Python Fundamentals

Session 7

What is Programming?

- A set of instruction written to computer to perform a

  specific task.

- Computer Devices (Any device contain Central Procesing

  Unit CPU) consist of tiny transistors (Switches)

- If the transistor is closed, it takes a value of 1

- If it is opened, it takes a value of 0

Types Of Programming languages

Low Level
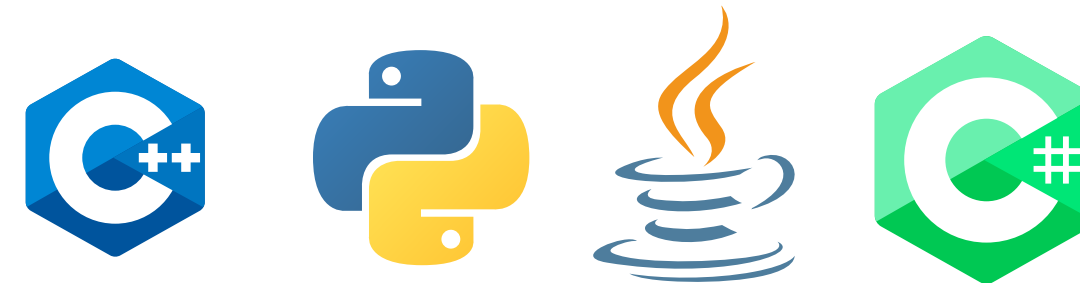

Machine Language
(Binary)

Assembly Language

C language

High level

Modern Programming languages

Close to human language

A little Comparision

Let's Print the word (Hello)!

```
I0I0I0
0I0I0I      1001000 1100101 1101100
I0I0I0          1101100 1101111
0I0I0I
```

Assembly

```
; assemble and link with:
; nasm -f elf test.asm && gcc -m32 -o test test.o
section .text
extern printf ; If you need other functions, list them in a similar way
global main

main:
    mov eax, 0x21 ; The '!' character
    push eax
    push message
    call printf
    add esp, 8 ; Restore stack - 4 bytes for eax, and 4 bytes for 'message'
    ret

message db 'The character is: %c', 10, 0
```
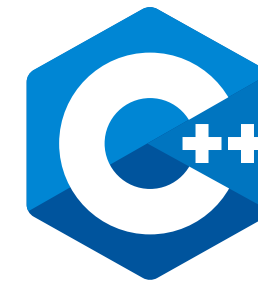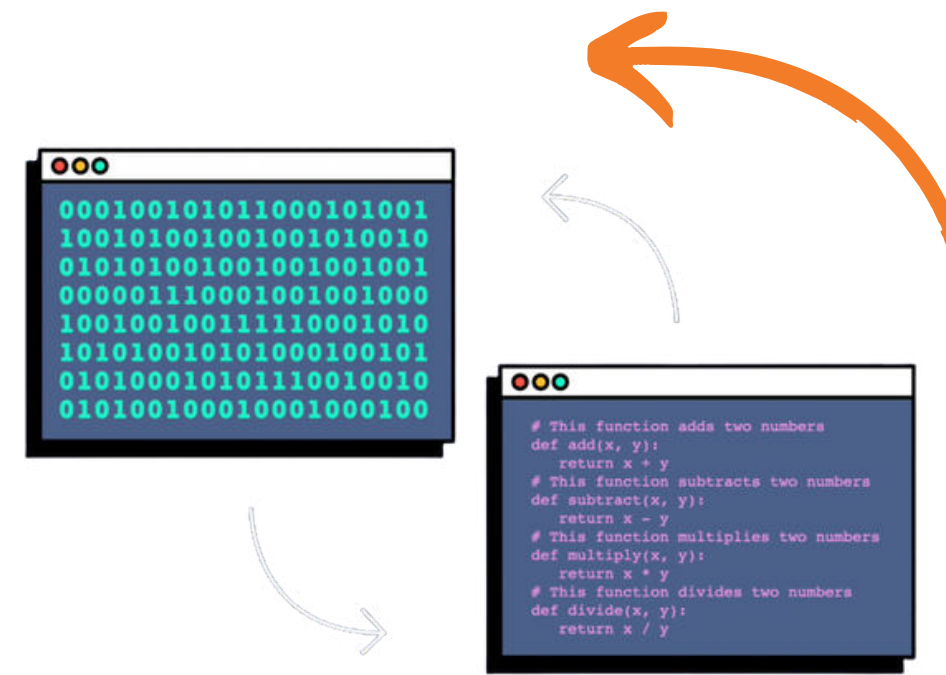
```cpp
#include <iostream>
using namespace std;
int main() {
    cout << "Hello";
    return 0;
}
```
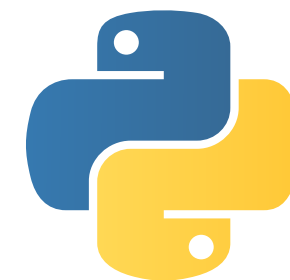
```python
print ("Hello")
```

So programming is...

