



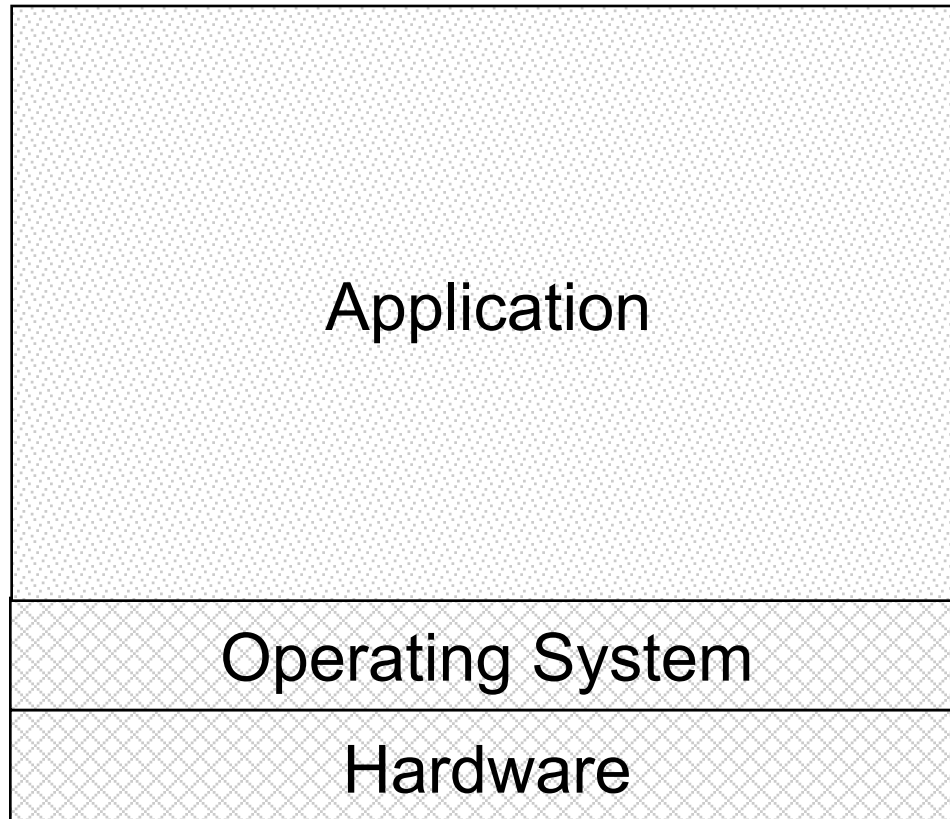
# Architecture des Systèmes d'Information

## FrameWork And Middleware Abstraction

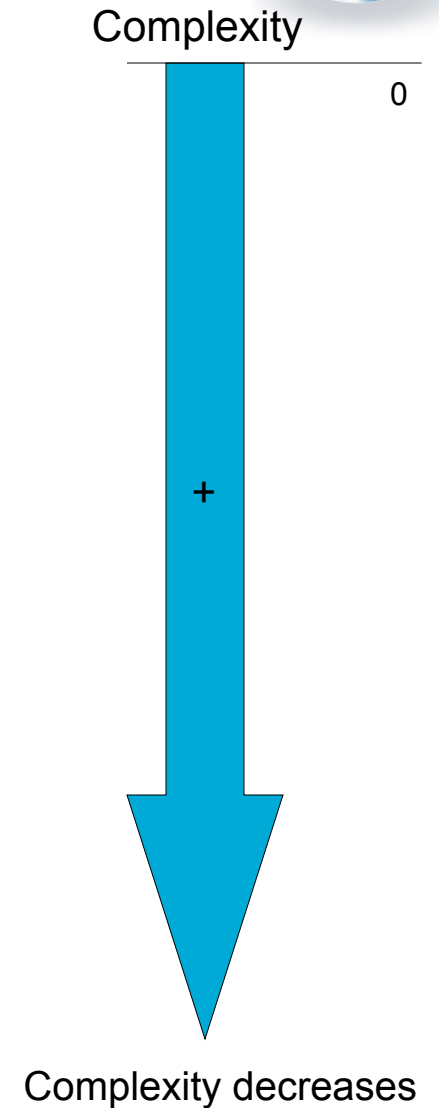
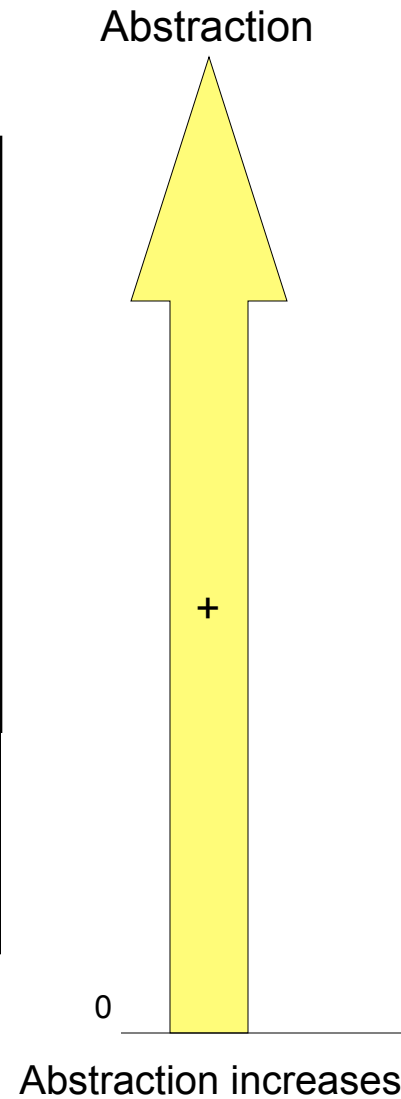
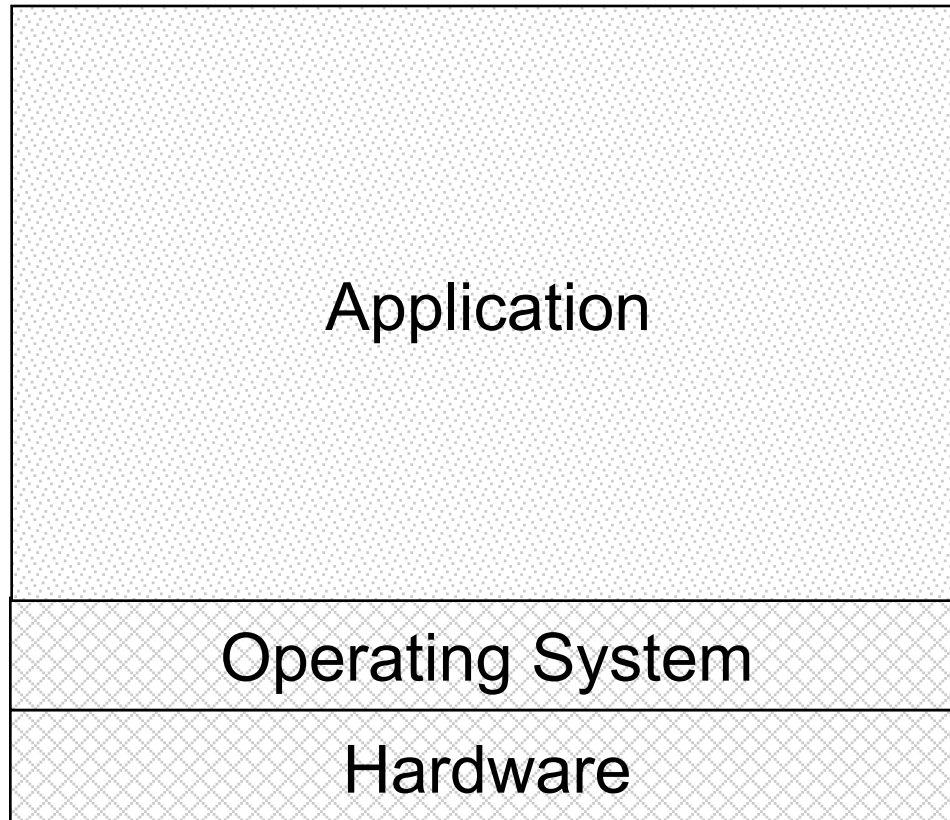


