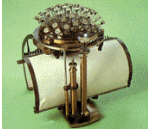# Text Processing

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# Outline

- Announcements:
  - Homework I: due Today. by 5, by e-mail
    - Discuss on Friday.
  - Homework II: on web
- Text
- Matlab path
- Survey

---

# This isn't English!

- Why do we need text?
  - Comments from functions
  - File names
  - Label plots
  - Interact with users
  - Record-based I/O

## Hello World!

- Create strings with single quote (')
  - a='Hello World!'
- Believe it or not, characters are not doubles
  - a is an array of char
- Can display text nicely with disp(str)
  - if str is a matrix, each row is a new line

## Working with text

- Concatenation--same as with other vectors
  - a='Hello'; b='World!';
  - greetings=[a, ' ',b];
  - Will greetings=[a;b] work?

## Number-to-String Conversions

- int2str & num2str convert numbers to text
- str2num converts to numbers

## Searching for strings

- can search for single characters with find
- search for substring ss in str with
  - I=findstr(ss,str)
  - findstr(str,ss) would also work if length(ss)<length(str)

## Working with ASCII

- double(str) returns an array with ASCII codes
  - str='012ABCabc'
  - num=double(str)=[48  49  50  65  66  67  97  98  99]
- char(num) converts ASCII codes to char
  - char(num) returns '012ABCabc'

## Misc. Text Functions

- R=input(QuestionStr)
  - asks user for input, returned as R
- xlabel, ylabel, title --label plots
- text(x,y,str)--places string at x,y on plot
- S=sprintf(str,  val1, val2, …)--C-like string creation
  - S=sprintf('Integer  %d\nDouble %f\n', 5, -pi);
    Integer  5
    Double  -3.141593
    - S is 1-by-27

## Matlab Path

- Matlab maintains a list of directories where it searches for files
- Type "path" to see
- Can add directories using addpath or through GUI
- To make permanent, place addpaths in startup.m
  - a special script that is executed at startup

## Personal Opinion*

- Create your own m-files directory, & put m-files there
  - group m-files into subdirectories by topics
- Place addpaths in startup.m so you can always use your functions
- CD into data directories & work there
- On multi-user PC system, may need to call your startup file each time you start (to keep your stuff separate from everyone else)

*Above is the instructor's opinion and does not necessarily reflect that of CIS or Cornell University

## Survey

- You now know the basics of Matlab
  - The rest of the course will be spent extending and reinforcing that knowledge
- More Matlab or more applications?

| Matlab | Polymorphic functions | |
| --- | --- | --- |
| | Objects beyond arrays | |
| | Improving performance | |
| Applications | File I/O (binary & text) | |
| | Linear Systems | |
| | Diff. Equations | |
| | Statistics | |
| | Graphics | |
| | Polynomials & splines | |