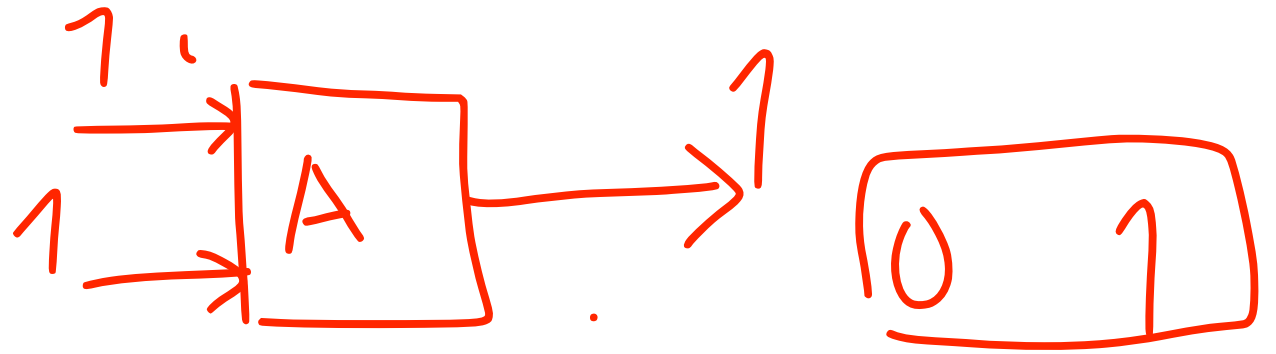


# Introduction to programing

Before to start



<u>NOT</u>	
$x$	$x'$
0	1
1	0

<u>AND</u>		
$x$	$y$	$xy$
0	0	0
0	1	0
1	0	0
1	1	1

<u>OR</u>		
$x$	$y$	$x+y$
0	0	0
0	1	1
1	0	1
1	1	1

<u>XOR</u>		
$x$	$y$	$x \oplus y$
0	0	0
0	1	1
1	0	1
1	1	0

# Bit

The information in the computer is stored in bytes.

1 Byte = 8 bits

1 kByte = 1024 Bytes

# Basics of programming

- Programming – writing commands for computer or microcontrollers.
- Source code – text files with commands.
- Executable file – ready to use file for operational system.

Source code -> (bytecode ->) machine code (over Assembly language) -  
> executable file

Executable file -> machine code -> CPU

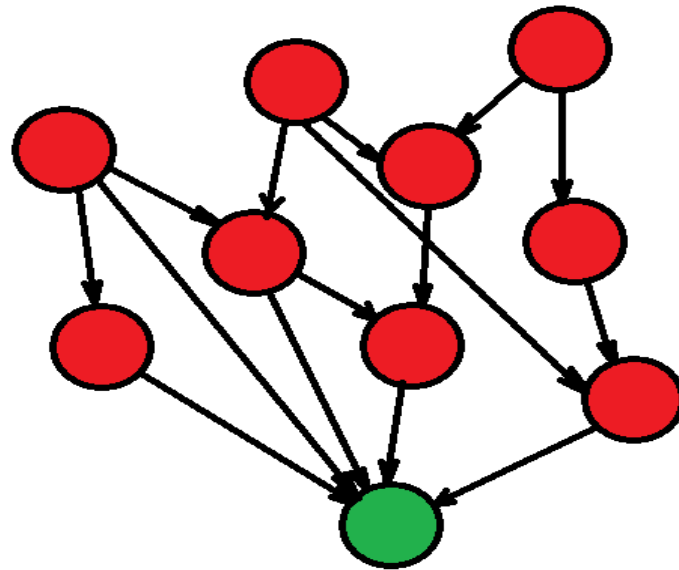
start.exe

CPU

# Classification

- Paradigms
- Compilation or Interpretation
- Purpose

*Picture of influence of imagine "red" programming languages on imagine "green language"*



Python programing language

# Learning resource

- <https://www.w3schools.com/python/default.asp>
- <https://www.tutorialspoint.com/python/index.htm>
- [https://www.learnpython.org/en/Hello%2C\\_World%21](https://www.learnpython.org/en/Hello%2C_World%21)

## Link to free editors

- <https://notepad-plus-plus.org/downloads/>
- <https://code.visualstudio.com/>

# General

```
print("Hello world!")
```

```
a = 5
```

```
b = 3
```

```
c = a+b
```

```
print(c)
```



# Variables

```
num = 5; # integer number
```

```
f_num = 0.5 # float number
```

```
name = "Computer" # string
```

More:

[https://www.tutorialspoint.com/python/python\\_variable\\_types.htm](https://www.tutorialspoint.com/python/python_variable_types.htm)

# Condition operators

- and
- or
- not
- ==
- !=
- >
- >=
- <
- <=

[https://www.tutorialspoint.com/python/python\\_basic\\_operators.htm](https://www.tutorialspoint.com/python/python_basic_operators.htm)