**Traduction en cours**

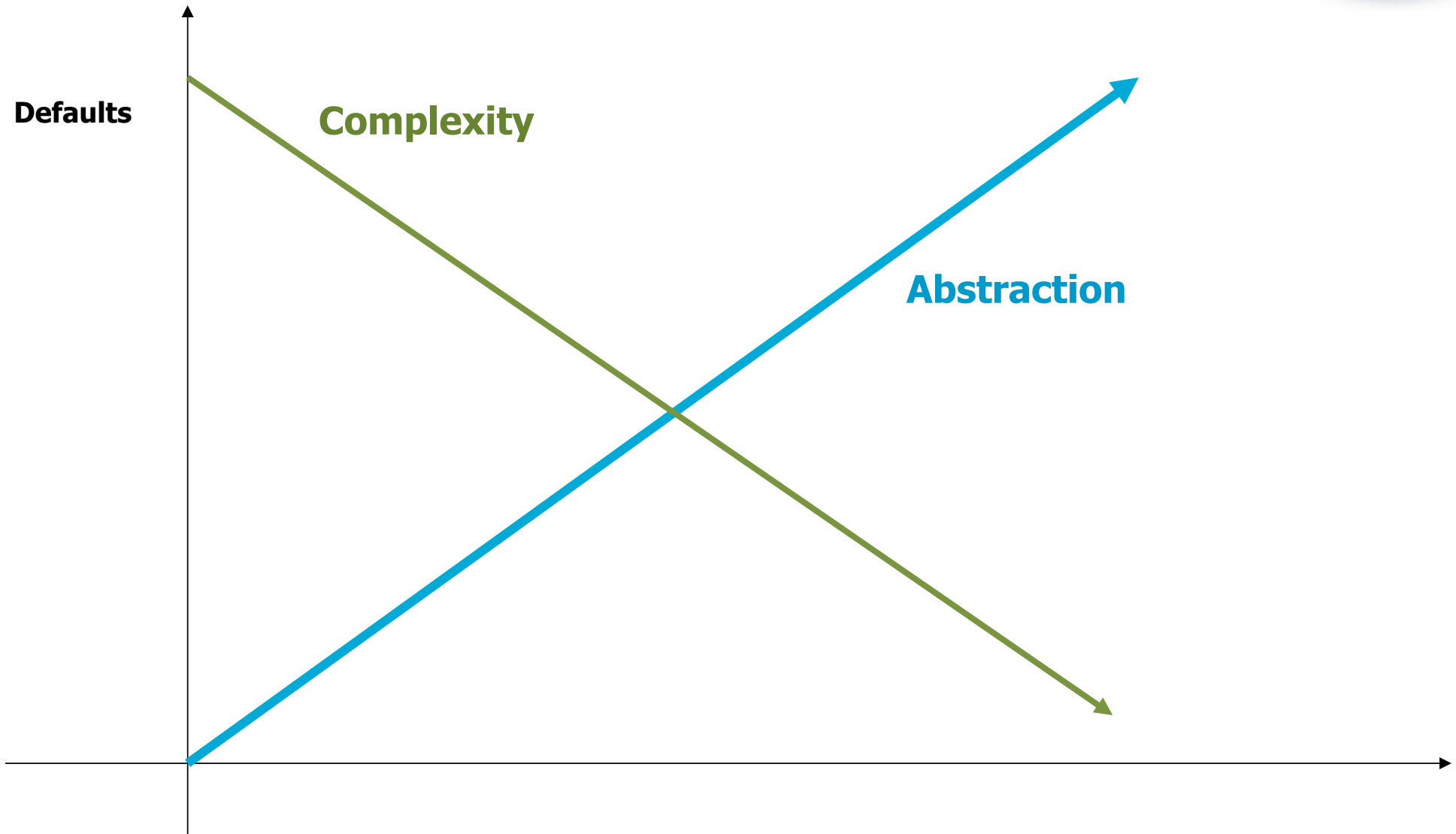
# Software layers



# Abstraction Raising



# Abstraction reduces Complexity





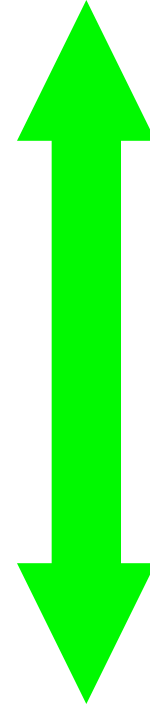
# Level of abstraction

- Infrastructure
  - Middleware
- Programming Paradigmes
  - Objects
- Architecture Pattern Implementation
  - Frameworks

