2.5 Operations

There are a few binary operations that you should know about. They are used for all sorts of things as you will see throughout the course.

These operations include **NOT**, **AND**, **OR**, and **XOR**.

NOT

NOT simply flips a bit. In other words, it changes the bit to what it's not.

- NOT 1 = 0
- NOT 0 = 1

NOT	1	1	0	0
Result:	0	0	1	1

AND

AND checks if both bits are 1 and if they are the result is 1, if not the result is 0.

- 1 AND 1 = 1
- 1 AND 0 = 0
- 0 AND 0 = 0

AND	1	1	0	0
	1	0	1	0
Result:	1	0	0	0

OR

OR checks if either of the bits is one, if so then the result is one.

- 1 OR 1 = 1
- 1 OR 0 = 1
- 0 OR 0 = 0

OR	1	1	0	0
	1	0	1	0
Result:	1	1	1	0

XOR

XOR checks if either of the bits is one, **but not both**, if so then the result is one.

- 1 XOR 1 = 0
- 1 XOR 0 = 1
- 0 XOR 0 = 0

XOR	1	1	0	0
	1	0	1	0
Result:	0	1	1	0

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