

# Programming



Machine

← **Translator** ←  
(Compiler / Interpreter)



Code

# What is **Python**?

- Python is simple & easy
- Free & Open Source
- High Level Language
- Developed by Guido van Rossum
- Portable

# Our First Program

```
print("Hello World")
```

# Python Character Set

- Letters - A to Z, a to z
- Digits - 0 to 9
- Special Symbols - + - \* / etc.
- Whitespaces - Blank Space, tab, carriage return, newline, formfeed
- Other characters - Python can process all ASCII and Unicode characters as part of data or literals

→ does it means all characters seen on laptop keyboard?

# Variables

A variable is a name given to a memory location in a program.

```
name = "Shradha"
```

```
age = 23
```

```
price = 25.99
```



Que-do we not need to tell the types of variable?

# Memory




name = "Shradha"

age = 23

price = 25.99

# Rules for Identifiers

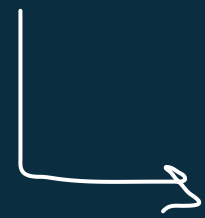
1. Identifiers can be combination of uppercase and lowercase letters, digits or an underscore(\_).  
So **myVariable**, **variable\_1**, **variable\_for\_print** all are valid python identifiers.
2. An Identifier can not start with digit. So while **variable1** is valid, **1variable** is not valid.
3. We can't use special symbols like **!,#,@,%,\$** etc in our Identifier.
4. Identifier can be of any length.



Que-why we can not use the special character and start with 1?

# Data Types

- Integers
- String
- Float
- Boolean
- None



Que-is there any type of such thing exist in c++?



# Data Types

```
print(type(age))  
print(type(pi))  
print(type(complex_num))  
print(type(A))  
print(type(name))
```

```
<class 'int'>  
<class 'float'>  
<class 'complex'>  
<class 'bool'>  
<class 'str'>
```

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# Keywords

Keywords are reserved words in python.



\*False should be uppcase

and	else	in	return
as	except	is	True
assert	finally	lambda	try
break	false	nonlocal	with
class	for	None	while
continue	from	not	yield
def	global	or	
del	if	pass	
elif	import	raise	

Print Sum

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# Comments in Python

# Single Line Comment

>

||||

Multi Line

Comment

||||

Que-does in c++ it has advanced version like ending line and starting line?

# Types of Operators

An operator is a symbol that performs a certain operation between operands.

- Arithmetic Operators ( + , - , \* , / , % , \*\* )
- Relational / Comparison Operators ( == , != , > , < , >= , <= )
- Assignment Operators ( = , += , -= , \*= , /= , %= , \*\*= )
- Logical Operators ( not , and , or )

# Type Conversion

```
a, b = 1, 2.0
```

```
sum = a + b
```

*#error*

```
a, b = 1, "2"
```

```
sum = a + b
```

# Type Casting

```
a, b = 1, "2"
```

```
c = int(b)
```

```
sum = a + c
```



Que-how to do type conversion?

# Type Casting

Function	Description
int(y [base])	It converts <i>y</i> to an integer, and Base specifies the number base. For example, if you want to convert the string in decimal numbers then you'll use 10 as base.
float(y)	It converts <i>y</i> to a floating-point number.
complex(real [imag])	It creates a complex number.
str(y)	It converts <i>y</i> to a string.
tuple(y)	It converts <i>y</i> to a tuple.
list(y)	It converts <i>y</i> to a list.
set(y)	It converts <i>y</i> to a set.
dict(y)	It creates a dictionary and <i>y</i> should be a sequence of (key, value) tuples.
ord(y)	It converts a character into an integer.
hex(y)	It converts an integer to a hexadecimal string.
oct(y)	It converts an integer to an octal string



# Input in Python

`input()` statement is used to accept values (using keyboard) from user

`input()` #result for `input()` is always a str

`int ( input())` #int

`float ( input())` #float

# Let's Practice

Write a Program to input 2 numbers & print their sum.

## Let's Practice

WAP to input side of a square & print its area.

## Let's Practice

WAP to input 2 floating point numbers & print their average.

## Let's Practice

WAP to input 2 int numbers, a and b.

Print True if a is greater than or equal to b. If not print False.