# Infrastructure



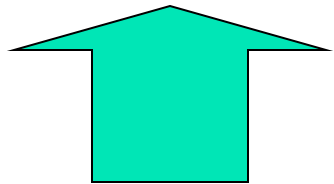
Complexity



Application

Assembly Language

Hardware

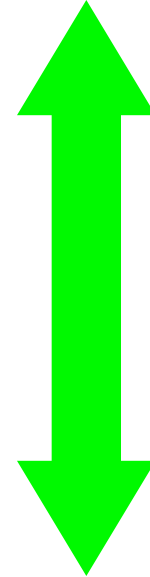


Abstraction

# Infrastructure



Complexity

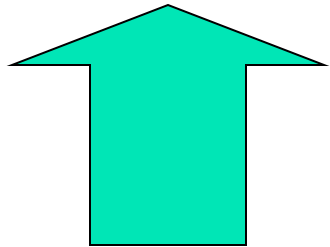


Application

Fortran  
C, Pascal  
Ada

OS

Hardware

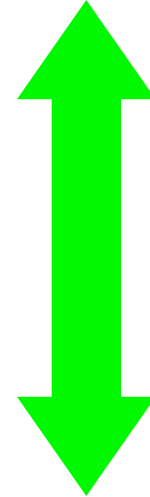


Abstraction

# Infrastructure



Complexity

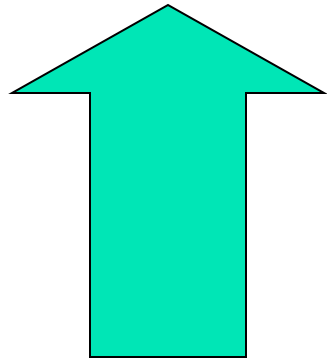


Application

Socket API

OS (Unix)

Hardware



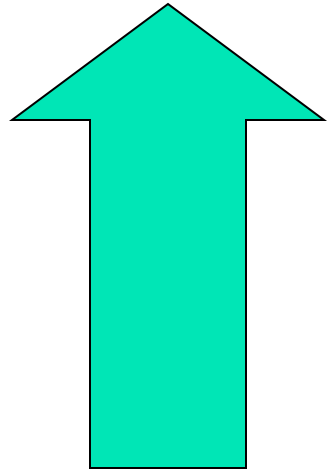
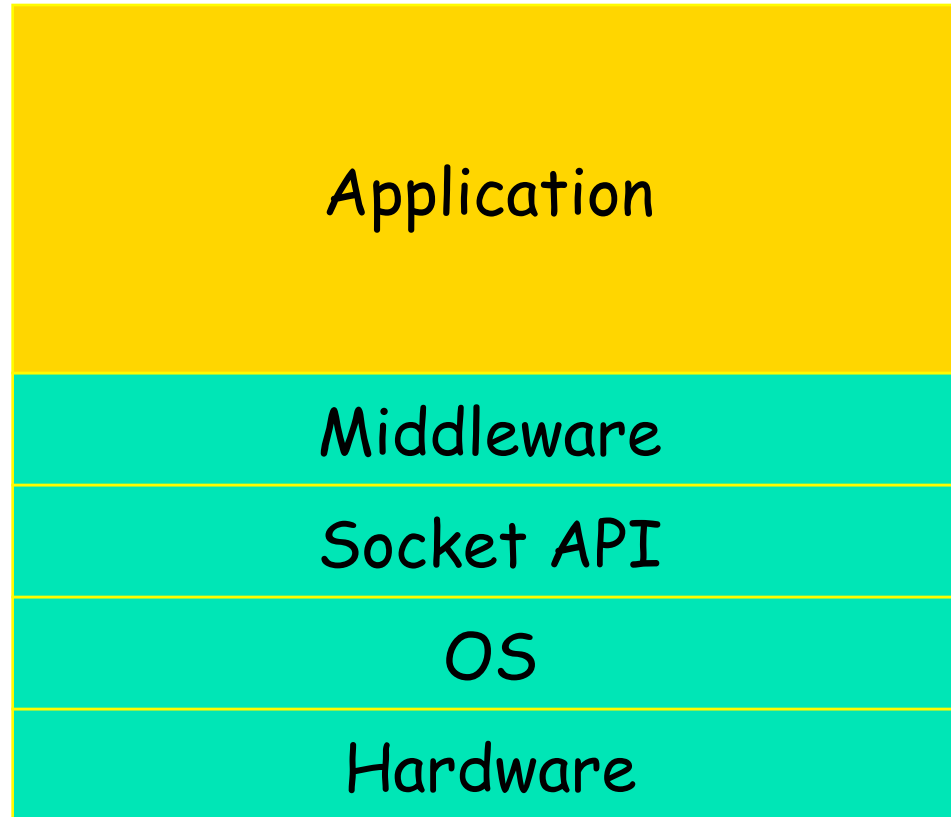
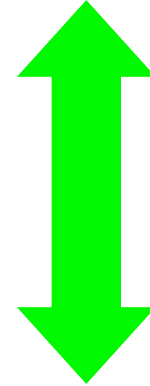
Abstraction



