Summer of softwares

* Matlab Non-linear Equations:
* Matlab functions for root finding
* MATLAB has two primary built-in functions for solving nonlinear equations. The fzero function solves a single nonlinear equation, and the fsolve function solves systems of nonlinear equations.
* fzero needs two things to find a root.

a function and general location of the desired root.

* For fzero, the function must be passed as an input to fzero using a *function handle*.

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* If your root finding problem is a polynomial, you may choose to use the roots function instead.
* Anonymous Functions
* An anonymous function is a way to define a simple function and store it as a variable in the workspace.

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* The fplot function plots f over the specified interval.

Ex. fplot(f,[-2 2])

* Using fzero function
* The fzero function takes a function handle and an interval as inputs and returns exactly one root in the interval.

Graphical user interface, text, application

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* Graphical user interface, text, application

  Description automatically generatedThe fzero function can also be called using an approximate location of the root, instead of an interval. In this case, fzero first attempts to find an interval bracketing the root, then proceeds as before
* Multivariable Anonymous function
* Anonymous functions can be defined to accept more than one input, which makes them useful for evaluating and visualizing multivariable functions.

Chart, surface chart

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* To find a value at a particular point we use following command

Z=func(x,y).

* We can visualize a function of two variables by creating a surface plot.

A surface plot is defined by z=f(x,y). For each (x,y) pair, the function is evaluated to find z, then a surface is created by connecting all the (x,y,z) points.

we can create a surface plot in MATLAB by passing a function handle to the fsurf function.

Ex. fsurf(myFun)

This function plots graph I interval [-5,5] by default .

If we want to change this range, we can by giving range

Ex. fsurf(myFunc,[-3,3]) and fsurf(myFunc,[ -3 3 -4 4] etc

* We can use fimplicit to plot an implicit function defined by f(x,y)=0. Like fsurf, fimplicit uses the default interval -5 to 5 unless otherwise specified.
* Use fimplicit3 function to plot 3D implicit functions.
* fsolve function
* syntax is w=fsolve(fun,w0)

where fun- is function handle for system to solve

w0= An initial guess for the desired root . w0 must be a vector

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