

Python introduction + Python i/o + Variable

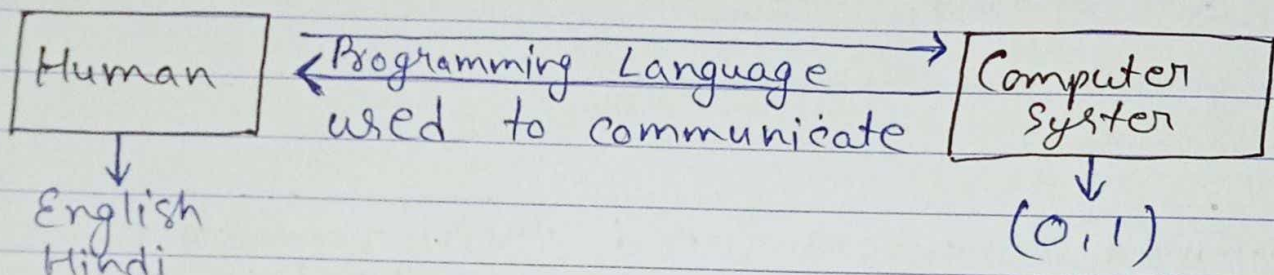
Lecture - 1

(What?) → (Why?) → (How?)

Python}

* What is Python?

↳ Programming Language



↳ Programming Language

Compiled programming language

- ① Write code
- ② compilation
- ③ Bytecode generated

↓
gets executed

Eg:- C++, Java

Interpreted programming language

- ① Write code
- ② execution at runtime

↓
[check + execution]

Eg:- Python

* It is comparatively faster than interpreted programming language.

* It is comparatively slower compared to compiled programming language.

* Why Python?

Data Science / AI / Gen AI

- ① Python provides ecosystem for working in these field.
- ② Python is very easy.
- ③ Python is very flexible. ~~we~~ We can work in various field like web-dev, game-dev, block-chain etc, data analysis etc

How?

Programming languages need their respective runtime so that it can be used in the computer system.

For this, you need to install "Python"

Terminal → CLI

* To check if python is installed

python ↴ → Python CLI (command line interface)

python3 ↴

```
>>> print("Hello World!")
```

IDE - Integrated development environment

① Syntax suggestion

② Warnings

③ Better project structure & access

} Advantages
of

IDEs

Install VS code for your system.

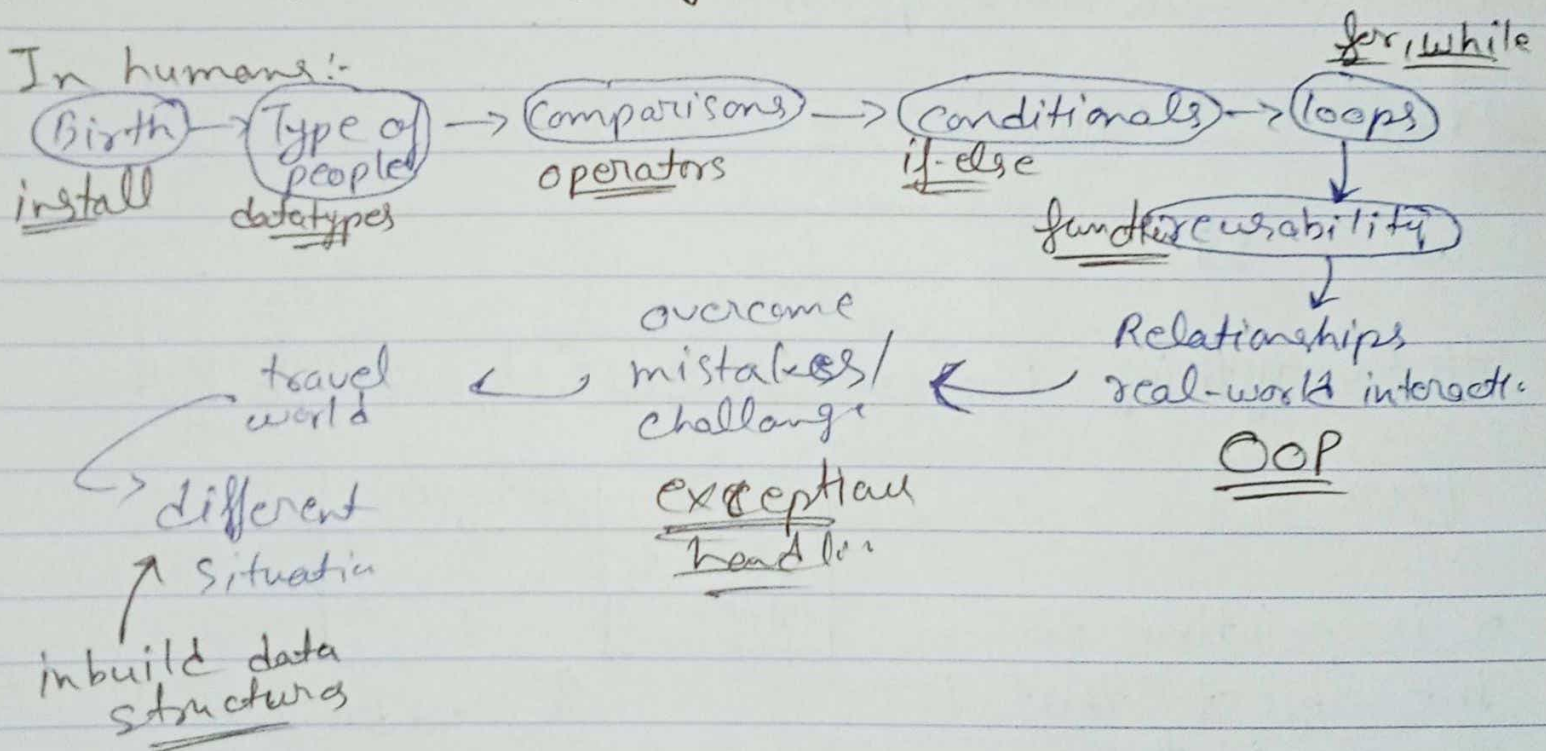
Install Python
↓
Install IDE (VS Code) } Setting
 runtime
 environment

