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Data structure & algorithms

1. Types of languages

Procedural:

- specifies a series of well structured steps & completes a task

eg:- input a number, then add 2nd number, then sum & print it

eg:- Java, C++, Python

Functional:

- writing a program only in functions (bundle a code together in something, that we can re-use it) (like adding 10 numbers, just give input & add), they won't change variable but only create new-one as output.

- used in situations where we have to use large datasets repeatedly like ML.
- Follow first class functions

re-assigning function variable name to other function

eg:- Python.

Object Oriented:

- revolves around objects

code + data

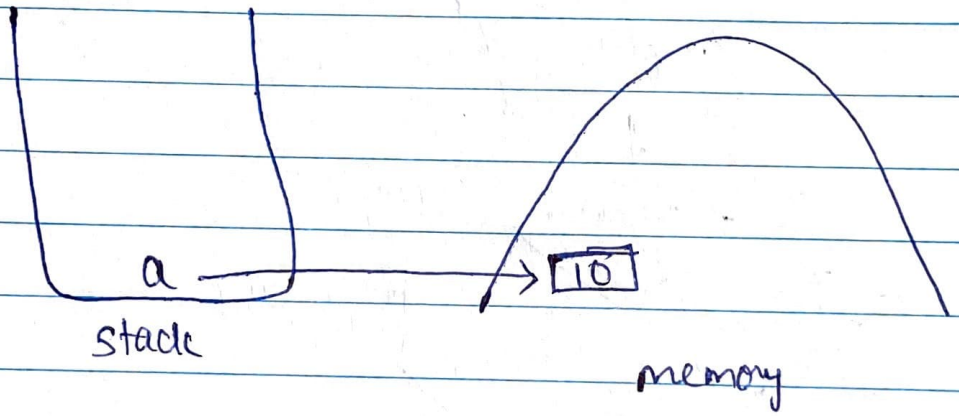
- named group of properties ie class.

Static v/s Dynamic :-

↗ conversion of higher-level code to machine code.

1. type checking at compile time	1. at runtime
2. errors will show at compile time	2. at runtime
3. is needed	3. datatype declaration not needed
4. more control	4. saves time.

Stack and heap memory :-



a = 10
↓ ↓
ref variable object

⇒ a is pointing to "10" address in memory

① More than one ref variables can refer to object
② if object is changed, then all ref variables are changed.