Object Oriented Programming in Java

Interview Questions

Q1) (a) What are the differences between Procedural Programming and object oriented Programming Languages?

(b) What are the drawbacks of procedural programming language?

(c) What are the needs/advantages of object oriented programming language?

Procedural Programming

- Focuses on functions & logic !
- less reliable & secure
  - ↳ No access modifiers
- less reusability & difficulty in maintaining the codebase
- Example :→ C Programming language

Note :→ Javascript is functional programming language.

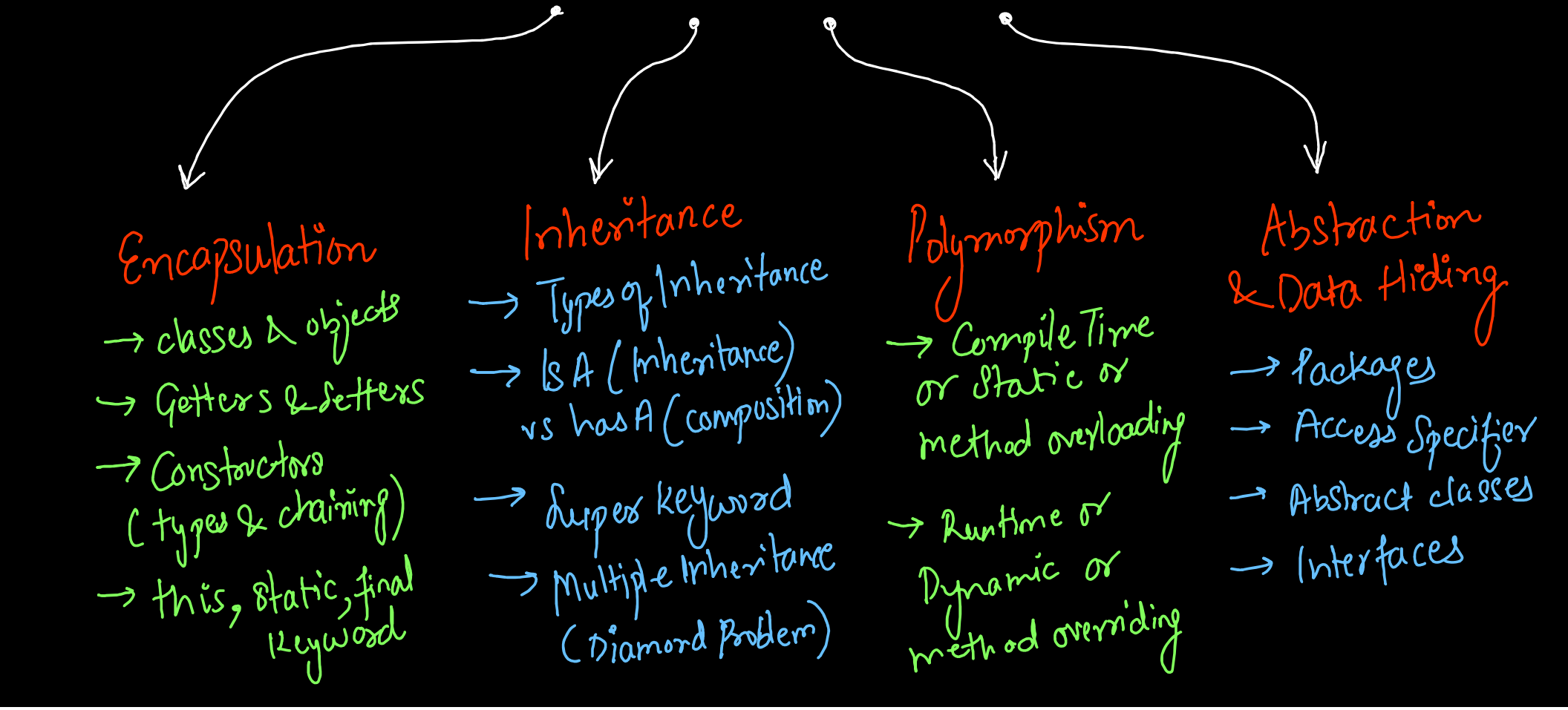
Object oriented Programming

- Focuses on data & objects !
  - ↳ Data members & member functions
- More reliable & secure
  - ↳ Data hiding & Encapsulation
- More reusability & Easy maintainability
  - ↳ Due to Inheritance & Polymorphism
- Example :→ C++, Java, Python, C#

