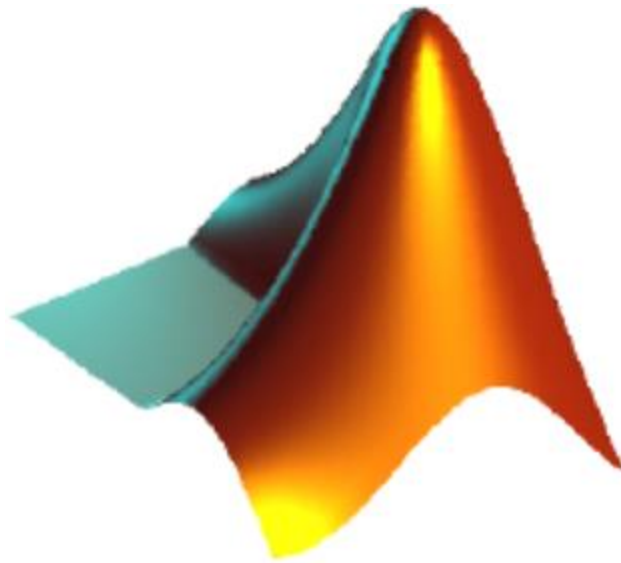


# Data Import Matlab



# Import Data

- Importing data in MATLAB means loading data from an external file.
- **Importdata** function import data using the syntax:

```
%Loads data into array A from the file denoted by filename
```

```
A = importdata(filename)
```

```
%Interprets delimiterIn as the column separator in, filename
```

```
A = importdata(filename, delimiterIn)
```

```
%Loads data from filename, reading numeric data starting from line headerlinesIn+1.
```

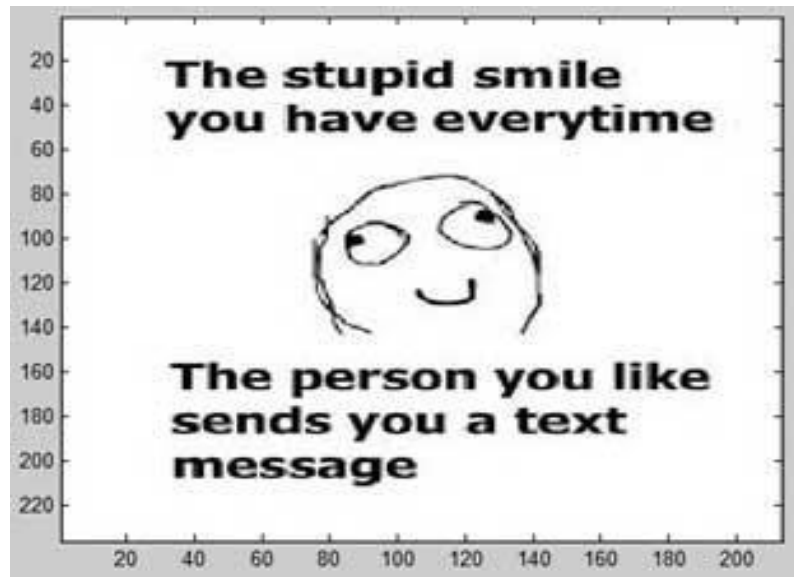
```
A = importdata(filename, delimiterIn, headerlinesIn)
```

```
% A is a struct with fields: data(array of the file data), colheader (cell of the file header row '1st row')
```

# Import Data (image): Example

- Load and display an image file.

```
>>filename = 'smile.jpg'; %the file is located in the current folder  
>>A = importdata(filename);  
>>image(A);
```



# ***Import Data: Example 2***

- Import a **text file** and specify **Delimiter** and **Column Header**.
- Let us create a space-delimited ASCII file with column headers, named *text.txt*.
- Our text file *text.txt* looks like this:

```
One two three  
1 2 3  
4 5 6  
7 8 9
```

# Import Data: Example 2 (Solution)

- Import a text file and specify Delimiter and Column Header.
- Let us create a space-delimited ASCII file with column headers, named *text.txt*.
- Our text file *text.txt* looks like this:

```
One two three
1 2 3
4 5 6
```

```
>>A = importdata('text.txt', ' ',1);
```

```
>>A
```

```
A = data: [3x3 double]
      textdata: {1x3 cell}
      colheaders: {1x3 cell}
```

```
>>A.colheaders
```

```
ans= 'One' 'two' 'three'
```

```
>>A.Data
```

```
ans= 1 2 3
      4 5 6
      7 8 9
```

