Introduction to Matlab

Matlab GUI, Variables, Printing, Scripts and Functions

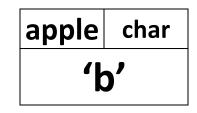
Matlab Desktop Environment

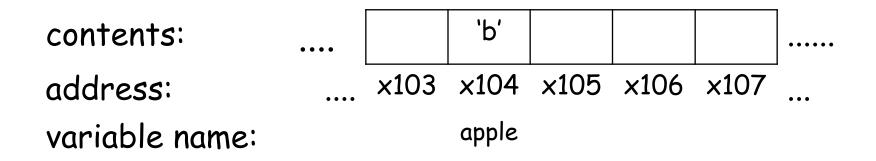
- Command Window
 Command prompt
- Command History
- Workspace
- Current Directory
- Help
- Dock/Close windows
 - Home->Layout to get them back.

File Edit Debug Parallel Desktop Window		
Shortcuts 🛃 How to Add 🖪 What's New 🗄 🎦		
Current Folder 🗰 🛤		III U Vorkspace 🗝 🖬
🕌 « webdata 🕨 doc 🕨 01 🛛 🔻 🔎 🛍	New to MATLAB? Watch this <u>Video</u> , see <u>Demos</u> , or read <u>Getting Started</u> .	🗙 🛅 📷 🝓 🖏 🐝 Stack: Base 💌 🕼 Select data to plo
Name 🔶	>> a=2+2	Name A Value Class
test1.txt		a 4 double ans 30 double b 2.3333 double
k testfunction.m		ans 30 double b 2.3333 double
1 testscript.m	a =	D 2.3333 double
	4	
	>> 5*6	
	ans =	
	30	
	>> b=7/3	Command History 🔫 🗖
		B-% 4/8/2012 4:49 PM%
		a=2+2
	b =	
testfunction.m (MATLAB Function)	×	5*6
returns the sum of a and b	2.3333	b=7/3
testfunction(a, b)	$f_X >>$	
	J	

Variables

apple='b';





Variables

- letter[letter|digit|underscore]*
- names are CaSe SeNsItIvE
- Can be anything
 - Use short, meaningful names
 - reflect what they store
 - avoid using names of existing functions
- who, whos
- ans
- clear('apple')
- exist('apple','var')

Expressions & Assignments

- variablename = expression ;
- Semicolon at the end suppresses display of results.
- a=2*sin(1.4)
- a =

1.9709

• A=2+2;

Recommended semicolon use

- In command window:
 - Semicolon is optional.
 - Use semicolon when you want to see the result.
- In files (functions or scripts):
 - Always use semicolon.
 - Assignments require you to suppress all output within your functions.

Exercise

- Let a and b be two variables
- Swap the contents of a and b.

 As example, if a=5, b=3 to start with, your code should end up with a having 3, b having 5.

Printing Numbers

- format [short | long | short e | long e | hex | rational]
- fprintf('***%5d***%05d***%c***%.3f***\n',2,3,4,5)
- sprintf('\$%.2f',6.234)

Operators

- Unary operators: -
- Binary operators: + * / \ ^
- Operator precedence:

- () ^ unary - * / + - =

- Exercise: What are the results of the following expressions?
 - 4 ^ 2 1
 - 4 ^ (2 1)
 - 2*3^2
 - -5^2
 - 1/ 2/4
 - 2 \ 3
 - 4 * 2 9 / 3
 - 5 - 3
 - 5 - 3

Exercise 1.7

 The combined resistance of three resistors in parallel is given by:

•
$$R_T = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}}$$

• Create variables R1, R2, and R3 containing 1,2,3, respectively. Write an expression to calculate R_T in terms of R1,R2, and R3.