indenting (if else loop spacing)
6. Combine 2 or more codes simultaneously