## ***Import Data: Example 2***

- Import a text file and specify Delimiter and Column Header.
- Let us create a space-delimited ASCII file with column headers, named *weeklydata.txt*.
- Our text file *weeklydata.txt* looks like this:

```
SunDay MonDay TuesDay WednesDay ThursDay FriDay SaturdDay
95.01 76.21 61.54 40.57 55.79 70.28 81.53
73.11 45.65 79.19 93.55 75.29 69.87 74.68
60.68 41.85 92.18 91.69 81.32 90.38 74.51
48.60 82.14 73.82 41.03 0.99 67.22 93.18
89.13 44.47 57.63 89.36 13.89 19.88 46.60
```

## ***Import Data: Example 2 (Cont.)***

```
filename = 'weeklydata.txt';
delimiterIn = ' ';
headerlinesIn = 1;
A = importdata(filename,delimiterIn,headerlinesIn);
% View data
[r, c]=size(A.colheaders);
for k = [1:c]
disp(A.colheaders{1, k})    % printing the file header row (stored as a cell in the struct A)
disp(A.data(:, k))        % printing the file data (stored as an array in the struct A)
disp(' ')
end
```

# ***Import Data: Example 2 (Result.)***

<b>SunDay</b>	<b>WednesDay</b>	<b>SaturdDay</b>
95.0100	40.5700	81.5300
73.1100	93.5500	74.6800
60.6800	91.6900	74.5100
48.6000	41.0300	93.1800
89.1300	89.3600	46.6000
<b>MonDay</b>	<b>ThursDay</b>	
76.2100	55.7900	
45.6500	75.2900	
41.8500	81.3200	
82.1400	0.9900	
44.4700	13.8900	
<b>TuesDay</b>	<b>FriDay</b>	
61.5400	70.2800	
79.1900	69.8700	
92.1800	90.3800	
73.8200	67.2200	
57.6300	19.8800	

# Import Data: xlsread

- To read data from excel file, xlsread function is used.

**%Loads data into array A from sheet1 in the file denoted by filename.xlsx .**

***Delimiter stores the column header(1<sup>st</sup> row)***

**[A, colHeader] = xlsread (filename)**

**%Loads data into array A from a specified sheet in the file denoted by filename .**

**[A, colHeader] = xlsread (filename, sheetname)**

**%Loads data into array A from a specific range of data from a certain sheet in the file denoted by filename .**

**A = xlsread (filename, sheetname, range)**

**%Loads all data from all excel sheets in the file denoted by filename.xlsx**

**A = importdata(filename.xlsx)**

**%To get information about an excel file**

**[status,sheets, format] = xlsinfo(filename)**

# Import Data: xlsread (Examples)

- Create a **weeklydata.xlsx** file, and divide it into two sheets; the 1<sup>st</sup> has two rows while the 2<sup>nd</sup> one has the rest three rows.

```
>> [A, colHeader] = xlsread ('weeklydata')
```

```
A =
```

```
95.0100 76.2100 61.5400 40.5700 55.7900 70.2800 81.5300  
73.1100 45.6500 79.1900 93.5500 75.2900 69.8700 74.6800
```

```
colHeader =
```

```
'SunDay' 'MonDay' 'TuesDay' 'WednesDay' 'ThursDay' 'FriDay' 'SaturdDay'
```

```
>> [A, colHeader] = xlsread ('weeklydata', 'Sheet2')
```

```
A =
```

```
60.6800 41.8500 92.1800 91.6900 81.3200 90.3800 74.5100  
48.6000 82.1400 73.8200 41.0300 0.9900 67.2200 93.1800  
89.1300 44.4700 57.6300 89.3600 13.8900 19.8800 46.6000
```

```
colHeader =
```

```
'SunDay' 'MonDay' 'TuesDay' 'WednesDay' 'ThursDay' 'FriDay' 'SaturdDay'
```