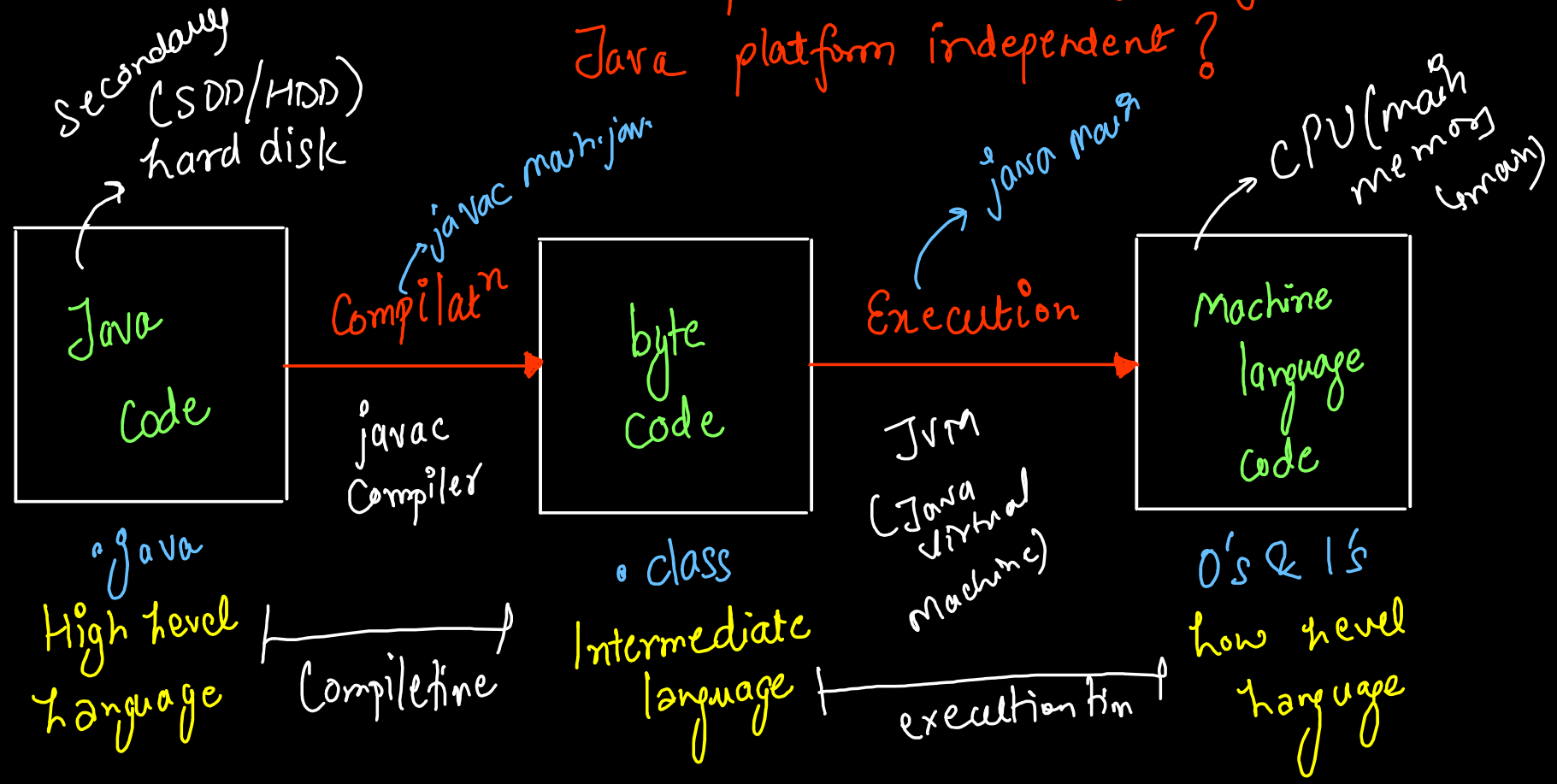
→ higher order functions

Need of Object Oriented Programming

PILLARS OF OOPS



Q) Explain Software Development Process in Java. What are various components in Java? Why is Java platform independent?



