

* Java Data Structure: *

and Algorithms

Tip:- In which topic, what type of patterns are being used to solve which type of problems!!!

Lecture 1:-

Introduction to Programming

Types of Languages

Procedural

Functional

Object Oriented

1- Procedural

Specifies a series of well-structured steps and procedures to compose a program contains a systematic order of statements, functions and command to complete a task

2- Functional

Writing programs only in pure functions i.e. never modify variables but only creates new ones as output

Used in situations where we have to perform a lot of different operations on the same set of data

↳ First class functions i.e. allows functions to be treated as values. They can be assigned to a variable, passed as an argument.

3- Object Oriented

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

* Static Vs Dynamic Languages

1- Static

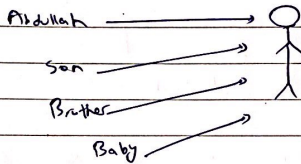
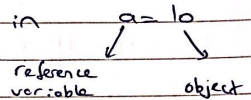
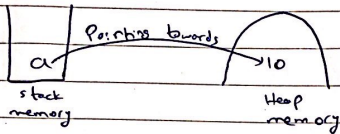
- Perform type checking at compile time
- Errors will show at compile time
- Declare datatype before you use it
- More Control

2- Dynamic

- Perform type checking at runtime
- Errors might not show till the program is running

- No need to declare datatype of variable
- Saves time in writing code but might give error at runtime

f) Memory:



1- So more than one reference variable can point to a single object

2- If any one of the reference variable changes the object, then original object will get changed which will be for all the reference variables.

Note → Object with no reference variable will go to garbage collection.

