



Introduction to java

# COMP1030

## Lecture #1



# How java came to be

- James Gosling
- Oak, green, java
- Similar to C++ without the liabilities



# C++ vs java

## C++

WOCA

Platform dependent

Manual memory management

Operator overloading

No inline documentation

Supports goto statement

Pointer arithmetic

Unicode not fully supported

Changing type sizes

## java

WORA

Platform independent

Garbage collection

No operator overloading

javadoc

goto a reserved word

True Arrays

Unicode fully supported

Strict Type sizes

# Flavours of java

java SE   Standard Edition

java EE   Enterprise Edition

Java ME   Micro Edition

Java Script – nothing to do with java

# Java vs java script

## java

Create applets and application

OOP programming language

Runs within a browser or the JVM

Compilation required

Invented by Sun Microsystems

## java script

Does not create applets or applications but is embedded in HTML

OOP scripting language

Browser only

code is in text – no compilation required

Invented by Netscape

# Moore's Law

Gordon Moore



Moore's Law - The number of  
transistors and resistors on a chip  
doubles every 24 months

— Gordon Moore —

# Computer Organization

## Input Unit

- Keyboard, mouse

## Output Unit

- Monitor

## Memory Unit

- RAM, ROM

## Arithmetic Logic Unit (ALU)

- Calculations, comparisons

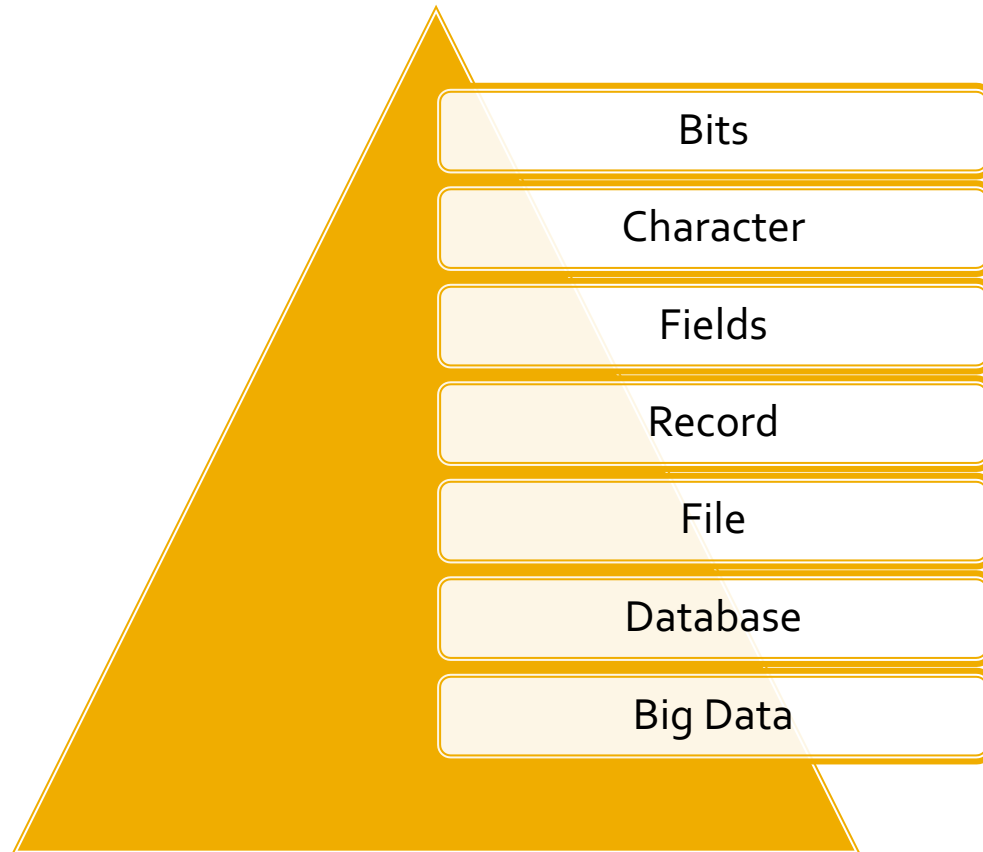
## Central Processing Unit (CPU)