Programming: The process of converting instructions from high level languages to human languages.

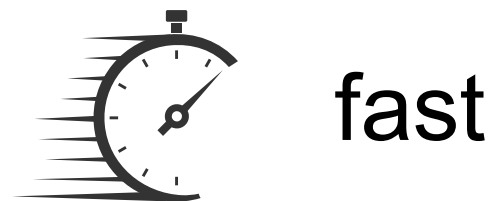# Types of Programming languages (Excution)

Compiled   ## Interpreted

Both converts written code to machine language

Convert the whole code at once   Convert code line by line

Hard for error handling   Easy for error handling
                                                  (Very specific about the error)

Create a .exe (Excutable file)   Need to be executed every
No need to recompile the code   time you run it
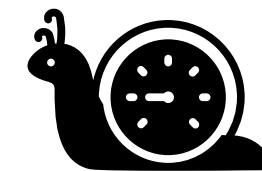
fast   Slow

Why Python

Beginner Friendly
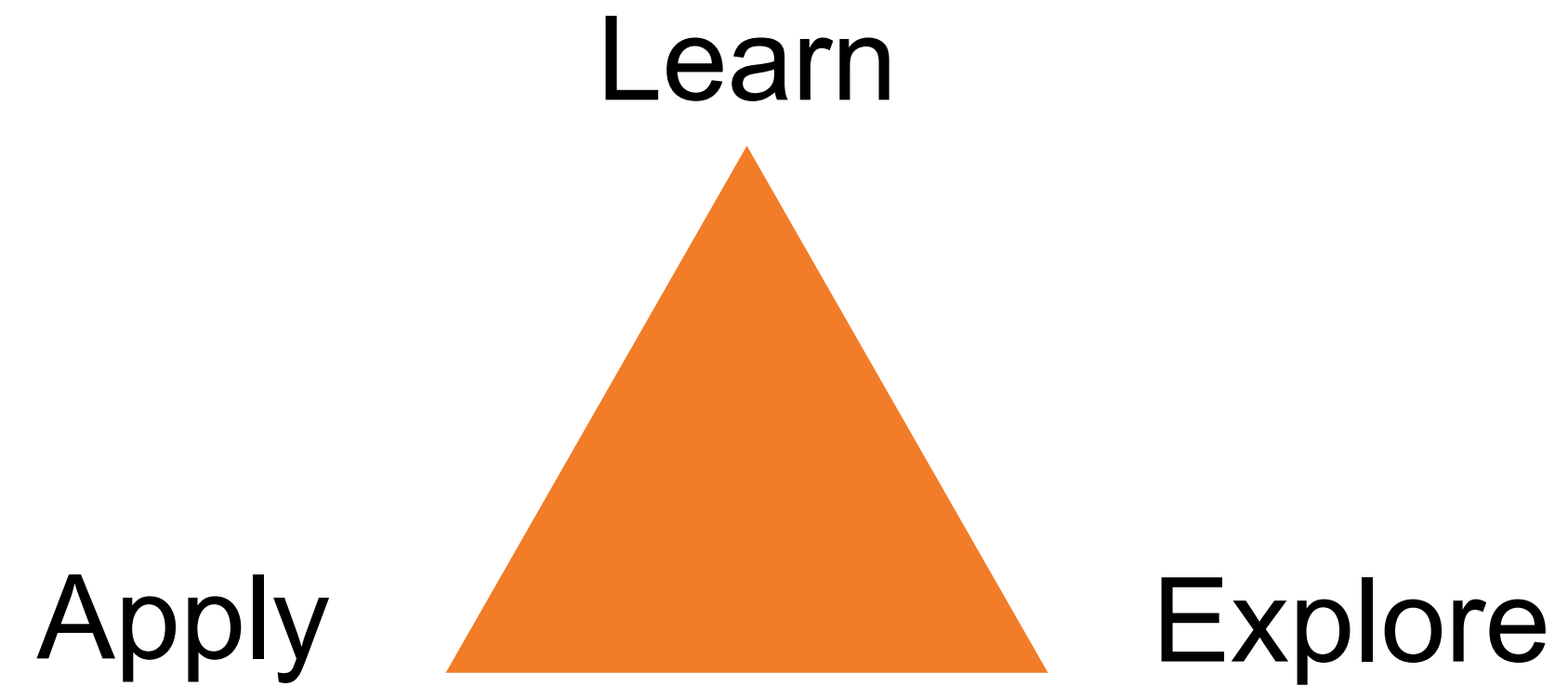
Great community support

Third most used language
worldwide 2023

#1 I language used in modern AI
development

Wide range of libraries and
framework

How to get the most out of this session?