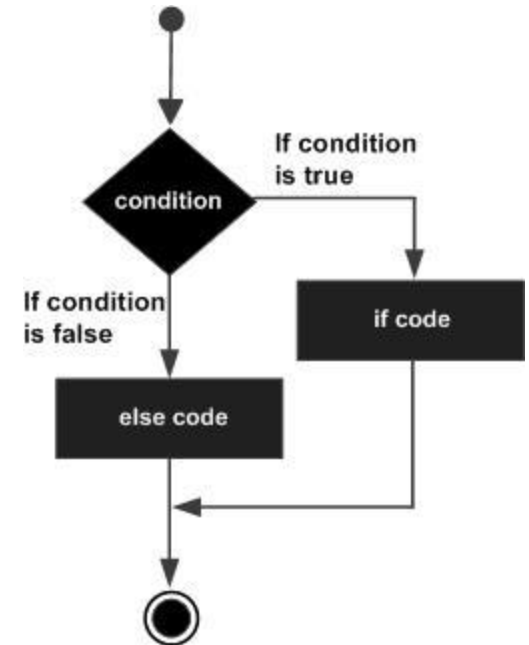
# Statement

```
if (condition):  
    print("if code")  
else:  
    print("else code")
```

bool

$0 > 5 = >$

```
if (0 > 5):  
    print("This line should not be printed")  
else:  
    print("0 is less than 5")
```

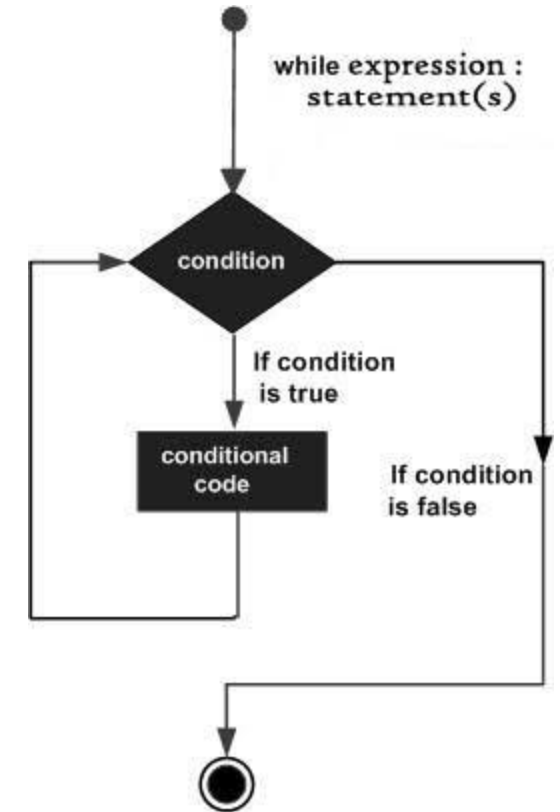
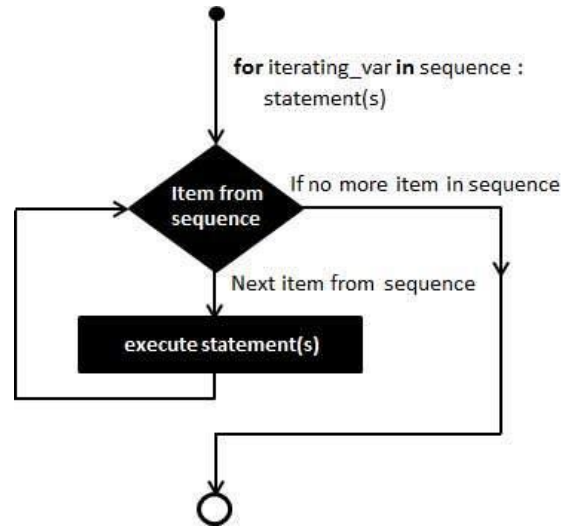


[https://www.tutorialspoint.com/python/python\\_decision\\_making.htm](https://www.tutorialspoint.com/python/python_decision_making.htm)

# Loops

```
for letter in 'Python':    # First Example  
    print("Current letter:", letter)
```

```
count = 0  
while (count < 9):  
    print("The count is:", count)  
    count = count + 1
```



- [https://www.tutorialspoint.com/python/python\\_loops.htm](https://www.tutorialspoint.com/python/python_loops.htm)

# Example 1

2

# variables:

name = ""

age = 0

```
name = input("Please enter your name:\n")
```

```
age = input("Please enter your age:\n")
```

```
print(f"Your name is {name} and you are {age} years old\n")
```

```
age = int(age)
```

```
if (age >= 18):
```

```
    print("Move along old man")
```

```
else:
```

```
    print("This club is for adults")
```

## Example 2

```
count = 0
```

```
print("Here is squares of numbers:")
```

```
while (count < 11):
```

```
    print(f"{count} * {count} = {count*count}")
```

```
    count = count + 1
```