- Coordinates operations

## Secondary Storage

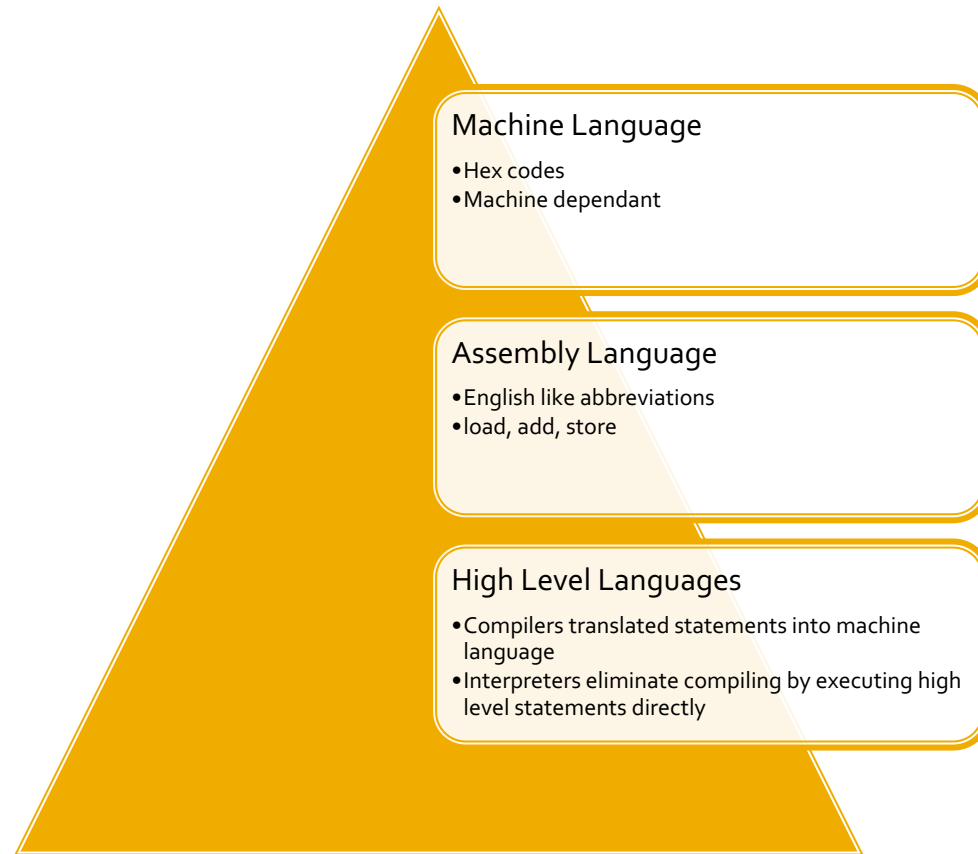
- Hard Drive, DVD

# Data Hierarchy

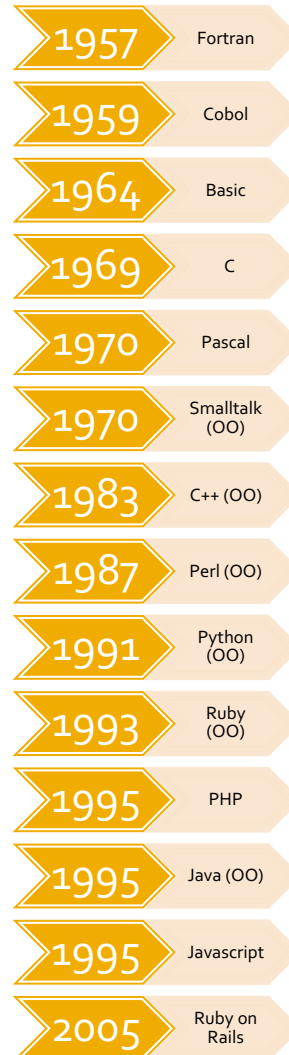




# Language Hierarchy



# Partial Language Timeline



# Characteristics of an OO language

Classes

Object

Encapsulation

Composition

Inheritance

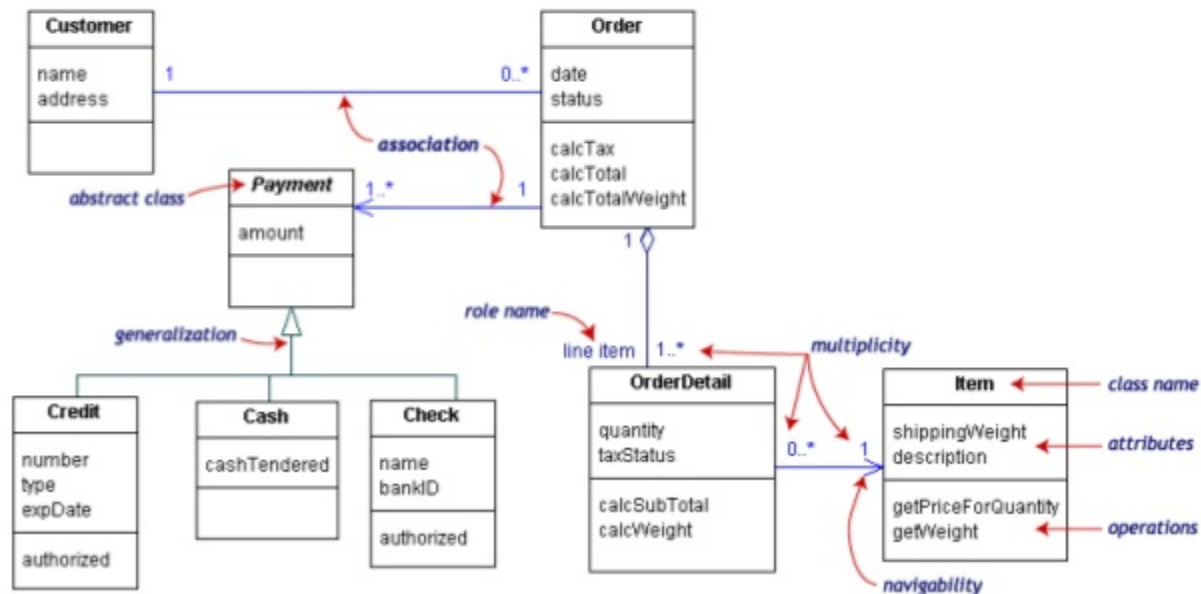
