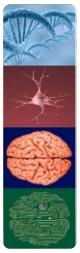

Introduction to Programming 2016/2017

Tirgul 3: Flow control I

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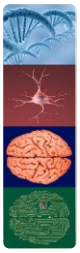


Logical expressions and operations

- Based on Boolean Algebra.
- There is no meaning to the numeric value – only to the truth value, which can be either 0 (false) or 1 (true). For example:

  logical([0,1,2.5,0,-5]) =
  [false, true, true, false, true] =
  [0 , 1 , 1 , 0 , 1]

- We can use the logical operators (not, and, or, and their combinations) to create expressions of truth values (logical expressions).

Truth Tables

AND: &

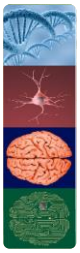
X	Y	Ans
1	1	1
1	0	0
0	1	0
0	0	0

OR: |

X	Y	Ans
1	1	1
1	0	1
0	1	1
0	0	0

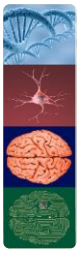
NOT: ~

X	Ans
1	0
0	1



Boolean Algebra

- Bitwise logical operations:
  1110 & 1011 = 1010
  1110 | 1011 = 1111
  ~1010 = 0101 = 101

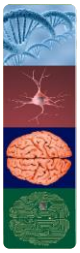


Conditioning – if, switch

- Logical conditions and operations can be used to performed conditional execution of a code.
- The general idea: a piece of code is executed only if a logical expression (condition) is true (i.e. has truth value of 1).

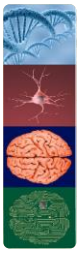
Conditioning – if, switch

- Matlab examples:
  - IfElseScript
  - IfNestedScript
  - SwitchScript



The importance of indentation

- ifIndent.m
- Use Ctrl+I to automatically add indentations to your scripts.



Edge cases

- A program should handle all the possible cases/inputs.
- Edge case - a case/input that occurs only at an extreme (maximum, minimum, rare cases, etc.).

→ Test all the cases that your program should handle.

Functions/Commands List

- and (&), or (|), not (~)
- =, >,<
- if, else, elseif
- switch, case, otherwise