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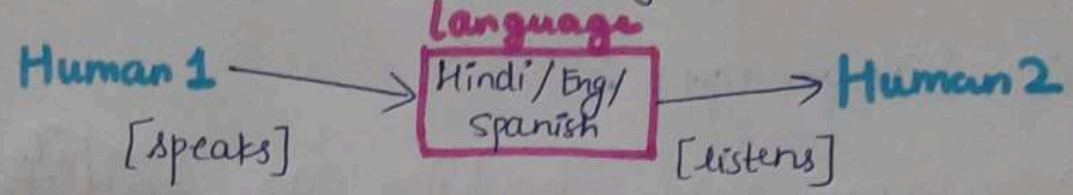
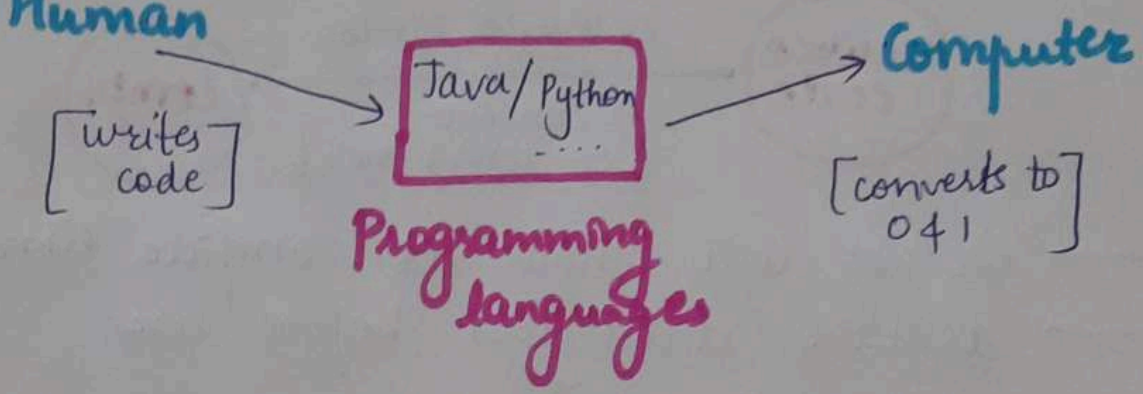
Introduction to Programming Language

- Computers at very minute level only understands zeros & one's (0's & 1's)
- What is programming language?





- Types of Programming Languages :

Procedural :

→ series of well-structured steps & procedures to compose a program

→ contains a systematic order of statements functions and commands to complete a task.

Functional :

→ Writing a program only in pure functions i.e; never modify variables but only create new ones as an output

→ Used in a situation where we have to perform lots of different operations on the same set of data like ML.

→ Have first Class Functions.

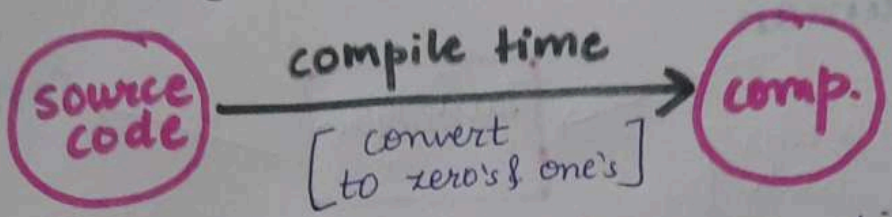
Object Oriented:

→ Revolves around objects
→ code + data = objects
→ developed to make it easier to develop, debug, reuse & maintain.

Class - Named grp (user def. data type) of prop & functions.

• Static Languages:

→ Perform type checking at ~~runtime~~ compile time.



