* DSA WITH KUNAL - JAVA

* Lecture 1:-

Types of Languages
- Procedural
- Functional
- Object-Oriented

- 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 pure functions i.e never modify variables but only create new ones an output.
  - used in situations where we have to perform lots of different operations on the same set of data, like ML.

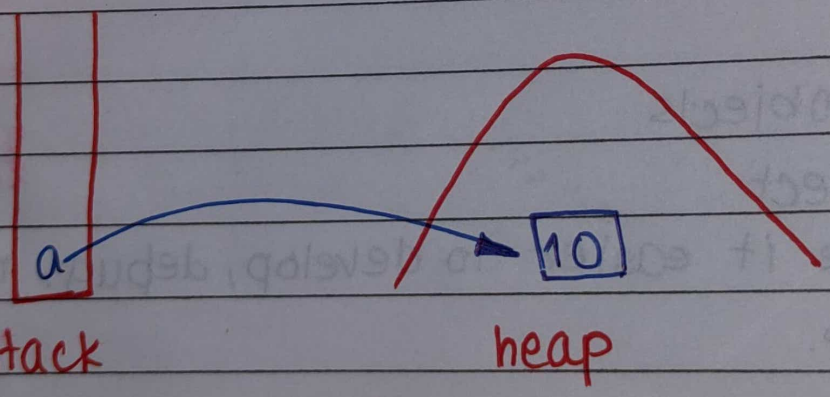
- Object Oriented
  - Revolves around objects
  - Code + Data = Object
  - Developed to make it easier to develop, debug, reuse & maintain software.

Static vs Dynamic Languages

- STATIC
- Perform type checking at compile time
- Errors will show at compile time
- Declare datatype before you use it
- More control

- DYNAMIC
- Perform type checking at runtime
- Errors might not show till program is run
- No need to declare datatype of variables
- saves time in writing code but might give error at runtime.

- Stack Vs Heap Memory



a = 10 —— object

↓

ref variable

- more than one reference variable can point to the same object

- if any one of the reference variable changes, the object, the object will be changed for all.

- JAVA only has pass by reference

Garbage Collection

object with no reference variable ⟶ this will be removed when garbage collection hits.

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