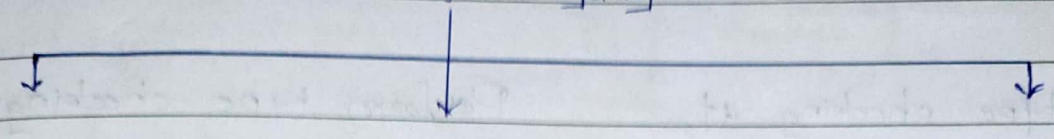
# #2 Introduction to programming.

2 Aug. 2021.

## TYPES of languages.




* **Procedural:**
  - specifies a 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 a pure functions. i.e. never modify variables, but only create new ones as an output.
  - Used in situations where we have to perform lots of different operations on the same set of data, like ML.
  - First class functions ?

* **Object Oriented**
  - Revolves around objects.
  - Code + Data = object.
  - Developed to make it easier to develop, debug, reuse and maintain software.

## Static Vs. Dynamic Languages.

| Static | Dynamic |
|---|---|
| - Perform type checking at Compile | |

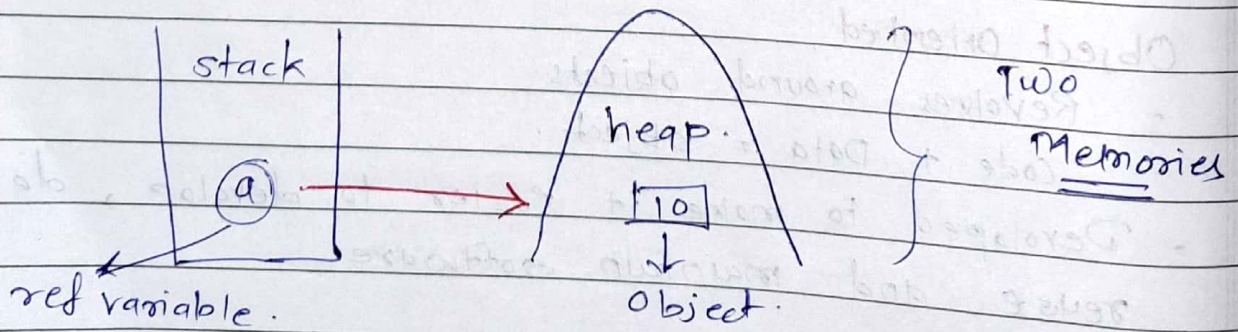
| Static | Dynamic |
| --- | --- |
| Perform type checking at compile time. | Perform type checking at runtime. |
| - Errors will show at compile time. | - Errors will show at runtime. |
| - Declare datatype before you use it. | - Declare / No need to declare datatype of variables. |
| - More control | - saves code in writing code but might given an error at runtime. |

## Memories in Programming language :-

Example: a = 10

a → refetance variabe

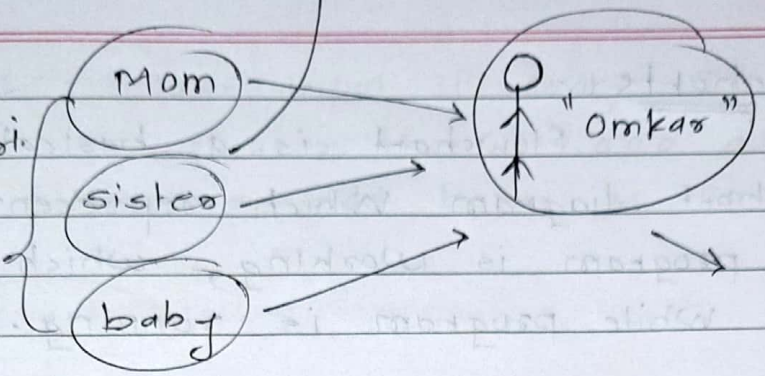
10 → Object.




- All objects are in the heap memory.
- ref. variable are in stack.
- Ref. variables is pointing towards an object.

imp

stack Memory.




heap memory

All 3 ref. variable pointing only one object.

* if any one of referance Variables changes the value of object then for all remaining it will be same.