# Infrastructure



Complexity

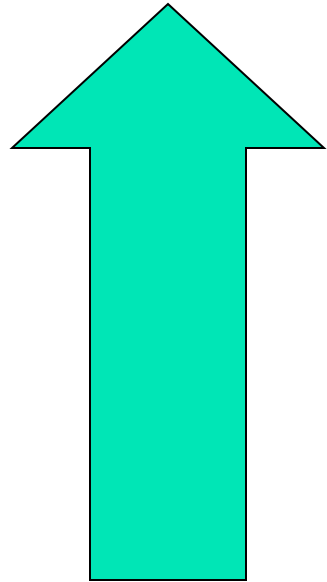
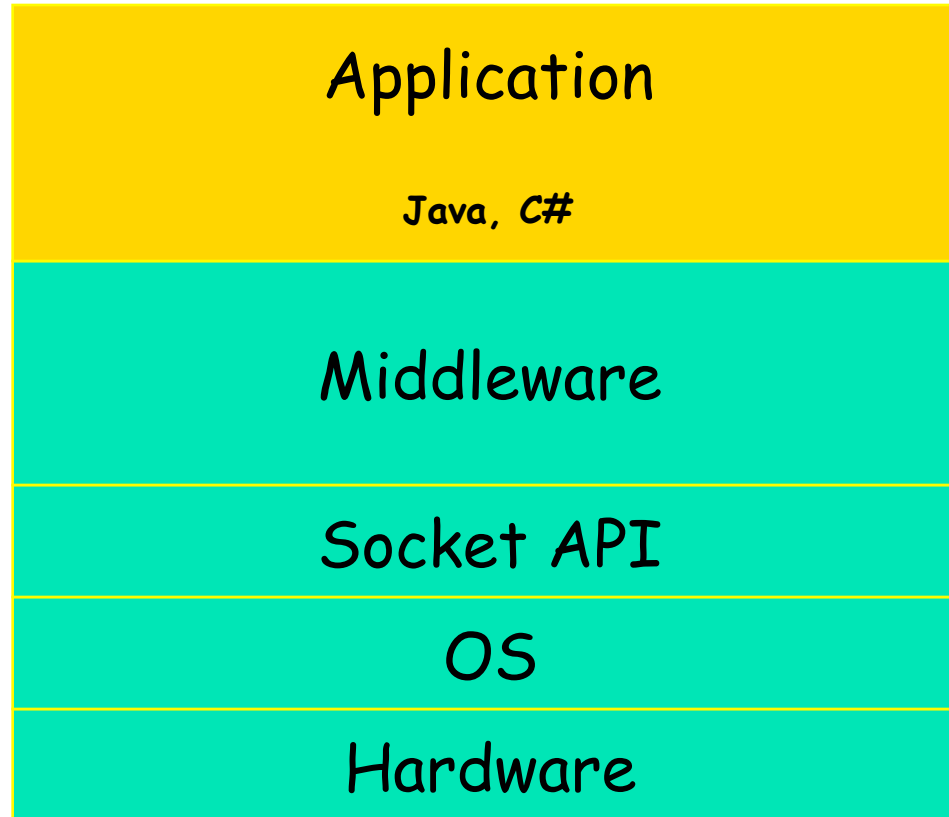
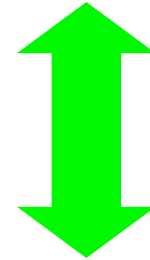


Abstraction

# Infrastructure

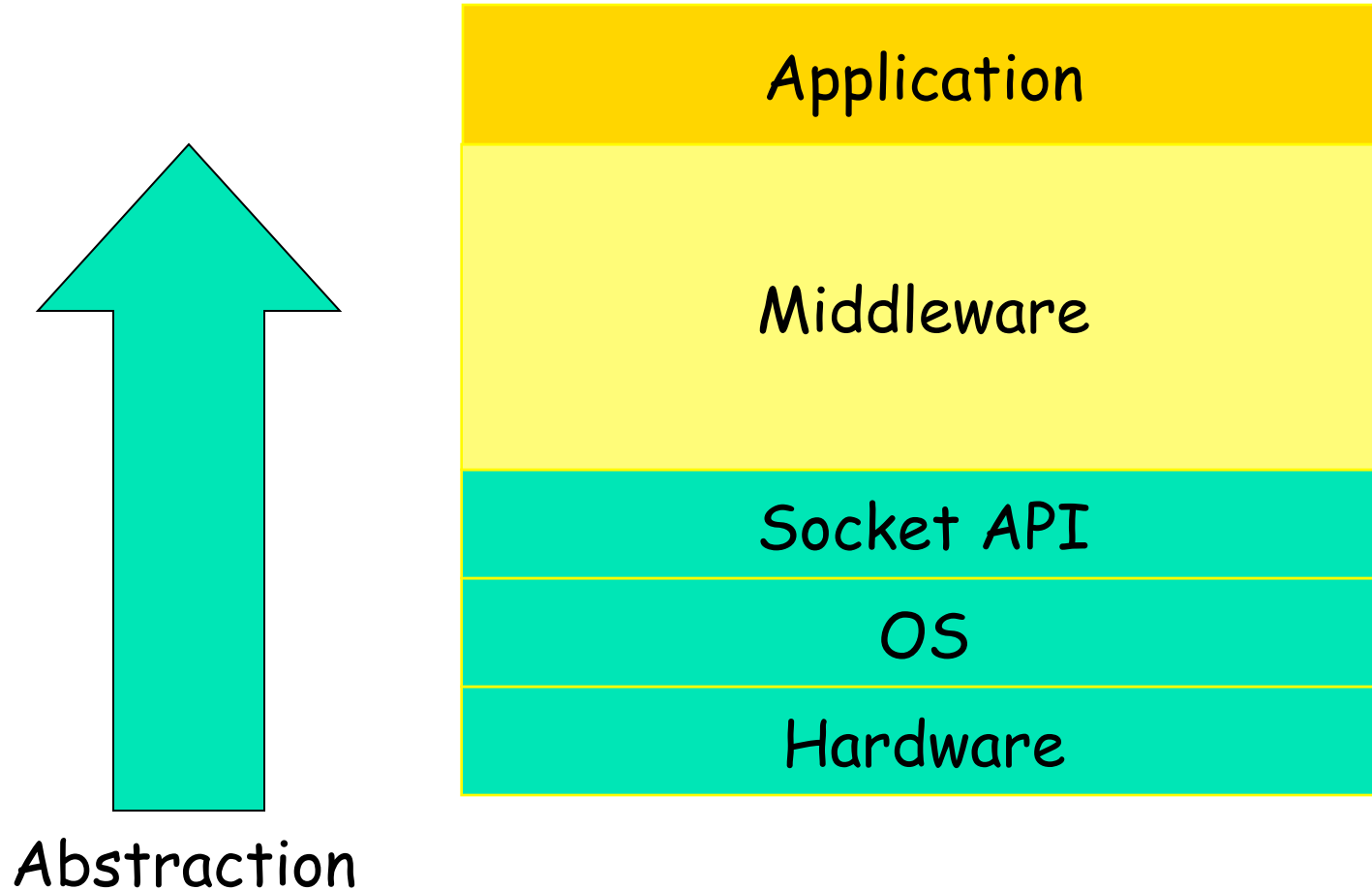


Complexity

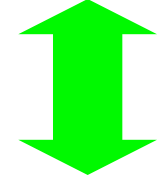


Abstraction

# Infrastructure



Complexity





# Virtual Machine

- Java Virtual Machine (JVM).
  - Java SE
  - JDK
  - Java EE
  
- .NET Framework Virtual Machine : Common Language Runtime (CLR).