# Import Data: xlsread: Examples (Cont.)

```
>>A = xlsread('weeklydata', 'Sheet1', 'C2:G3' )
```

```
A =
```

```
61.5400 40.5700 55.7900 70.2800 81.5300  
79.1900 93.5500 75.2900 69.8700 74.6800)
```

```
>>[status,sheets, format] = xlsinfo(filename)
```

```
status =
```

```
Microsoft Excel Spreadsheet
```

```
sheets =
```

```
'Sheet1' 'Sheet2'
```

```
format =
```

```
xlOpenXMLWorkbook
```

# Import Data: xlsread: Examples (Cont.)

```
>> A=importdata('weeklydata.xlsx')
```

```
A =  data: [1x1 struct]  
     textdata: [1x1 struct]  
     colheaders: [1x1 struct]
```

```
>> A.data
```

```
ans =  Sheet1: [2x7 double]  
       Sheet2: [3x7 double]
```

```
>> A.data.Sheet1
```

```
ans =  95.0100  76.2100  61.5400  40.5700  55.7900  70.2800  81.5300  
       73.1100  45.6500  79.1900  93.5500  75.2900  69.8700  74.6800
```

```
>> A.colheaders
```

```
ans =  Sheet1: {1x7 cell}  
       Sheet2: {1x7 cell}
```

```
>> A.colheaders.Sheet1
```

```
ans =  'SunDay' 'MonDay' 'TuesDay' 'WednesDay' 'ThursDay' 'FriDay' 'SaturdDay'
```

# ***Export Data: Excel file***

- To write data in an excel file, `xlswrite` function is used.
- **`xlswrite`** syntax is as follows:

*%to write array /cell of data (A) in an excel file denoted by filename  
%if file is not exist, Matlab will create one.*

**>> `xlswrite(filename,A)`**

*%to write array /cell of data (A) in a specific excel sheet*

**>> `xlswrite(filename,A, sheetname)`**

*%to write array /cell of data (A) in a specific range of an excel sheet*

**>> `xlswrite(filename,A, sheetname, range)`**

# Export Data: Excel file (Example)

**%writing arrays in an excel file**

```
>> A=[8 89 76 98 98 65 ;87 56 87 65 87 65 ;87 65 88 54 87 76];
```

```
>> xlswrite('test.xlsx',A)
```

```
>> Z=xlsread('test.xlsx')
```

```
Z =      8      89      76      98      98      65  
      87      56      87      65      87      65  
      87      65      88      54      87      76
```

```
>> A={'col1' 'col2' 'col3' 'col4' 'col5' 'col6' ; 8 89 76 98 98 65 ;87 5666 87 65 87 65  
;87 65 88 54 87 76};      %writting cells in an excel file
```

```
>> xlswrite('test.xlsx',A)
```

```
>> [Z, d]=xlsread('test.xlsx')
```

```
Z =      8      89      76      98      98      65  
      87      5666      87      65      87      65  
      87      65      88      54      87      76
```

```
d = 'col1' 'col2' 'col3' 'col4' 'col5' 'col6'
```

# Export Data: Excel file (Example 2)

```
>> A={'col1' 'col2' 'col3' 'col4' 'col5' 'col6' ; 8 89 76 98 98 65 ;87 5666 87 65  
87 65 ;87 65 88 54 87 76};
```

```
>> xlswrite('testSheet3',A, 'Sheet3')
```

```
>> [Z, d]=xlsread('testSheet3.xls', 'Sheet3')
```

```
Z =      8      89      76      98      98      65  
      87     5666      87      65      87      65  
      87      65      88      54      87      76
```

```
d = 'col1' 'col2' 'col3' 'col4' 'col5' 'col6'
```

# ***Export Data: Excel file (Example 3)***

```
>> A={'col1' 'col2' 'col3' 'col4' 'col5' 'col6' ; 8 89 76 98 98 65 ;87  
5666 87 65 87 65 ;87 65 88 54 87 76};
```

```
>> xlswrite('testSheet3',A, 'Sheet3', 'A1')
```

```
>> [Z, d]=xlsread('testSheet3.xls', 'Sheet3', 'B1:B4')
```

```
Z = 89
```

```
5666
```

```
65
```

```
d = 'col2'
```