Java Architecture

Oracle

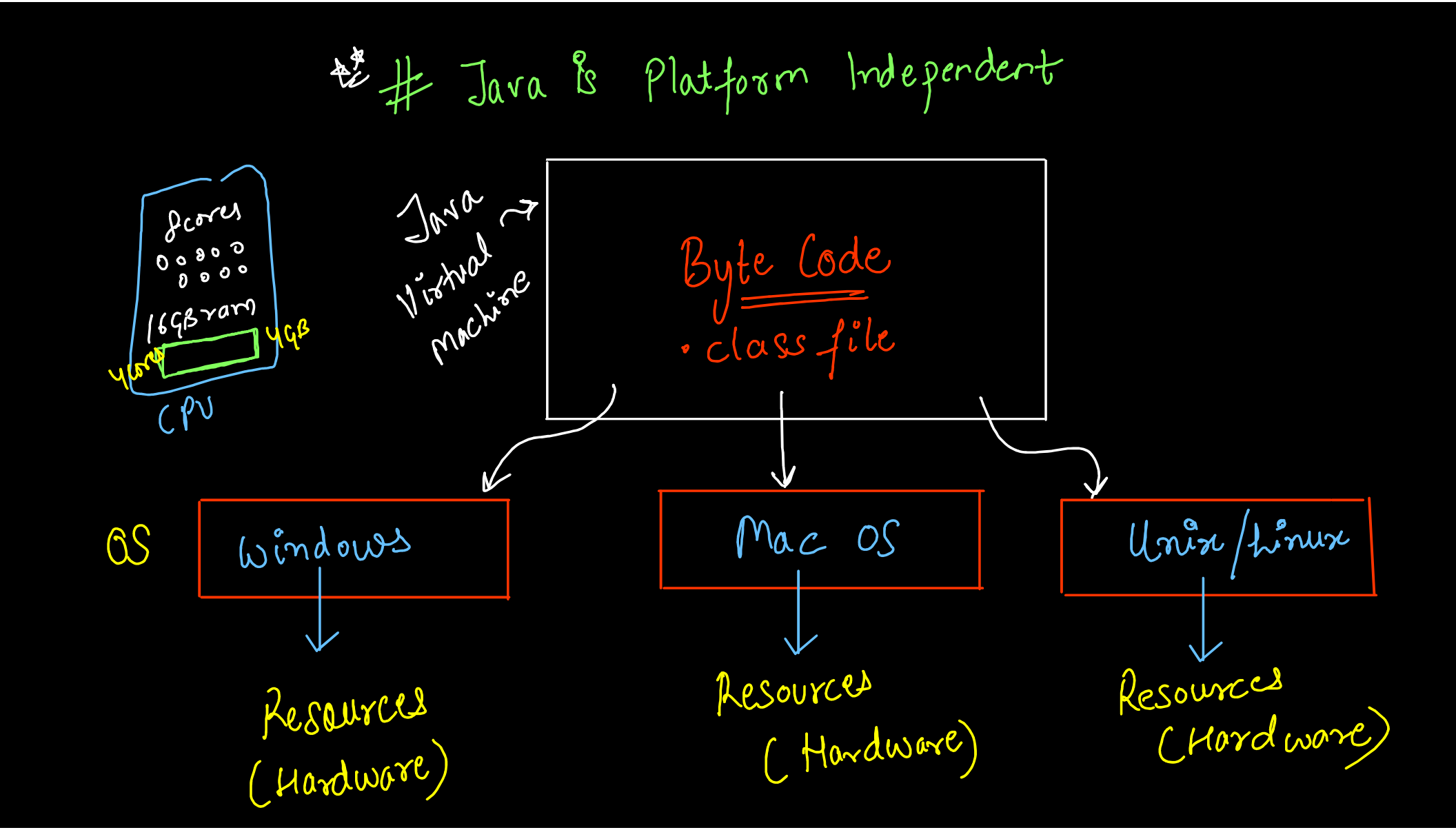
Java Development Kit (JDK) = JRE + Development Tools