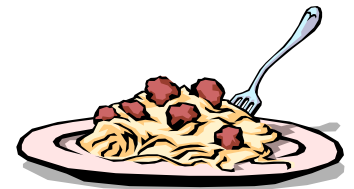


# Encapsulation

Application

Hardware

Abstraction



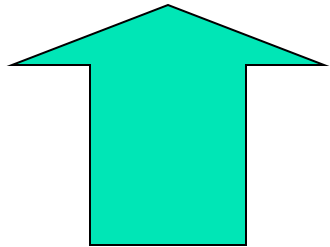


# Encapsulation

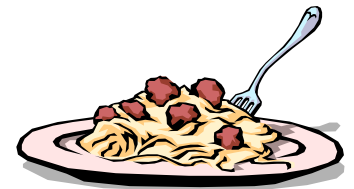
Application

OS

Hardware



Abstraction





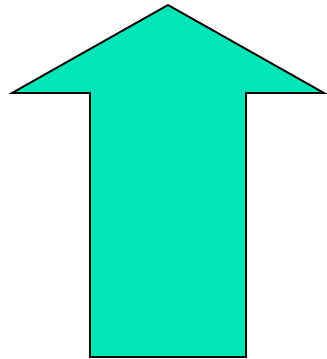
# Encapsulation

Application

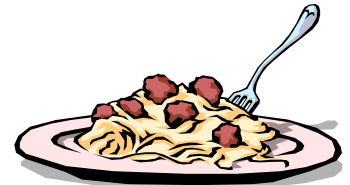
Socket API

OS

Hardware

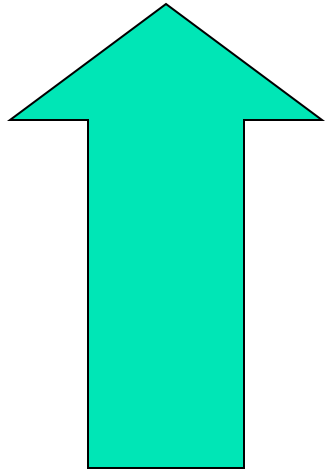


Abstraction

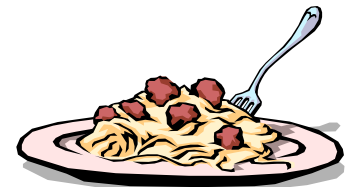
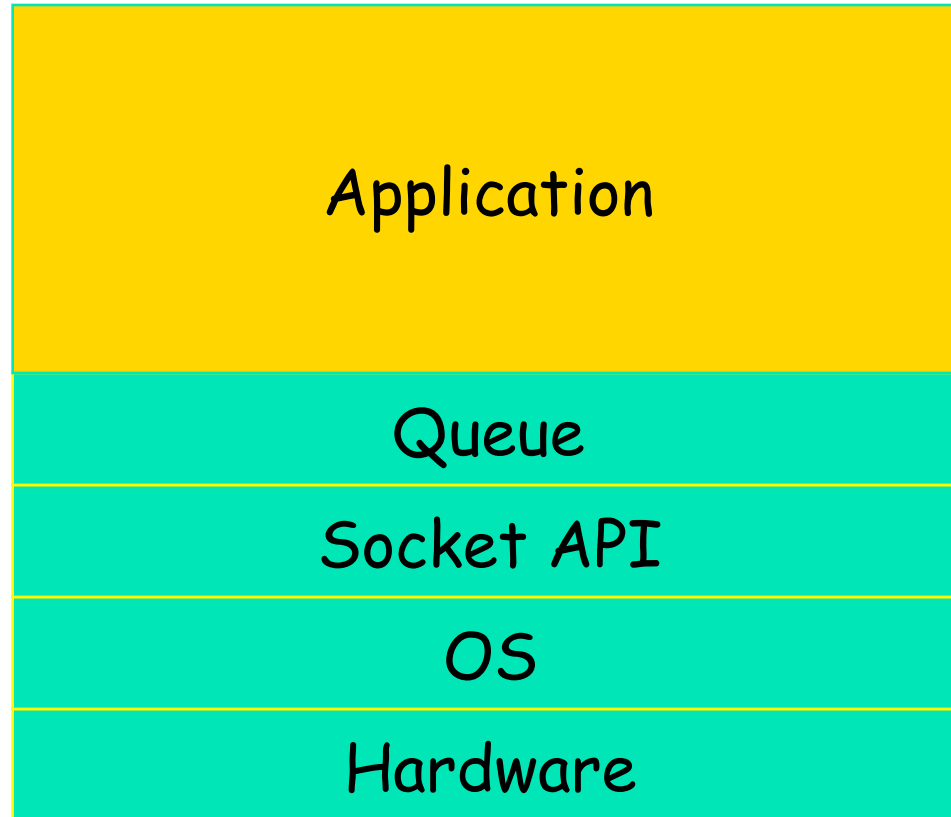