Learn

Apply

Explore

Let's Get Started!....

IDE

Integrated Development Environment

Python IDE APP

Let's Get Started!....

```python
print("hello world")
```

Python Syntax
(Blocks of code)

```
# ERROR!!
print("hello world!")
    print("life is great")

# Correct
print("hello world")
print("life is great")
```

```
# correct
if x == 5:
    print("x equals 5")

# Error
if x == 5:
print("x equals five")
```
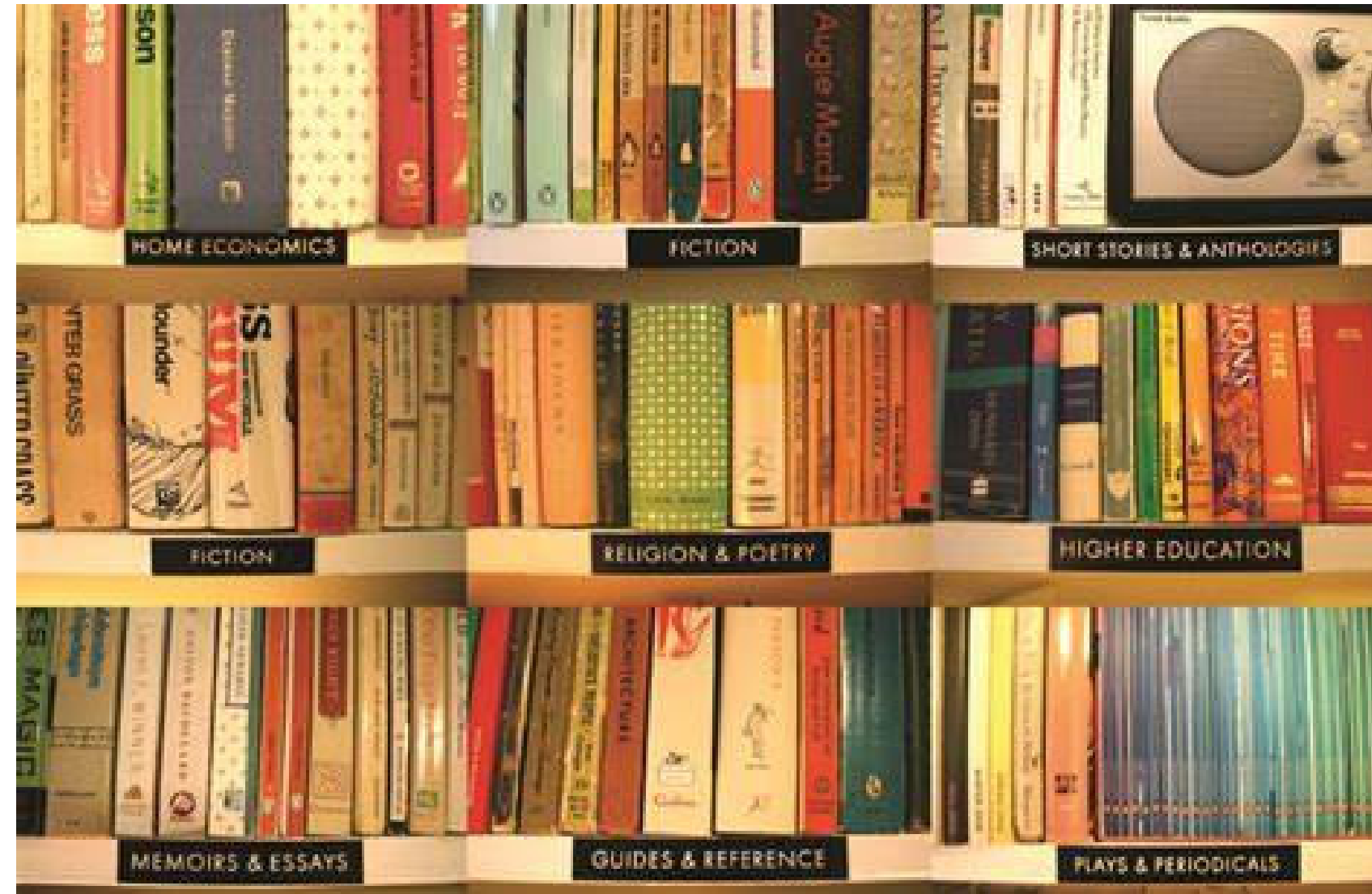
Multiple line print

```
print ("""
This is
a
multiple line
String
""")
```

ASKII art

Variables

Misconception: Variable is not a box that stores the data. Data is stored in the memory.
Variable just label it to be used and called