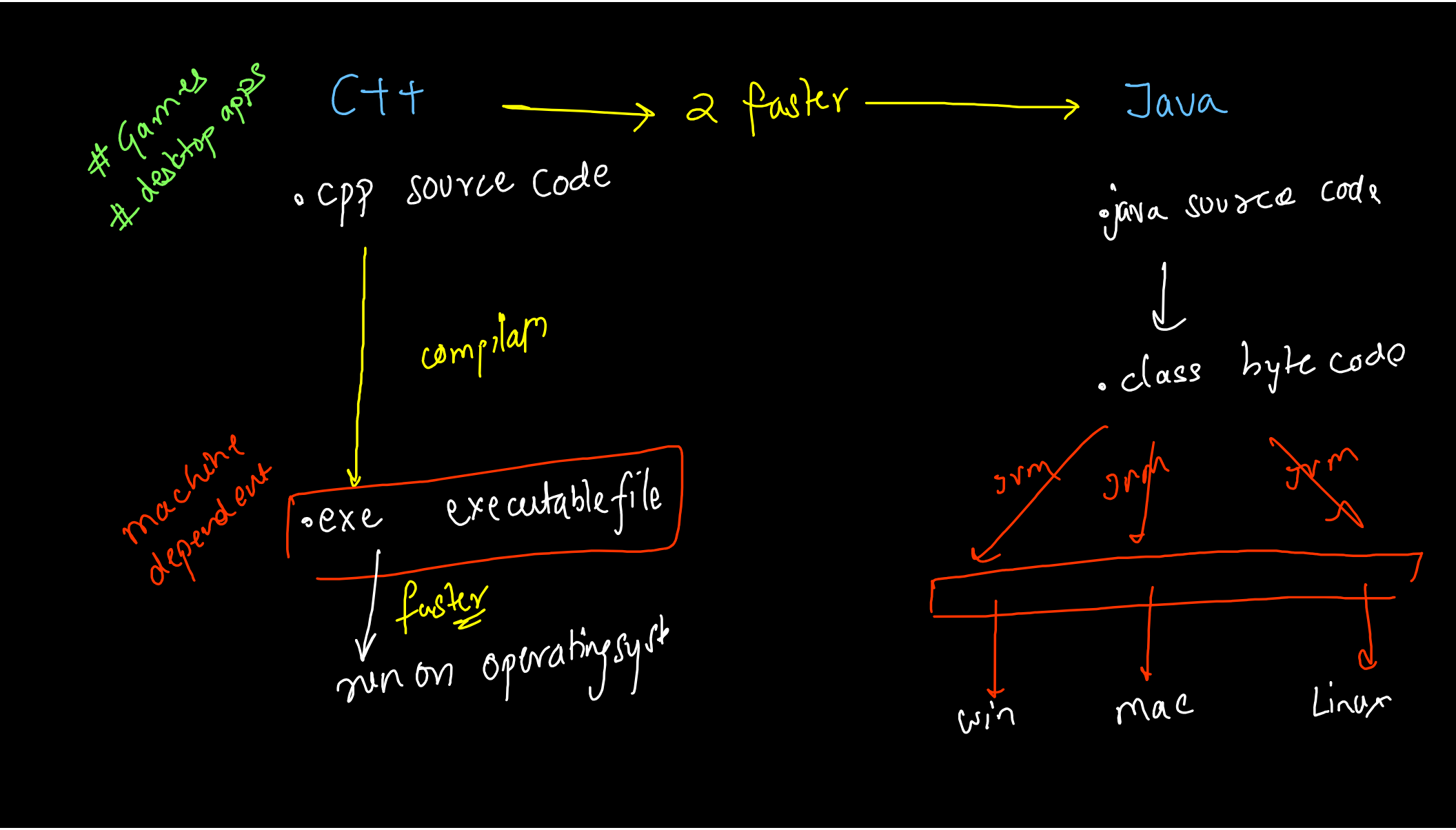
{ Interpreter, Class loader, compiler (javac), linker, }