Polymorphism

Re-use

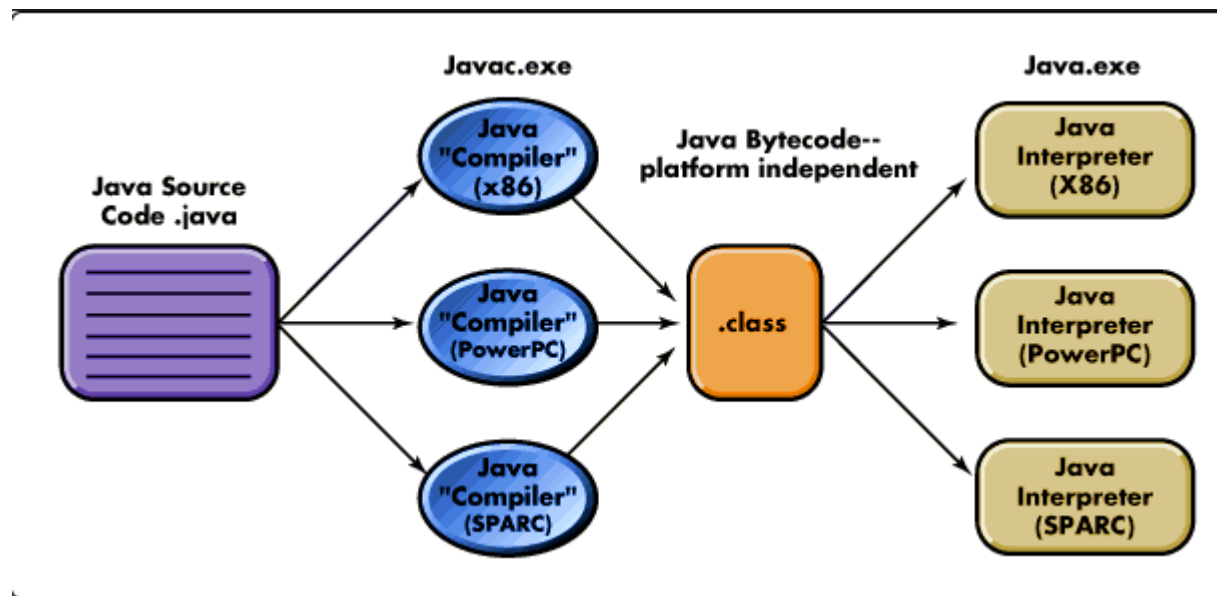
Interfaces

# UML – Unified Modeling Language

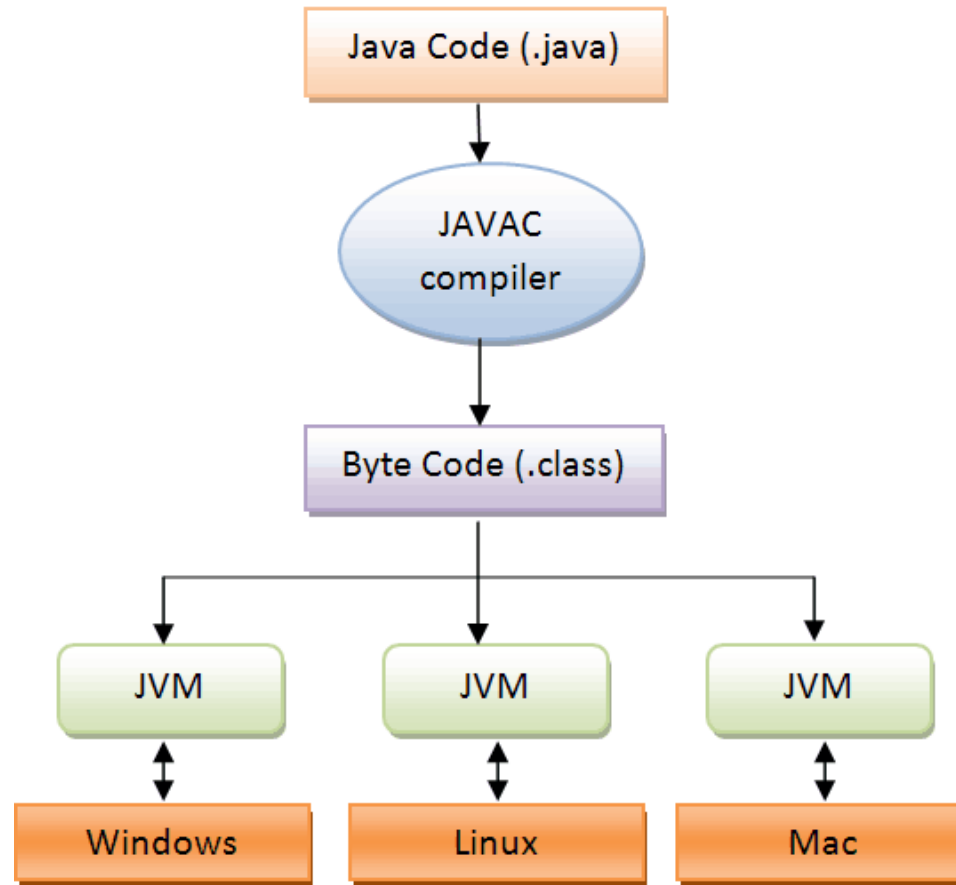
## UML Class Example



# How is java platform independent?



# How is java platform independent?



# Javadoc -d dir \*.java

## Class HelloWorld

java.lang.Object  
HelloWorld

```
public class HelloWorld  
extends java.lang.Object
```

### Constructor Summary

#### Constructors

##### Constructor

HelloWorld()

### Method Summary

#### All Methods

#### Static Methods

#### Concrete Methods

##### Modifier and Type

##### Method

static void

main(java.lang.String[] args)

### Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait