Session – 25 : Introduction to alternate languages for programming

18-10-2019, 08:00 – 09:00 Hrs, RJN 302

1. Alternate tools for programming:

Apart from Python and Sage, there are also a number of other (high level) programming languages that are used by scientific research community across the world. You can look at the websites of respective languages to know more. From this list, we pick octave for illustration in the class.

1.1 Free and open source

octave	`https://www.gnu.org/software/octave/`
julia	`https://julialang.org/`
R	`https://www.r-project.org/`
Scilab	`https://www.scilab.org/`
perl	`https://www.perl.org/`
scala	`https://www.scala-lang.org/`

1.2 Commercial

Matlab	https://in.mathworks.com/
Mathematica	https://www.wolfram.com/
Maple	https://maplesoft.com/
IDL	https://www.harrisgeospatial.com/Software-Technology/IDL

2. Programming in Octave:

Use of array syntax in Octave – for array operations and for element-by-element operations
Simple programs using “for loops”
Use of 1D plots using symbols and lines connecting them
Use of 2D plots using contours, filled contours, quiver plots for vectors, pcolor plots using different colormaps. Use the command “peaks” to create sample array of data to try out. One can also create arrays using Gaussian functions, sine functions etc., readily.
Use of surface or mesh plots for 3D representation of data.

Most of the syntax of octave is compatible with Matlab so one can look at examples on Matlab too.