# Encapsulation



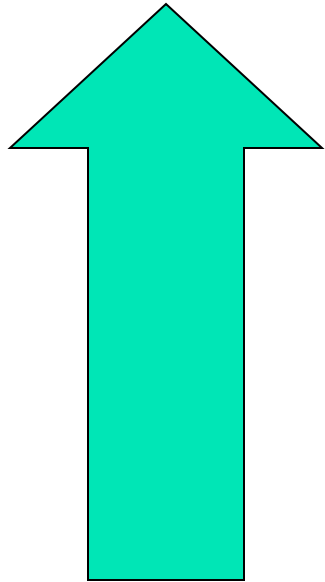
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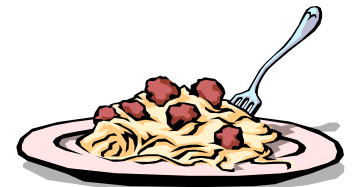
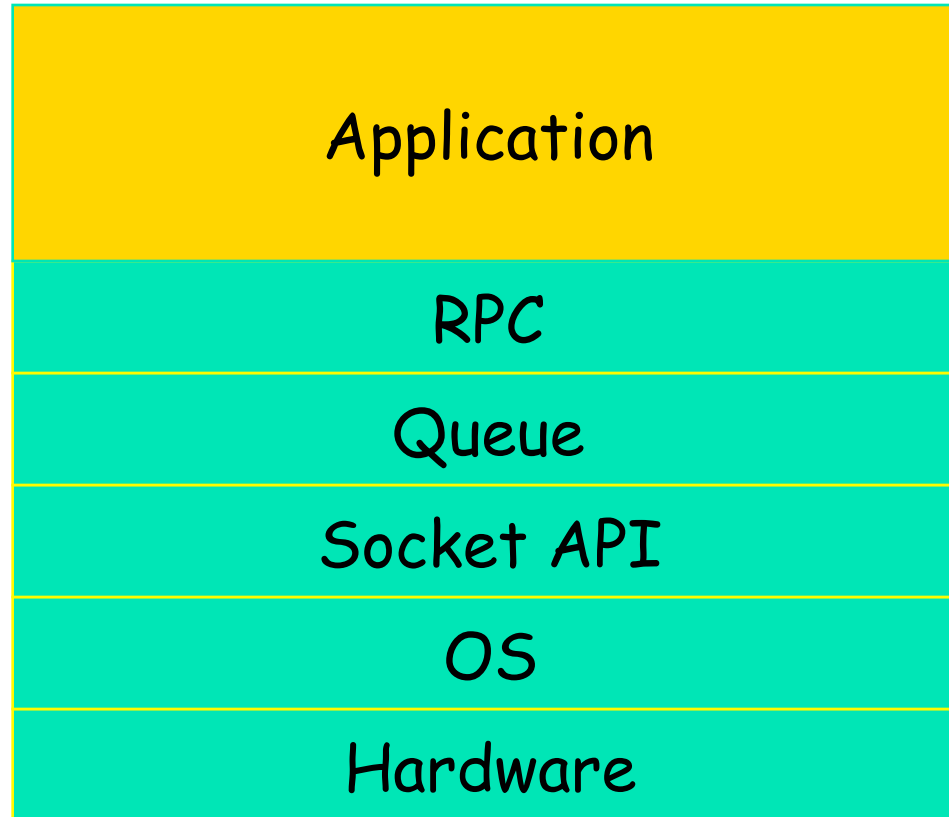




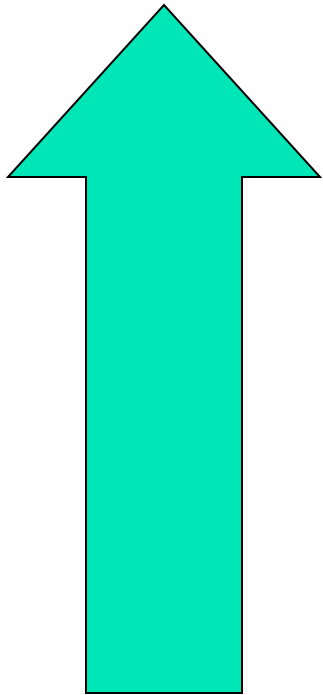
# Encapsulation



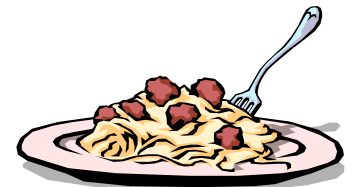
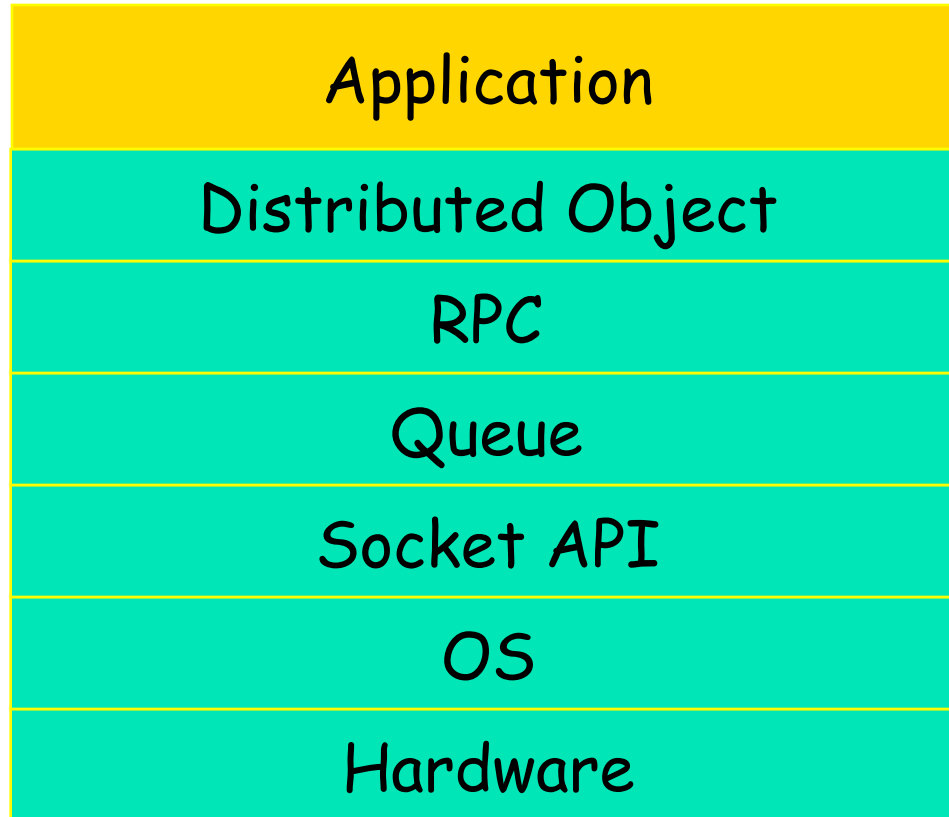
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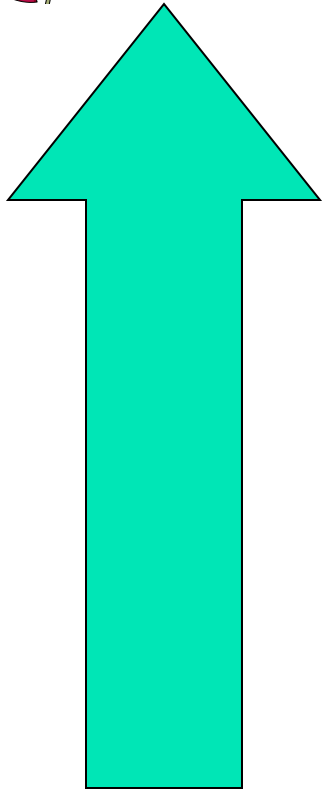
# Encapsulation



