

Pengantar Matlab

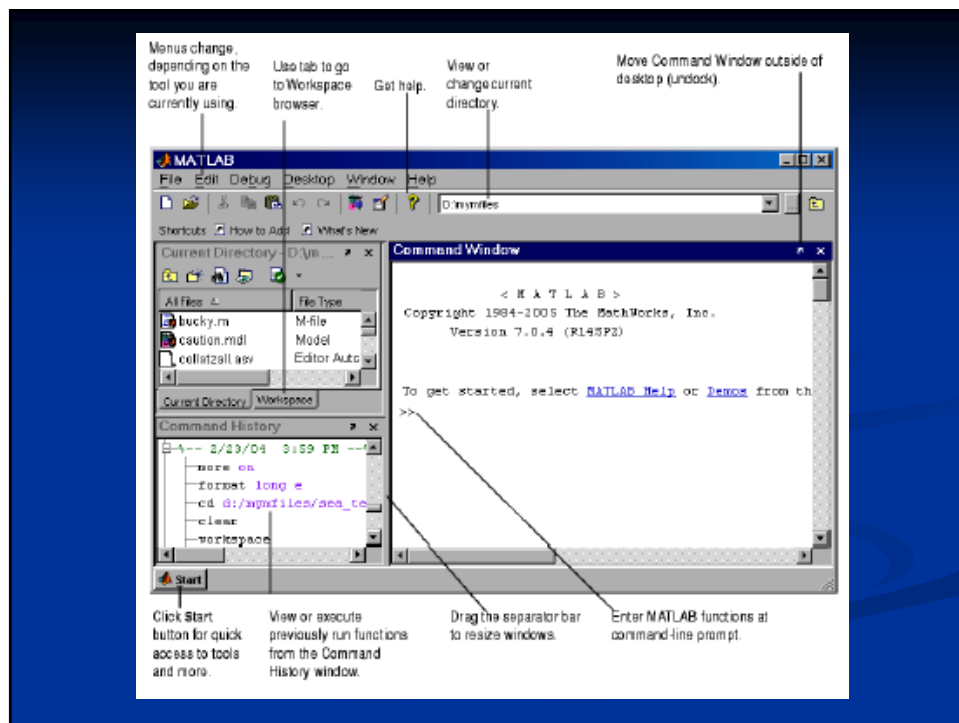
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Apa itu Matlab

- The name MATLAB stands for MATrix LABoratory.
- MATLAB was written originally to provide easy access to matrix software
- developed by the LINPACK (linear system package) and EISPACK (Eigen system package) projects.

Starting MATLAB

- When you start MATLAB, a special window called the MATLAB desktop appears.
- The desktop is a window that contains *other* windows. The major tools within or accessible from the desktop are:
 - ²The Command Window
 - ²The Command History
 - ²The Workspace
 - ²The Current Directory
 - ²The Help Browser
 - ²The Start button



MATLAB as a calculator

- As an example of a simple interactive calculation, just type the expression you want to evaluate.
- For example, let's suppose you want to calculate the expression, $1 + 2 * 3$. You type it at the prompt command (`>>`) as follows,

```
>> 1+2*3  
ans =  
7
```

- You may assign a value to a variable or output argument name. For example,

```
>> x = 1+2*3  
x =  
7  
>> 4*x  
ans =  
28.0000
```

Operators

Table 1.1: Basic arithmetic operators

SYMBOL	OPERATION	EXAMPLE
+	Addition	$2 + 3$
-	Subtraction	$2 - 3$
*	Multiplication	$2 * 3$
/	Division	$2/3$

MATLAB variables

- variable name = a value (or an expression). For example,

```
>> x = expression
```

```
>> t = 5;
```

```
>> t = t+1
```

```
t =
```

```
6
```

Error messages

- If we enter an expression incorrectly, MATLAB will return an error message. For example, in the following, we left out the multiplication sign, *, in the following expression

```
>> x = 10;
```

```
>> 5x
```

```
??? 5x
```

```
|
```

```
Error: Unexpected MATLAB expression.
```

Controlling the hierarchy

- Let's consider the previous arithmetic operation, but now we will include *parentheses*. For example, $1 + 2 * 3$ will become $(1 + 2) * 3$

```
>> (1+2)*3  
ans =  
9
```

- previous example

```
>> 1+2*3  
ans =  
7
```

Hierarchy of arithmetic operations

Table 1.2: Hierarchy of arithmetic operations

PRECEDENCE	MATHEMATICAL OPERATIONS
First	The contents of all parentheses are evaluated first, starting from the innermost parentheses and working outward.
Second	All exponentials are evaluated, working from left to right
Third	All multiplications and divisions are evaluated, working from left to right
Fourth	All additions and subtractions are evaluated, starting from left to right

Getting help

- To view the online documentation, select MATLAB Help from Help menu or MATLAB Help directly in the Command Window. The preferred method is to use the *Help Browser*.
- The Help Browser can be started by selecting the icon from the desktop toolbar.
- On the other hand, information about any command is available by typing
 - >> help Command
 - >> help sqrt