MATLAT IN 21 DAYS –TUTORIALS

DAY THREE

MORE EXPLORATION OF MATLAB MATRIX IN-BUILT FUNCTIONS

1.fliplr – flip the matrix about the vertical axis(Flip matrix left to right).

Syntax

```
B = fliplr(A)
```

```
Example
```

1 s=magic(4)

B = fliplr(s)

B =

13 3 2 16

8 10 11 5

12 6 7 9

1 15 14 4

2 A= 1:2:9

X= fliplr(A)

```
X= 9     7     5     3     1
```

2 flipud-flip the matrix about the horizontal axis(Flip matrix up to down).

Syntax

```
B = flipud(A)
```

```
>> A=[(1:3)' (4:6)']
```

```
  >> B= flipud(A)

  B = 3     6
      2     5
      1     4
```

2. >> A=3:2:7

>> B=flipud(A)

B=

7

5

3

3 flipdim- Flip the matrix along the specified direction.

Syntax

```
B = flipdim (A,dim)
```

Description

`B = flipdim (A, dim)` returns `A` with dimension dim flipped.

When the value of dim is 1, the array is flipped row-wise down. When dim is 2, the array is flipped columnwise left to right. flipdim(A,1) is the same as flipud(A), and flipdim(A,2) is the same as fliplr(A).

Example

```
A=[(1:3)' (4:6)']
```

```
  >> B= flipdim(A,1)

  B = 3     6
      2     5
      1     4
Try flipdim(A,2).what did you get?
```

Constructing a Matrix from a Diagonal Vector

The diag function has two operations that it can perform. You can use it to generate a diagonal matrix:

```
A = diag([12:4:32])
```

You can also use the diag function to scan an existing matrix and return the values found along one of the diagonals:

```
A = magic(5)

diag(A, 2) % Return contents of
second diagonal of A
ans =
     1
    14
    22
```

Replicating a Matrix. Use the repmat function to create a matrix composed of copies of an existing matrix. When you enter

```
repmat(M, v, h)
```

MATLAB replicates input matrix M v times vertically and h times horizontally. For example, to replicate existing matrix A into a new matrix B, use

```
A = [8 1 6; 3 5 7; 4 9 2]

B = repmat (A, 2, 4)

NB: There are so many matrix in-
built functions in matlab.Use the
help manual to learn more.
```

In this lesson we are going to learn how to import an excel file and see how best we can manipulate the data in it.

APPLICATIONS ON MATRIX MANIPULATIONS.

In this tutorials we are going to learn how to import an excel file and see how best we can manipulate the data in it.Today we are going to focus on excel and later learn how to import other files into matlab.

How to import an excel file into matlab command window.

IMPORTING DATA FROM EXCEL: METHOD ONE

Importing data into MATLAB from Excel can be done in two ways. For the first method,

first make sure the Excel file you wish to import is in the current working directory. You can then type any of the following syntax at the command prompt.

Syntax

```
num = xlsread(filename)
num = xlsread(filename, -1)
num = xlsread(filename, sheet)
num = xlsread(filename, range)
num = xlsread(filename, sheet,
range)
num = xlsread(filename, sheet,
range, 'basic')
num = xlsread(filename, ...,
```

functionhandle)
[num, txt]= xlsread(filename, ...)
[num, txt, raw] = xlsread(filename, ...)
[num, txt, raw, X] = xlsread(filename, ..., functionhandle)
xlsread filename sheet range **basic**

Description

num = xlsread(filename) returns numeric data in double array num from the first sheet in the Microsoft Excel spreadsheet file named filename. The filename argument is a string enclosed in single quotation marks.

NB: xlsread ignores any *outer* rows or columns of the spreadsheet that contain no numeric data.

num = xlsread(filename, **-1**) opens the file filename in an Excel window, enabling you to interactively select the worksheet to read and the range of data on that worksheet to import.

num = xlsread(filename, sheet) reads the specified worksheet, where sheet is either a positive, double scalar value or a quoted string containing the sheet name. To determine the names of the sheets in a spreadsheet file, use xlsfinfo.

num = xlsread(filename, range) reads data from a specific rectangular region of the default worksheet (Sheet1).

Specify range using the syntax 'C1:C2', where C1 and C2 are two opposing corners that define the region to be read. For example, 'D2:H4' represents the 3-by-5 rectangular region between the two corners D2 and H4 on the worksheet.

num = xlsread(filename, sheet, range) reads data from a specific rectangular region (range) of the worksheet specified by sheet.

[num, txt]= xlsread(filename, ...) returns numeric data in array num and text data in cell array txt.

[num, txt, raw] = xlsread(filename, ...) returns numeric and text data in num and txt, and unprocessed cell content in cell array raw, which contains both numeric and text data.

NB: filename is the name of the file you saved in Microsoft Excel spreadsheet. The filename argument is a string enclosed in single quotation marks. e.g. ' BEARING.xlsx'. xlsx is the excel extension in 2007. Always in include the excel extension in the filename.

Practice

Type the following at command prompt

>> A=xlsread('BEARING.xls')

>> >> A=xlsread('BEARING.xls',-1)

>> A=xlsread('BEARING.xls', 'B3:C5')

>>A=xlsread('BEARING.xls', 2) OR

>> A=xlsread('BEARING.xls', 'sheet2')

>> [A, B] =xlsread('BEARING.xlsx','sheet2')

>> [A, B, C]=xlsread('BEARING.xlsx','sheet2')

Exercise

Try the same thing using the Traverse file.

Method Two

Using import Wizard

1. File → import Data

2. Choose the file which contains your data.

If file is excel

3. Select variables to import using checkboxes.

If file is a text file

3. Select column separators and click on next.

4. Select variables to import using checkboxes.