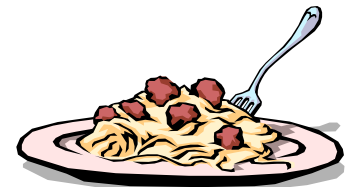
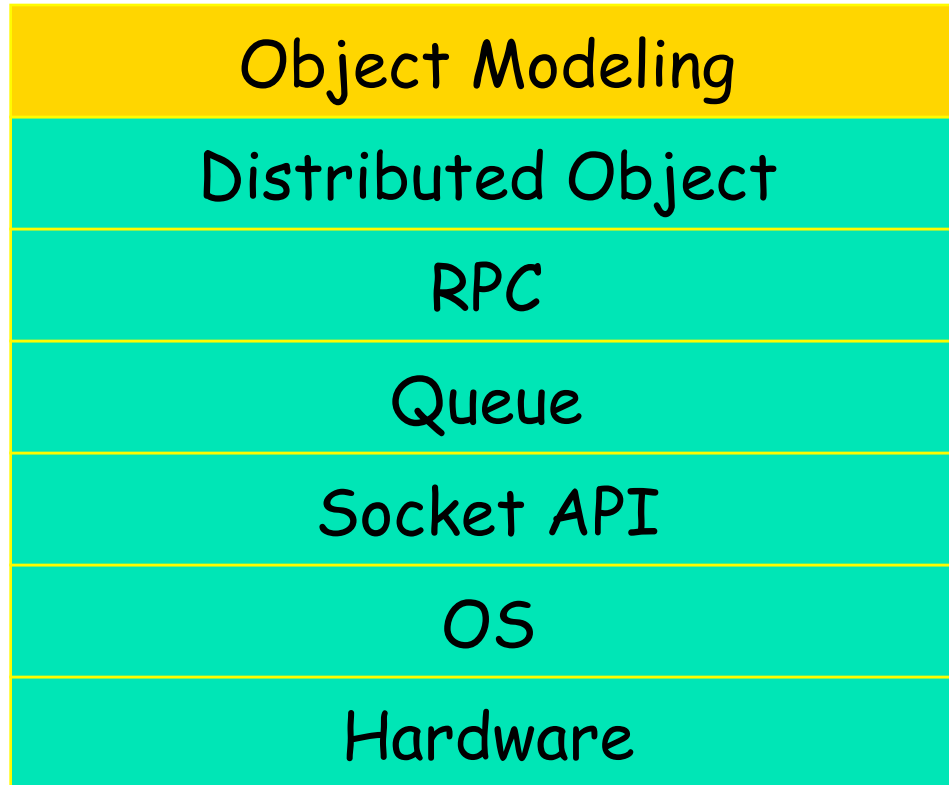
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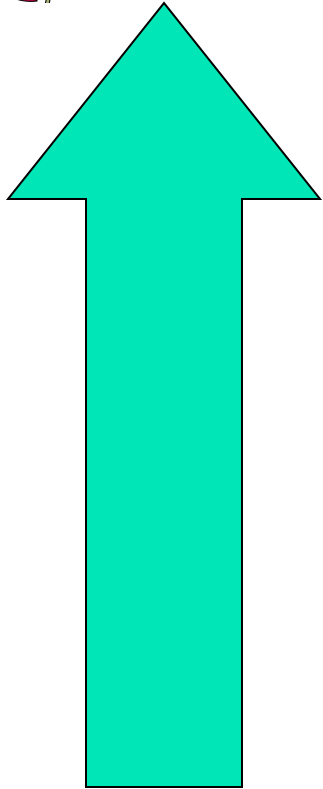
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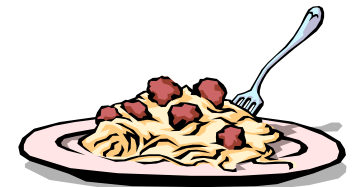
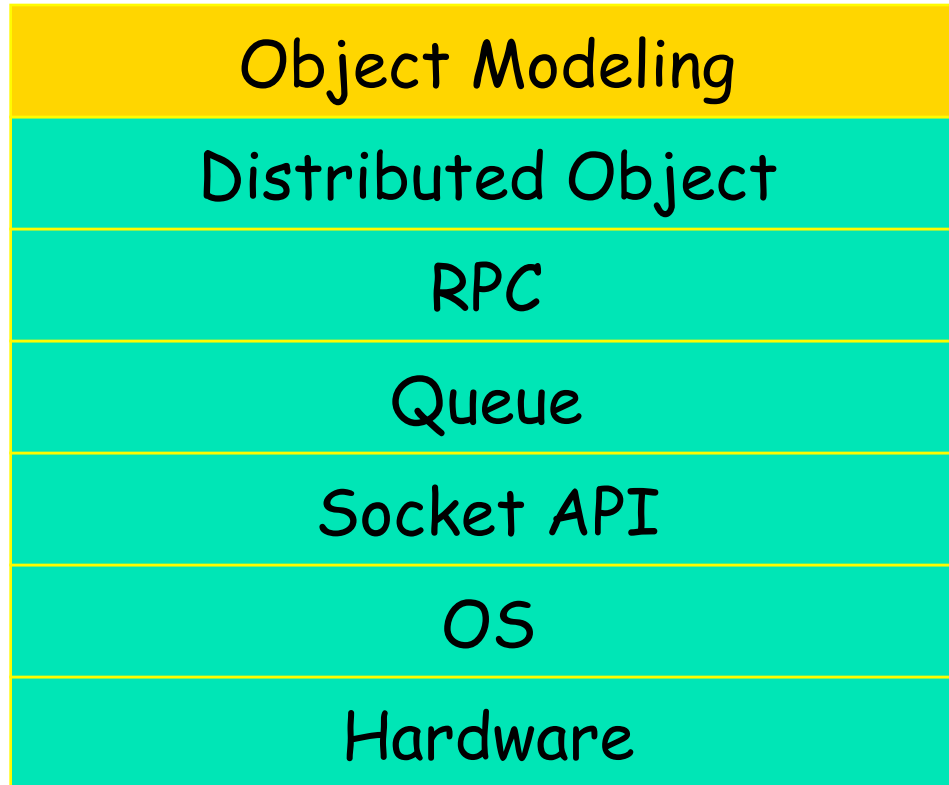
Abstraction