Java Runtime Environment (JRE)

= JVM + library classes

Java Virtual Machine (JVM)


Java is Platform Independent
8cores
16GBram
4GB
4GB
CPU
Java Virtual Machine
Byte Code
.class file
OS
Windows
Mac OS
Unix/linux
Resources (Hardware)
Resources (Hardware)
Resources (Hardware)


Games
desktop apps
C++
2 faster
Java
.cpp source code
compilar
machine dependent
.exe executable file
faster
run on operating syst
.java source code
.class byte code
jvm
jvm
jvm
win
mac
Linux

Q) What are differences between Program & Process? What do you mean by process memory layout? Explain the steps in process creation/program execution?

(secondary storage) Hard disk

Program vs Process

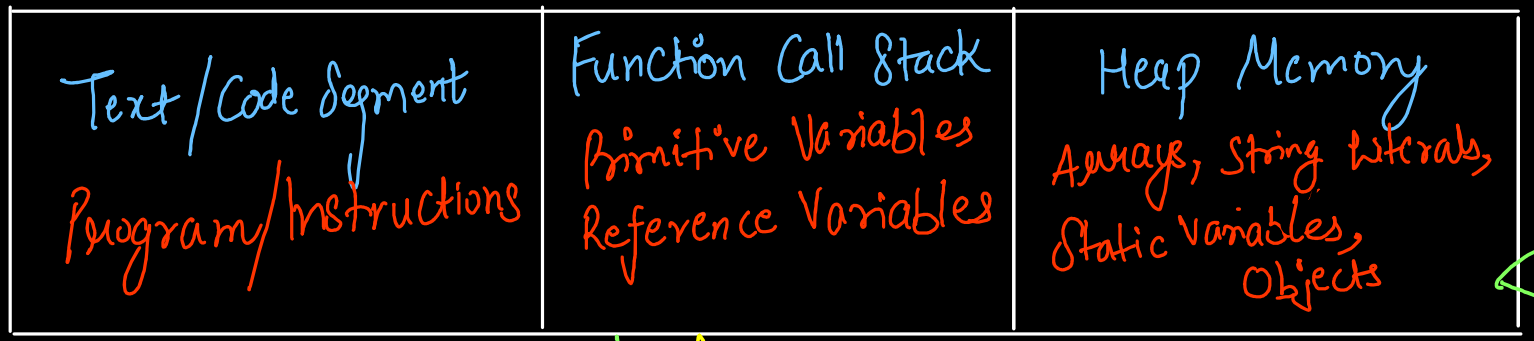
Program → Code/Set of Instructions (.java)

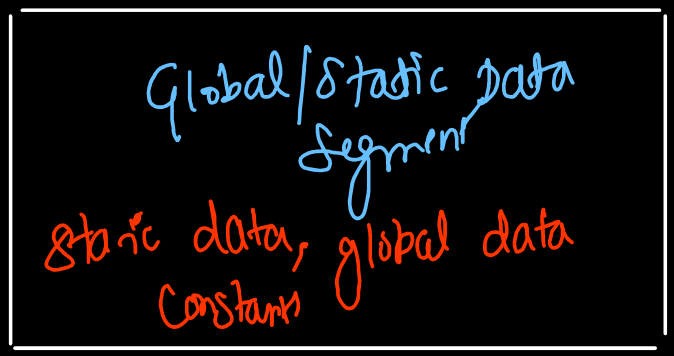
Program under execution is known as process

Process = Program (Code) + Stack & Heap memory
+ Other resources
(CPU, disk, Network, I/O file, etc)

Process Memory layout

RAM (Random Access memory) main memory





Steps in Program Execution