Google Colab } for Python developer
~~Goog~~ Google Colab > New Notebook } No installations
 Jupyter Notebook } needed
 sharing will
 be easy.

* Coding will be done in Google Colab from now

Most effective way of learning programming languages?

In humans:-



*Python Variables

Containers to store variable

Statistically
typed

int x = 5

stating/specifying
the datatype of
variable.

Java

dynamically
types

x = 5

specifying datatype
is not needed

→ Python will automatically
understands datatype

Python

PWSkills_variables.ipynb

name = "Vishwa"

age = 99

Everything is considered "object" in Python.

x = 5

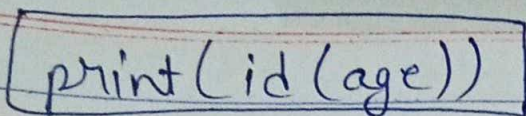
type	integer
value	5
reference count	1

x is pointing to
the object that is
stored in the memory.

↑ address?

to know address of
any object

→ we use id



↳ it will increase the reference point by 1

e	time	integer	n
---	------	---------	---

 SO_2

{ object

```
x = 99  
print(id(x))
```

Name of variable } → characters (Aa - Zz) }
 } → digits (0-9)
 } → special character (-)

①
↳ underline

These things can only be used to name a variable

② We can only use alphabets or underscore to start the name of variable.
We can't use numbers / digits (0-9)



my.name = "Vishwa" X Not allowed
Syntax error

1age = 99 X Not allowed.

③ Variable names are case-sensitive

name = "Ram" } both are two different
Name = "Shyam" } variables

a = 21
A = 22
print(a)
print(A)

⇒ 21
22

④ Avoid using keywords in Variable names
Eg:- if, for → not allowed

help > keywords } → list of keywords in Python

⑤ Variable should be a single word
It should not be separated by space.

my name = "Vishwa" X

my_name = "Vishwa" ✓

⑥ Variable name should be logical & meaningful.

* Comments in Python:-

① Single-line comments

`# This is commented line`

↳ It will be ignored during execution

It can also be used to prevent code from being executed.

② Multi-line comment

↳ no support in python
But

We can use docstring.

`''' This is a
multi-line comment '''`

`""" It can
also
be used """`

* Input & Output in python:

↳ `print()` → to display output

How to take input from the user?

↳ `input()` → used to take input from user

↳ all the data that is given using `input()` method ~~with~~ is treated as String.

```
name = input()
print(name)
```

```
name = input("Enter name")
age = int(input("Enter age"))
```

↳ converts string into int

} input

```
print(name, age)
```

} output
multiple arguments
separated by comma (,).

Support for formatted string in Python

```
print(f"My name is {name} and age is {age}")
```



```
x = 2  
y = 3  
z = 4  
print(x, y, z, sep = ", ")
```

here we can use any symbol

to print comma-separated value

↓
by default
sep = " "

```
print("Hello", end = " ")  
print("World", end = " ")  
print("!" )
```

To stop changing line