Command Window Operations

MATLAB is mostly used by typing statements into the *Command window*. The following table provides examples of uses for the command window

Purpose	Examples	Comments
Assign a value	`x = 3` `y = 7;`	A semicolon at the end of the line suppresses printing of a result
Create a vector	`x = linspace(0,25);` `y = linspace(1,10,20);`	x is a row vector with 100 equally-spaced values from 0 to 25 y is a row vector with 20 equally-spaced values from 1 to 10
Access elements of a vector	`x = linspace(0,25);` `z = x(5)/x(7);`	`x(i)` is the ith element of vector `x`.
Vector operations with built-in functions	`x = linspace(0,25);` `y = sin(x);`	y is a vector of values. y has the same number of elements as vector x. Each y(i) is the value of `sin(x(i))`.

Making Plots

Primary 2D plotting commands are

`plot(x,y)`	Plot vector y versus vector x where both the x axis (horizontal) and y axis (vertical) have linear scales.
`semilogx(x,y)`	Plot vector y versus vector x where the x axis (horizontal) is logarithmic and the y axis (vertical) is linear.
`semilogy(x,y)`	Plot vector y versus vector x where the x axis (horizontal) is linear and the y axis (vertical) is logarithmic.
`loglog(x,y)`	Plot vector y versus vector x where both the x axis (horizontal) and y axis (vertical) have logarithmic scales

In each of the preceding plot commands, x and y must have the same number of elements.

Plot commands can have many additional arguments. The most common additional argument is a format specifier for the symbol used for each of the data points and the line type (if any) for the line segments connecting adjacent data points. The format specifier is a string that may include a color indicator (`r` for red, `b` for blue, etc.), symbol type (`o` for circles, `s` for squares, etc.), and line type (`-` for solid line, `--` for dashed line, etc.).

Here are some examples of plot commands.

`plot(x,y,'o')`	Data points are identified with a circle.
`plot(x,y,'--')`	Data points are connected by dashed lines.
`plot(x,y,'rv:')`	Data points are identified by red, downward pointing triangles and connected by red dotted lines.

Type `help plot` to see the combinations

Loading data from a text file

```
D = load('file_name.txt')
```

Functions for statistical analysis

`hist(x)`	Create a histogram of the data in vector `x`
`mean(x)`	Compute the mean (average) of the data in vector `x`
`median(x)`	Compute the median of the data in vector `x`
`std(x)`	Compute the standard deviation of the data in vector `x`

User-defined functions

```
function [out1, out2, ...] = theFunctionName(in1, in2, ...)
%
%  Comment statements begin with %
%

%   Body of the function goes here

end    %  last line of the function is 'end'
```