Text Processing

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
  – int2str(2) returns ’2’
• str2num converts to numbers
  – str2num(’3’)*2 returns 6
**Searching for strings**

- can search for single characters with `find`
  - `str='Scripts are evil!'`;
  - `I=find(str==' ')`; % I=[8 12]
- search for substring ss in str with
  - `I=findstr(ss,str)`
    - `I=find('evil',str);` % I=[13];
  - `findstr(str,ss)` is the same
    - `findstr` always searches for small string in big string

**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
  - For entertainment purposes only. Function arguments are the best way to get info into your functions
- `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 array of char
String Summary

- Matlab stores strings in arrays of char (ASCII)
  - convert to ASCII values with double, to ASCII text with text
  - Convert numbers to strings with int2str, num2str, sprintf
  - Convert strings to numbers with str2num
- Search strings with find (single character) or findstr (substring)

Matlab Path

- Matlab maintains a list of directories where it searches for files
  - m-files, data files
- Type "path" to see
- Can add directories using addpath or through GUI
  - Ex: addpath('D:\Andy\mfiles')

startup.m

- startup.m is a special script (the only good one!) that (if it exists) is executed as Matlab starts
  - Not installed-You must create it
- On UNIX/Mac, startup.m is in ~/matlab
- Windows: $MATLABROOT\toolbox\local
- Windows NT/2000: in matlab in Profiles directory
  - Ex: C:\WINNT\Profiles\andy\matlab
  - Can find out where profiles are found by typing getenv('USERPROFILE')
**startup.m**

**Uses of startup.m**
- Personalize path—place addpath statements
- Customize matlab
- Set default directory
- Set default graphics output (see 402)

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**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**

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

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**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?**

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