**Python in One Shot**

This video has been made with a lot of love & I hope you guys have an amazing programming journey :)

**Why to Use Python?**

Python can be used for :

1. Programming (for Placements/online contests/DSA)
2. Development (using a backend framework called Django)
3. Machine Learning / Data Science / Artificial Intelligence

Websites built using Python include Google, Youtube, Instagram, Netflix, Uber & much more.

**What to Install?**

1. Python (<https://www.python.org/>)
2. PyScripter ([https://rb.gy/bvnn69](https://www.youtube.com/redirect?event=video_description&redir_token=QUFFLUhqbEU2WnZub04wT3p3c2pfWHpJR3N1aU1Tb1lod3xBQ3Jtc0ttaDdFSEdyczlISWVpMTFoN1Etb2ozcGlqTG9pU1pELXBObU50aEVXN1l1LVc1NllDTzE3OEtzOW9nNUdhcnFlU19oX014UXVGQnZjemdBZ1p6bzhRWFpXRFd1Q1lucGdYeHJIa2lFVllnSlZ3ZmtzWQ&q=https%3A%2F%2Frb.gy%2Fbvnn69) )
3. PyCharm (<https://www.jetbrains.com/pycharm/>)

**Our First Python Program**

print("Hello World")

**A Key Point to know about Python**

* It is a case sensitive language

**Variables**

Basic Types in Python -*numbers(integers, floating), boolean, strings*

Example 1 :

**name = "shradha"**

**age = 22**

**print(name)**

**print(age)**

Example 2 :

**name = "shradha"**

**age = 22**

**name = "aman"**

**age = 24**

**print(name)**

**print(age)**

Example 3 :

**first\_name = "shradha"**

**last\_name = "khapra"**

**age = 19**

**is\_adult = True**

**print(first\_name + " " + last\_name)**

**print(age)**

**print(is\_adult)**

> Exercise Solution

**first\_name = "Tony"**

**last\_name = "Stark"**

**age = 52**

**is\_genius = True**

**Taking Input**

**name = input("What is your name? ")**

**print("Hello " + name)**

**print("Welcome to our cool Python class")**

> Exercise Solution

superhero = input("What is your superhero name? ")

print(superhero)

