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Types of Languages :-

At the very basic level computer translates any language into 0's and 1's.

① Procedural Language

↳ Specifies a series of well structured order of statements, functions and commands to complete a task.

Ex → Java, Python, C, C++ etc.

② Functional Language

↳ Writing a program in pure functions (Block of Code)
Also follow first class functions.

Ex → Python

first class functions: functions in the language is treated like any other variables.

③ Object oriented Language

↳ Code + data = Object
Developed to make it easier to develop, debug and maintain.

Eg → Java, Python, C++

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Static v/s Dynamic Languages

① Static Languages

↳ have to specify the type

int a = 10 ✓

int a = "Yash" ✗

↳ Compile Time Error

↳ More Control

② Dynamic Languages

↳ Do not have to specify the type

a = 10 ✓

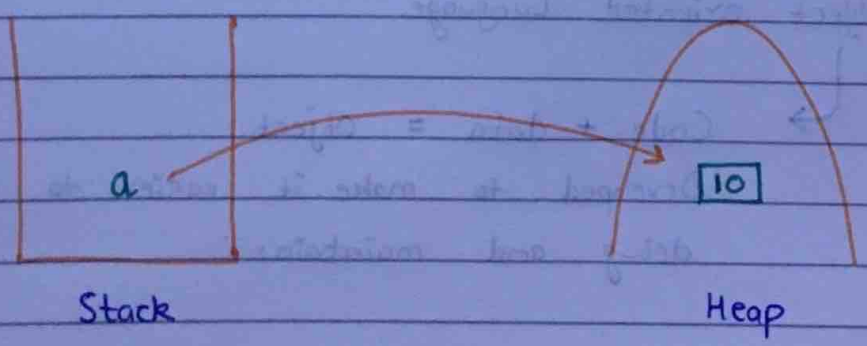
a = "Yash" ✓

↳ Runtime Error

↳ Saves time

Stack and Heap memory

a = 10



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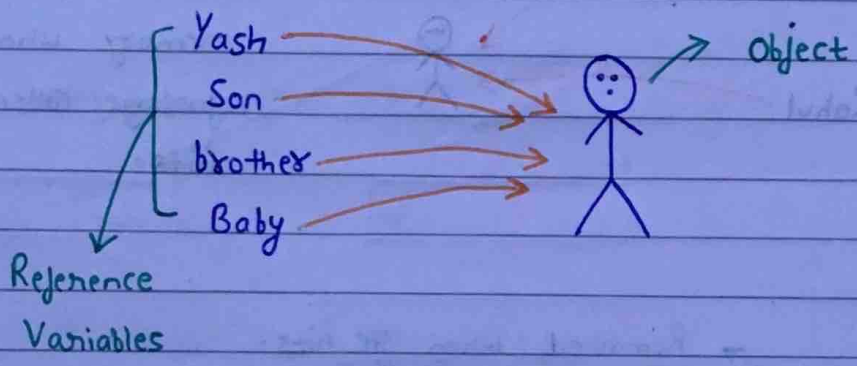
Stack points towards heap.

a = 10

Reference Variable → Object

Objects have a type Can be defined using classes.



if any change was made via Yash reference Variable, original object will be changed

and Since all of the reference Variables are pointing towards the Same object, change will be Visible to all the Variables.

Ex → a, B → [1,3,5,9]

if,

a[0] = 99

then,

B = [99,3,5,9]

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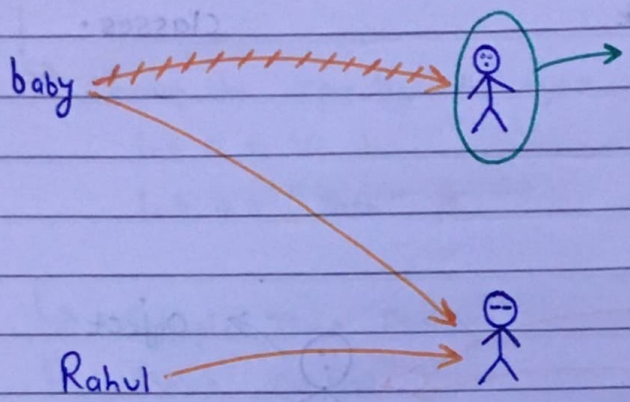
Garboge Collection

↳ It hits when there is no reference variable.



Object with no reference variable

↓

Removed from memory when garboge collection (gc) hits.

Removed when gc hits.

a = 10

a = 30