## Beyond the Mouse - A Short Course on Programming <br> LAB02: Matlab, Variables

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YOU'LL NEVER FINDA PROGRAMMING LANGUAGE THAT FREES YOU FROM THE BURDEN OF CLARIFYING (YOURIDEAS.
"The Uncomfortable Truths Well", http://xkcd.com/568 (April 13, 2009)

## Today's schedule

(1) Solutions to Exercise Set \#1

## Exercise \#0

 thanks for the images :)
## Exercise \#1



## Exercise \#1



## Exercise \#1



## Exercise \#1



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## Logic 101

Use logic to connect multiple conditions and test for certain cases ( 0 is false, 1 is true):

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Use logic to connect multiple conditions and test for certain cases ( 0 is false, 1 is true):
'NOT'
("~, '!’):

| a | l a |
| :---: | :---: |
| 0 | 1 |
| 1 | 0 |

## Logic 101

Use logic to connect multiple conditions and test for certain cases ( 0 is false, 1 is true):

| 'NOT'(~~, '!’): |  | 'AND' ('\&\&'): |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  | a | b | a \&\& b |
| a | !a | 0 | 0 | 0 |
| 0 | 1 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 | 0 |
|  |  | 1 | 1 | 1 |

## Logic 101

Use logic to connect multiple conditions and test for certain cases ( 0 is false, 1 is true):

| 'NOT'$\text { ( } \sim \sim, ~ ’!’):$ |  | 'AND' ('\&\&'): |  |  | 'OR' ('\||'): |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | a | b | a \& \& b | a | b | $a \\| b$ |
| a | !a | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
|  |  | 1 | 1 | 1 | 1 | 1 | 1 |

## Logic 101

Use logic to connect multiple conditions and test for certain cases ( 0 is false, 1 is true):
'NOT' (", '!'):

| a | $!\mathrm{a}$ |
| :---: | :---: |
| 0 | 1 |
| 1 | 0 |

'AND' ('\&\&'):

| a | b | $\mathrm{a} \& \& \mathrm{~b}$ |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

‘OR' ('|l|'):

| a | b | $\mathrm{a} \\| \mathrm{b}$ |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

'XOR':

| a | b | a xor b |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

## Logic 101

Use logic to connect multiple conditions and test for certain cases ( 0 is false, 1 is true):
'NOT' (", '!'):

| a | la |
| :---: | :---: |
| 0 | 1 |
| 1 | 0 |

‘AND’ ('\&\&'):

| a | b | $\mathrm{a} \& \& \mathrm{~b}$ |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

‘OR' ('|l|'):

| a | b | $\mathrm{a} \\| \mathrm{b}$ |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

'XOR':

| a | b | a xor b |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

## Examples

- 'Friday Beer': not younger than 21 and it must be Friday. Beer today?


## Logic 101

Use logic to connect multiple conditions and test for certain cases ( 0 is false, 1 is true):
'NOT' ("), '!'):

| a | la |
| :---: | :---: |
| 0 | 1 |
| 1 | 0 |

‘AND' (‘\&\&'):

| a | b | $\mathrm{a} \& \& \mathrm{~b}$ |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |


| a | b | $\mathrm{a} \\| \mathrm{b}$ |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

‘OR' ('I|'):
'XOR':

| a | b | a xor b |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

## Examples

- 'Friday Beer': not younger than 21 and it must be Friday. Beer today?
- 'Game of life': heart beat or self perception. Still alive?

