Class - 01

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CSE 341 (Theory)
CSE 342 (Lab) > Advanced Programming

Book → Java the Complete Reference
by Herbert Schildt (9th/11th Edition)

↳ C.O. → will be given later

last class/mid → 13 Feb

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~~#~~History of Java

↳ James Gosling and his team 1991
Originally named 'Oak Tree'
↳ company of James: Sun Microsystem
renamed to Java in 1995
↳ Indonesian island famous coffee of

1995-2009 → Sun Microsystem
2010 - present → Oracle
{3 billion app} desktop/android/enterprise

Characteristics of Advance Programming

① Object-Oriented Programming
↳ strictly 'class'-based

Class → blueprint
↳ characteristics of an item
↳ instance of class : Object
↓
user-defined type variable

Class requires no memory
only memory is occupied when an instance or object is created.

② Platform independent
↳ system's / Processor's Architecture
↳ offers high-level APIs**

JVM → Java Virtual Machine

JDK → Java Development Kit

JRE → Java Runtime Environment

first.java
↳ public class नाम

compiler →

first.class

JVM → Machine code

interpreter

first.java

byte code

IDE for Java

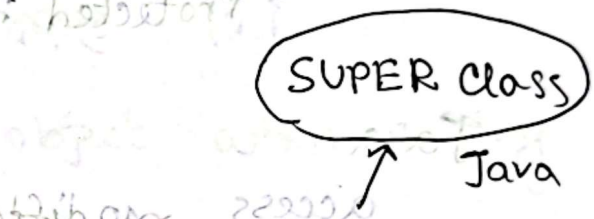
NetBeans
Eclipse
* IntelliJ → No need to install JDK
JCreator

* → recommended by MIF

③ Multithreaded

Threading → work done simultaneously

④ Architecture Neutral



Features of OOP

- Inheritance
- Polymorphism
- Abstraction
- Encapsulation

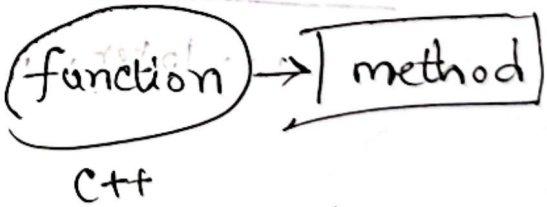
} chapters

C++ → Base class, Derived class

SUB class extends SUPER class

Inheritance : cannot Multilevel inheritance

Polymorphism : many forms



overriding → method, operator

overloading → method, operator + constructor overloading

Runtime Polymorphism
Compile-Time Polymorphism

Compile time → overloading

Run time → Overriding

Encapsulation :

C++

access specifier/modifiers

- Public
- Private
- Protected : only for derived classes

Java

access modifiers

- public
- private
- protected:
- default

< Java packages >

- similar to header files in C++

Data Types

... later ...

Java Code Example

first.java

{data type + class}

```
public class first {
    public static main method (String args[]) {
System.out.println("Hello World");
    }
};
```

→ public যেন JVM execute করতে পারে।

→ no need to create an object when calling a class method.

Task: Code execution

(Complications in taking input in Java)

Array Declaration

...later...

(package importing in Java)