



General Computer Science for Engineers CISC 106 Lecture 06

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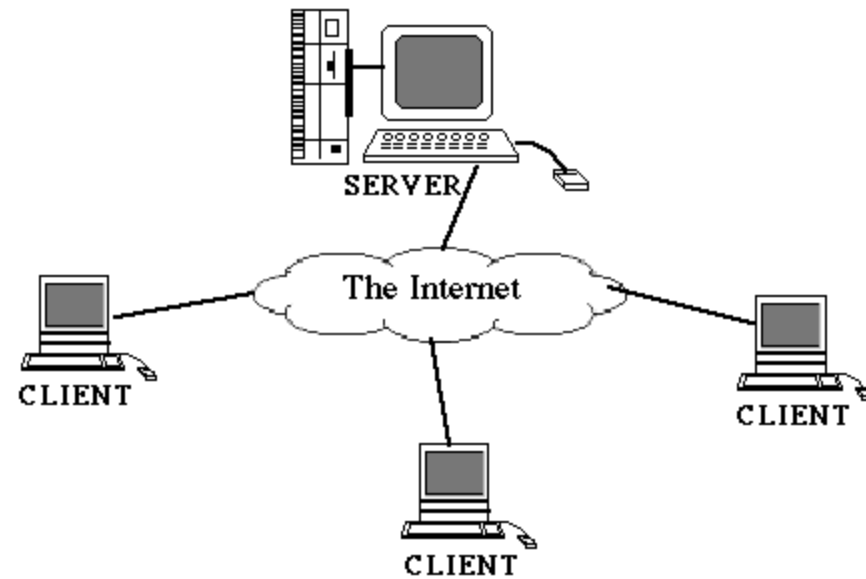
Lecture Overview

- How to log into Strauss
- Importance of play and practice
- Arrays

What is Strauss?

- Strauss is a server
- Accessed by clients
- Client/Server
- Protocol: ssh (secure shell) (like http, ftp, email etc.)
- Secure = encrypted
- Applications listed on course website

Client/Server



How to log into Strauss

- `strauss.udel.edu` is the hostname
- From a Unix command line, you would type:

`ssh strauss.udel.edu`

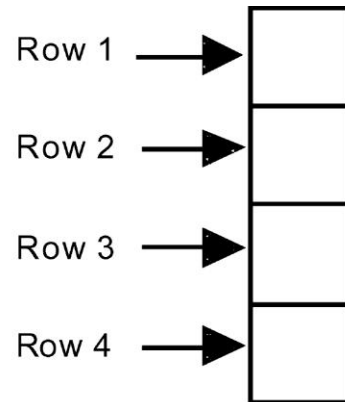
(NB: You may need to put 'username@' in front of the hostname.)

Using a GUI program, you would put the hostname, `strauss.udel.edu`, into the relevant textbox.

Importance of Play and Practice

- Must program (play) more than 1 day a week
- MATLAB is easy to use, forgiving, instantaneous results (quick turnaround)
- Predefined functions (i.e. don't have to reinvent the wheel)
- 10,000 hours rule
- National math exams example

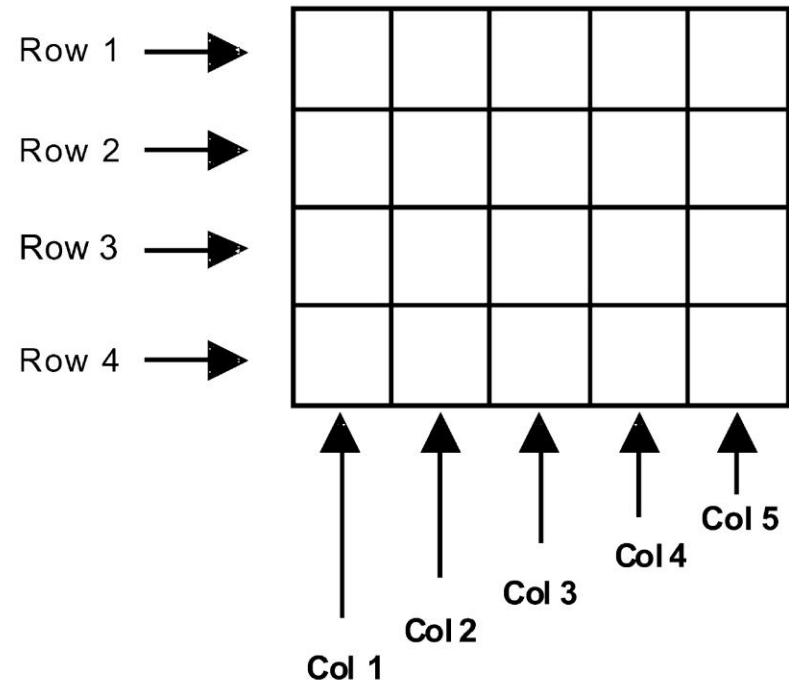
Arrays



`a1(irow)`

(a)