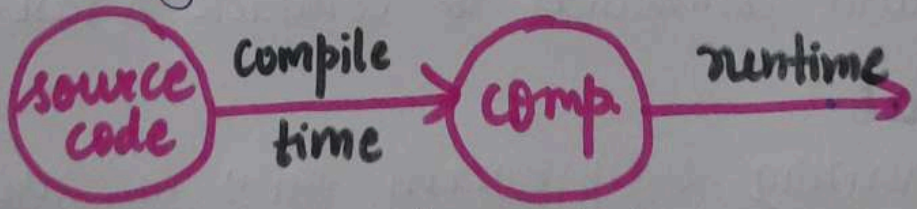
→ errors will show at compile time
→ declare datatypes before use

```
int a = 10
```

→ More control over the program.

• Dynamic Languages:

→ Performs type checking at runtime



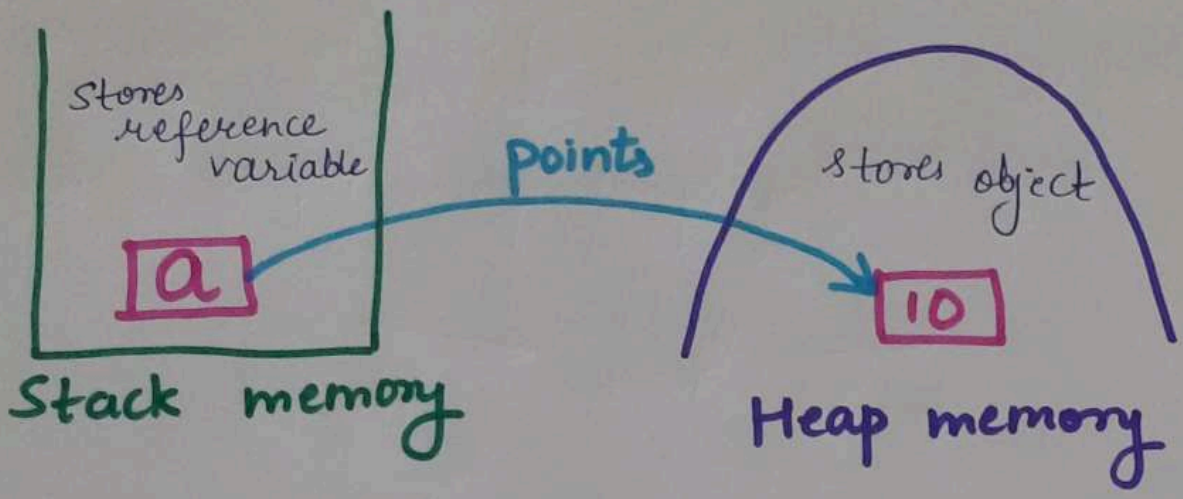
→ error might not show till programs run
→ no need to declare datatype of variables

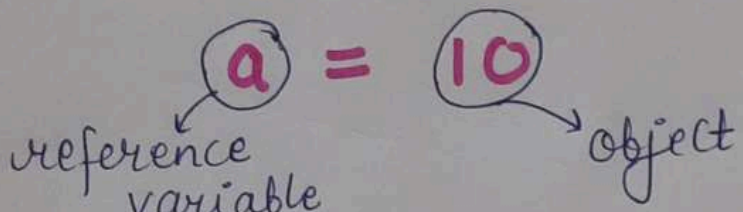
```
a = 10
```

[language by itself figures out data type]

→ Saves time in writing code but might give error at runtime.

→ Memory Management :

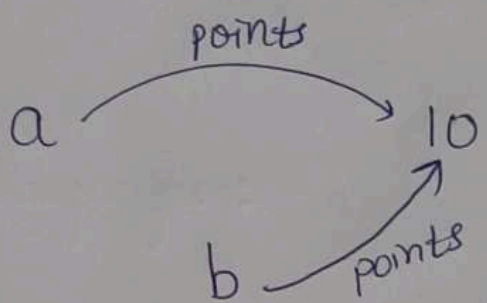




Now suppose,

a = 10

b = a



→ More than one reference variable can point towards one object.

→ If any of the reference variable changes the object then it is changed for all reference variable ~~poi~~ that points towards same object.

Now intially,

a = 10

Object with no reference variab

10 [Removed by garbage collector]

then,

a = 50