

EE 224

Reading, Writing, and Saving Files

There are a number of way to read data into MATLAB or to write data back out. We are going to look at the following:

<code>importdata</code>	reads data from files in various formats
<code>fopen</code>	opens a file
<code>fclose</code>	closes a file
<code>fscanf</code>	Read data from a text file
<code>save</code>	saves a file in a specified format
<code>type</code>	prints a file in the command window
<code>diary</code>	saves MATLAB commands in a log file as you work
<code>fprintf</code>	Prints data to a text file or the printer

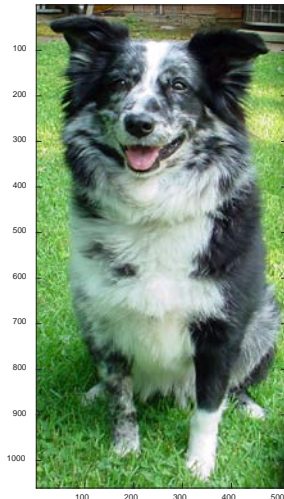
There are other I/O function than those listed above but this list gives the most common.

Examples

importdata

`%ImportPhoto.m`

```
filename = 'sophie.jpg'; %sophie is a photo in the current directory
photo = importdata(filename);
image(photo);
```



`%TextFileIn.m`

```
filename = 'Grades.txt';
```

```

delimiterIn = ' ';
headerlinesIn = 1;
dataIn = importdata(filename,delimiterIn,headerlinesIn);
disp(dataIn.data);
disp(dataIn.colheaders);
%Grades.txt is a text file with 17 rows and 4 columns that is in the
currently workspace.

```

```

>> TextFileIn
    51    62    45    51
    49    72    48    65
    66    68    63    59
    56    61    66    65
    30     0     0     0
    81    84    91    65
    62    71    76    81
    69    69    55    71
    68    84    66    60
    52    75    76    64
    40    68    73    60
    48    53    59    57
    66    79    73    88
    63    57    64    66
    71    91    78    90
    68    75    64    69
    89    81    83    83
    'T1'    'T2'    'T3'    'Fin'

```

You can also use `importdata` to get data that has been copied to the clipboard using:

```
dataIn = importdata('-pastespecial');
```

fscanf, fopen, fclose

We use `fopen` and `fclose` to open and close files and we use `fscanf` to read the data from the file.

```

%fscanfExamp.m
filename = 'Grades.txt';
fid = fopen(filename, 'rt');
fgetl(fid); %Read one line to ignore the header
%file identifier is fid, 'rt' is open for reading text
data = fscanf(fid, '%d', [4 17]);
disp(data');

```

```
>> fscanfExmp
    51    62    45    51
    49    72    48    65
    66    68    63    59
    56    61    66    65
    30     0     0     0
    81    84    91    65
    62    71    76    81
    69    69    55    71
    68    84    66    60
    52    75    76    64
    40    68    73    60
    48    53    59    57
    66    79    73    88
    63    57    64    66
    71    91    78    90
    68    75    64    69
    89    81    83    83
```

save, type, diary

The `save` command saves the workspace variables to a file as in

```
save (filename)
```

where `filename` is a string name of a file.

The `type` command prints a file to the command window.

```
type('Grades.txt');
```

prints the file `Grades.txt` to the screen. You can also use this on m-files.

The `diary` command saves all subsequent commands to a file as in

```
diary('mylog.txt');
```

You can also use `diary on` and `diary off` to temporarily suspend the diary.

fprintf

This command is similar to `fscanf` but it does output instead of input. The format specifiers are similar.

```
%fprintfExmp.m
```

```
x = 0:pi/5:2*pi;
```

```
y = sin(x);
```

```
fid = fopen('SinValue1.txt', 'w');
```

```
for i = 1:length(x)
```

```
    fprintf(fid, '%f %f\n', x(i), y(i));
```

```
end
```

```
disp(x);
```

```
fclose(fid);
```

0.000000	0.000000
0.628319	0.587785
1.256637	0.951057
1.884956	0.951057
2.513274	0.587785
3.141593	0.000000
3.769911	-0.587785
4.398230	-0.951057
5.026548	-0.951057
5.654867	-0.587785
6.283185	-0.000000