**Type Conversion**

**old\_age = input("Enter your age : ")**

**#new\_age = old\_age + 2**

**#print(new\_age)**

**new\_age = int(old\_age) + 2**

**print(new\_age)**

**#Useful converion functions**

**# 1. float()**

**# 2. bool()**

**# 3. str()**

**# 4. int()**

> Code for Sum of 2 Numbers

**first\_number = input("Enter 1st number : ")**

**second\_number = input("Enter 2nd number : ")**

**sum = float(first\_number) + float(second\_number)**

**print("the sum is : " + str(sum))**

**Strings**

**name = "Tony Stark"**

**print(name.upper())**

**print(name)**

**print(name.lower())**

**print(name)**

**print(name.find('y'))**

**print(name.find('Y'))**

**print(name.find("Stark"))**

**print(name.find("stark"))**

**print(name.replace("Tony Stark", "Ironman"))**

**print(name)**

**#to check if a character/string is part of the main string**

**print("Stark" in name)**

**print("S" in name)**

**print("s" in name)**

**Arithmetic Operators**

**print(5 + 2)**

**print(5 - 2)**

**print(5 \* 2)**

**print(5 / 2)**

**print( 5 // 2)**

**print(5 % 2)**

**print(5 \*\* 2)**

**i = 5**

**i = i + 2**

**i += 2**

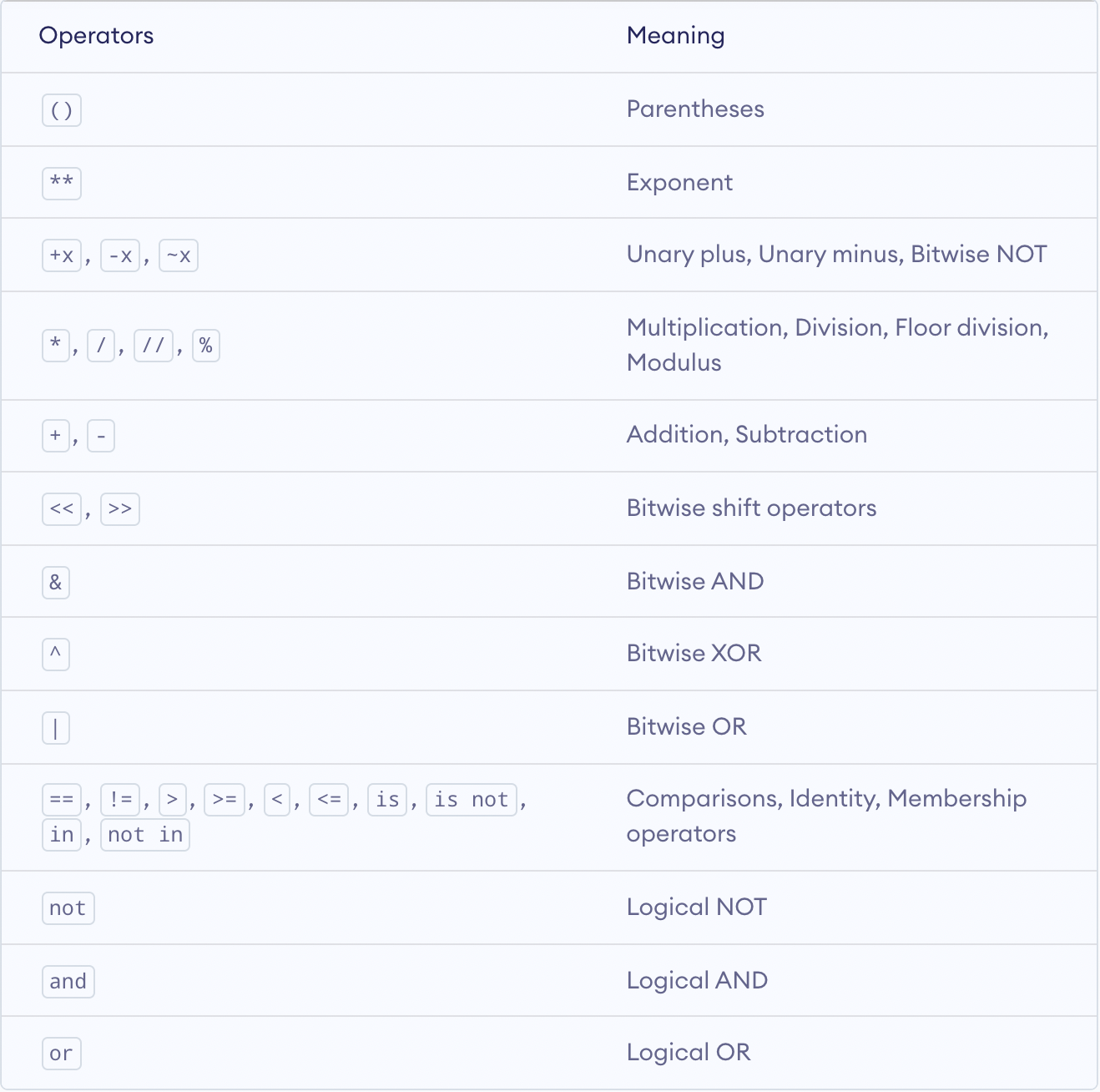
**i -= 2**

**i \*= 2**

**Operator Precedence**

**result = 3 + 5 \* 2 # 16 or 13 ?**

**print(result)**



**Comments**

# This is a comment & useful for people reading your code

# This is another line

**Comparison Operators**

is\_greater = 1 > 5

is\_lesser = 1 < 5

# 1 <= 5

# 1 >= 5

is\_not\_equal = 1 != 5

is\_equal = 1 == 5

**Logical Operators**

# or -> (atleast one is true)

# and -> (both are true)

# not -> (reverses any value)

number = 2

print(number > 3)

print(number < 3)

print(not number > 3)

print(not number < 3)

print(number > 3 and number > 1)

print(number > 3 or number > 1)