One-Dimensional Array



`a2(irow,icol)`

(b)

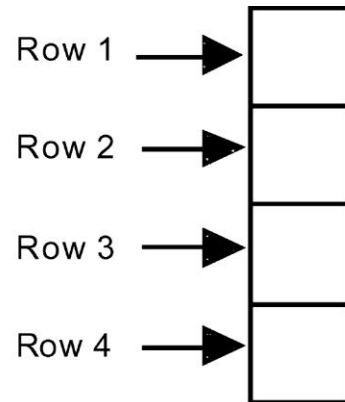
Two-Dimensional Array

Figure 2.2 Representations of one- and two-dimensional arrays.

Arrays

- Fundamental unit of data in MATLAB
- Collection of data into rows and columns
- (MATrix LABoratory)
- 1 dimensional, vector
- 2 dimensional, matrix
- 0 dimensional, scalar (a 1x1 array)
- Row vector, column vector , transpose

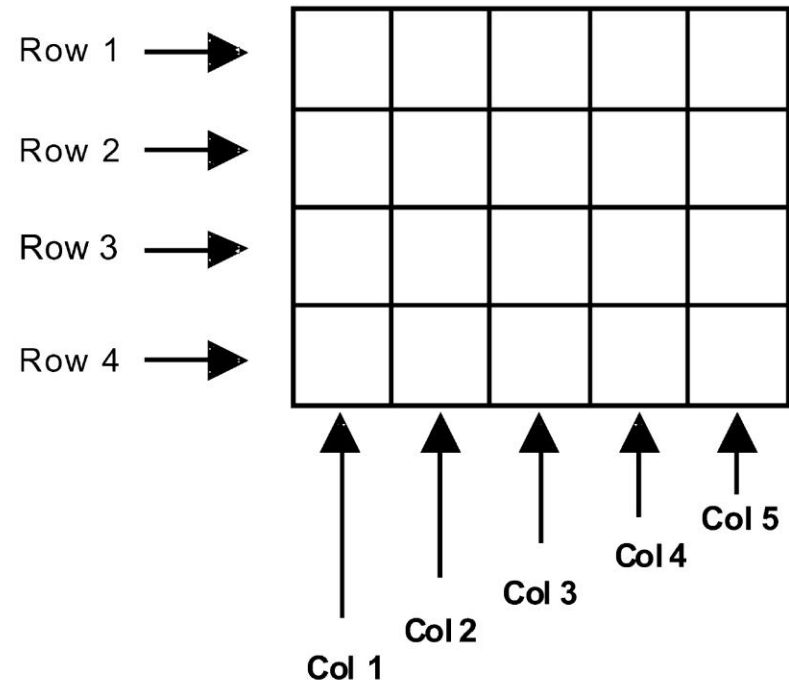
Arrays



`a1(irow)`

(a)

One-Dimensional Array



`a2(irow,icol)`

(b)

Two-Dimensional Array

Figure 2.2 Representations of one- and two-dimensional arrays.

Array commands

- `a = [1 2 3 4]`
- `b = [1; 2; 3; 4]`
- `c = [1 2; 3]` (error)
- `d = [1 2; 3 4]`
- `f = d(1,2)`
- `g(4,5) = 7`
- Shortcuts (also `a = 1:4`) or `h = 1:3:15`
- (may come in handy for lab)

Arrays continued

- `c = 1:3:30; whos c`
- `zeros()`, `ones()`, `eye()`
- scalar vs. array arithmetic
- (NB: not matrix arithmetic)
- `+`, `-`, `*` (`.*`), `/` (`./`) `^` etc.

Conclusion

- Important to know how to log into Strauss
- Practice new commands and concepts after lecture and lab
- Arrays and matrices, fundamental data unit of MATLAB



Questions

- Any questions?