



General Computer Science for Engineers CISC 106 Lecture 05

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Lecture Overview

- How to start Matlab from the command line
- How to use simple command line commands for Matlab
- How to use For and While loops
- How to use If statements



Matlab from the Command Line

- On strauss you have access to the GUI version of matlab
- If you have a Mac you can access the GUI using a few simple commands
- On a PC accessing the GUI version of matlab takes a bit more work.... so we use matlab from the command line

Matlab from the Command Line

- Command line version of matlab:
ssh username@strauss.udel.edu
then type matlab –nodesktop
- GUI version use:
ssh –X username@strauss.udel.edu
then type matlab

Matlab from the Command Line

Now lets try some basic commands:

> 4^2

will return 16

>a=5;

will show nothing, the “;” suppresses output

> a

will return 5



Matlab from the Command Line

>clc

will clear the screen

>clear

will clear all variables

Loops

- Basic loops: FOR loop and WHILE loop
 - The FOR loop executes a set of commands a predetermined number of times with a predetermined index
 - the WHILE loop executes a command or a set of commands until a certain predetermined condition is met

FOR Loops

When you type:

```
> for i=1:3,  
    i  
    end
```

It will return:

```
> i = 1  
> i = 2  
> i = 3
```


FOR Loops

When you type:

```
> for i=1:3
```

```
    i=i*2;
```

```
    i=i+5
```

```
end
```

It will return:

```
> i = 7
```

```
> i = 9
```

```
> i = 11
```



FOR Loops examples

- Print a list of numbers forward
 - only when greater than some number
- Print a list of numbers backward
 - only when greater than some number

WHILE Loops

When you type:

```
> i = 3;
```

```
> while (i > 0)
```

```
    i
```

```
    i = i-1;
```

```
end
```

It will return:

```
> i = 3;
```

```
> i = 2;
```

```
> i = 1;
```

WHILE Loops

When you type:

```
> i = 16;
```

```
> while (i > 1)
```

```
    i = i/2
```

```
end
```

It will return

```
> i = 8;
```

```
> i = 4;
```

```
> i = 2;
```

IF Statements

- IF statements allow program to make choices whether a condition is met or not
- Basic if statement

```
if expression1
    statements1
elseif expression2
    statements2
else
    statements3
end
```

IF Statements

- IF statements can be used with or without the ELSEIF and ELSE parts

If you type:

```
> x = 5  
> if (x == 5)  
    200  
    end
```

It will return:

```
> 200
```

IF Statements

> x = 8

> if (x == 5)

200

elseif (x == 4)

300

else

400

end

Will return:

> 400

Putting For loops and ifs together

```
➤ for j = 1:10  
    if (j > 5)  
        j  
    end  
end
```

Will print what?