**If statements**

age = 13

if age >= 18:

print("you are an adult")

print("you can vote")

elif age < 3:

print("you are a child")

else:

print("you are in school")

print("thank you")

**Let’s build a Calculator**

#Our Calculator

first = input("Enter first number : ")

second = input("Enter second number : ")

first = int(first)

second = int(second)

print("----press keys for operator (+,-,\*,/,%)----------")

operator = input("Enter operator : ")

if operator == "+":

print(first + second)

elif operator == "-":

print(first - second)

elif operator == "\*":

print(first \* second)

elif operator == "/":

print(first / second)

elif operator == "%":

print(first % second)

else:

print("Invalid Operation")

**Range in Python**

range() function returns a range object that is a sequence of numbers.

numbers = range(5)

print(numbers)

For iteration (see For Loop section)

**While Loop**

i = 1

while(i <= 5):

print(i)

i = i + 1

i = 1

while(i <= 5):

print(i \* "\*")

i = i + 1

i = 5

while(i >= 1):

print(i \* "\*")

i = i - 1

**For Loop** (to iterate over a list)

for i in range(5):

print(i)

i = i + 1

for i in range(5):

print(i \* "\*")

i = i + 1

**Lists**

List is a complex type in Python.

friends = ["amar", "akbar", "anthony"]

print(friends[0])

print(friends[1])

print(friends[-1])

print(friends[-2])

friends[0] = "aman"

print(friends)

print(friends[0:2]) #returns a new list

for friend in friends:

print(friend)

List Methods :

marks = ["english", 95, "chemistry", 98]

marks.append("physics")

marks.append(97)

print(marks)

marks.insert(0, "math")

marks.insert(1, 99)

print(marks)

print("math" in marks)

print(len(marks)/2)

marks.clear()

print(marks)

i = 0

while i < len(marks):

print(marks[i])

print(marks[i+1])

i = i + 2

**Break & Continue**

students = ["ram", "shyam", "kishan", "radha", "radhika"]

for student in students:

if(student == "radha"):

break

print(student)

for student in students:

if(student == "kishan"):

continue

print(student)

**Tuples**

They are like lists (sequence of objects) but they are immutable i.e. once they have been defined we cannot change them.

Parenthesis in tuples are optional.

marks = (95, 98, 97, 97)

#marks[0] = 98

print(marks.count(97))

print(marks.index(97))

**Sets**

Sets are a collection of all unique elements.

Indexing is not supported in sets.

marks = {98, 97, 95, 95}

print(marks)

for score in marks:

print(score)

**Dictionary**

Dictionary is an unordered collection of Items. Dictionary stores a (key, value) pair.

marks = {"math" : 99, "chemistry" : 98, "physics" : 97}

print(marks)

print(marks["chemistry"])

marks["english"] = 95

print(marks)

marks["math"] = 96

print(marks)

**Functions in Python**

Function is a piece of code that performs some task. (In a tv remote, each button performs a functions, so a function is like that button in code)

There are 3 types of functions in Java :

1. In-built functions

# int() str() float() min() range() max()

1. Module functions

Module is a file that contains some functions & variables which can be imported for use in other files.

Each module should contain some related tasks

Example : math, random, string

import math

print(dir(math))

import random

print(dir(random))

import string

print(dir(string))

from math import sqrt

print(sqrt(4))

1. User-defined functions

def sum(a, b=4):

print(a + b)

sum(1, 2)

sum(1)

For Machine Learning, refer : <https://www.youtube.com/watch?v=1vsmaEfbnoE>

Some additional Links :

* <https://rb.gy/gjpmwg> (A Python GUI)

Some useful Modules

* <https://github.com/Embarcadero/DelphiFMX4Python>
* <https://github.com/Embarcadero/DelphiVCL4Python>