# Encapsulation



Abstraction

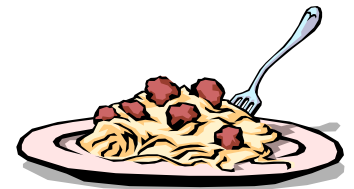




# Encapsulation

Application

Hardware





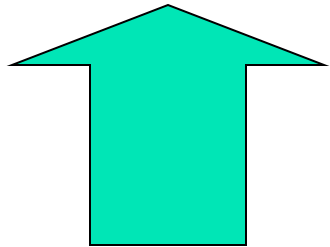
# Encapsulation



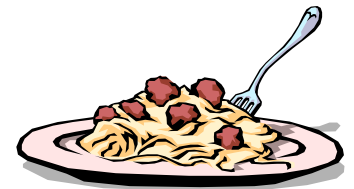
Application

OS

Hardware



Abstraction





# Encapsulation

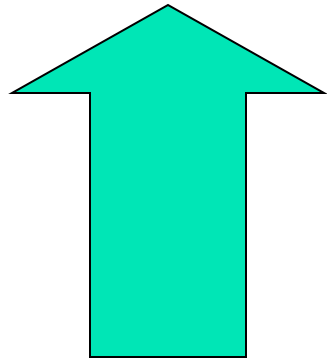


Application

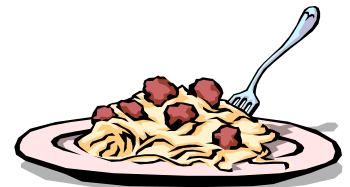
Socket API

OS

Hardware



Abstraction





# Encapsulation



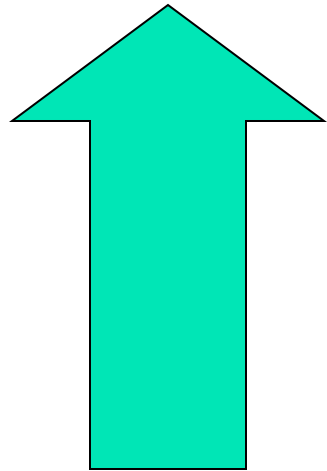
Application

Queue

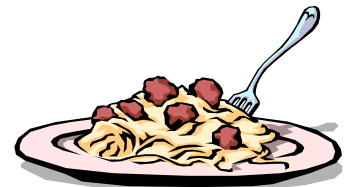
Socket API

OS

Hardware



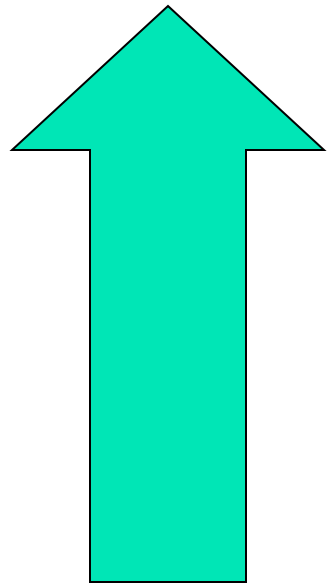
Abstraction



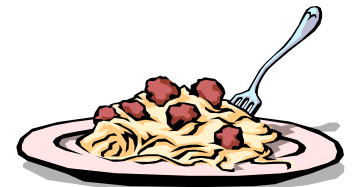
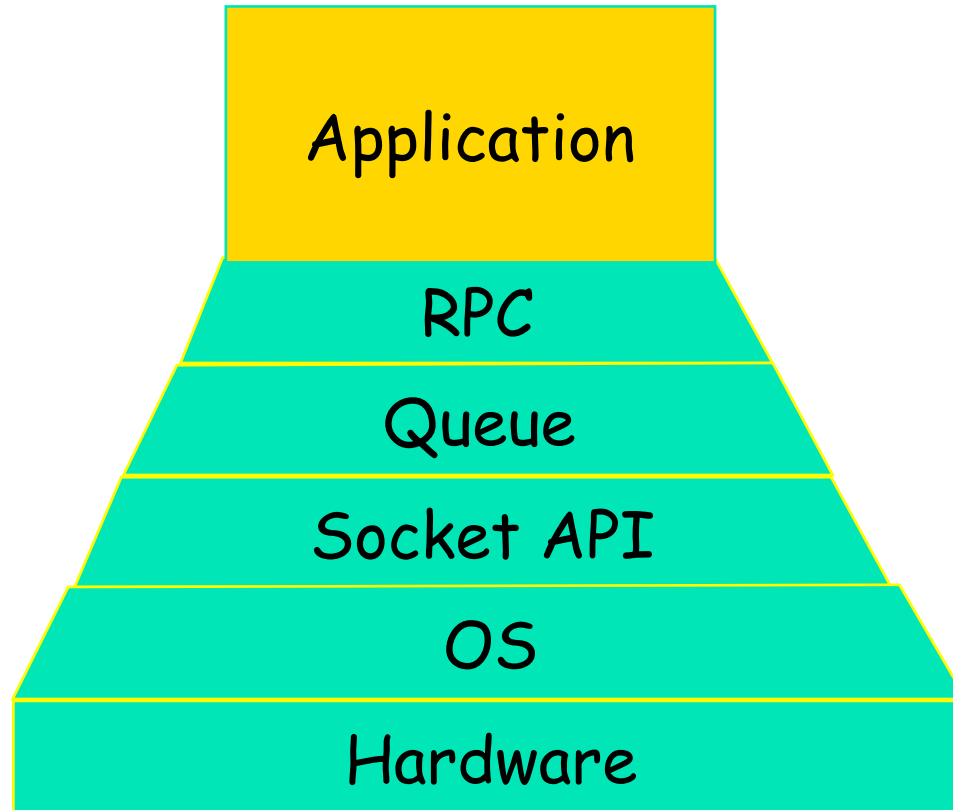




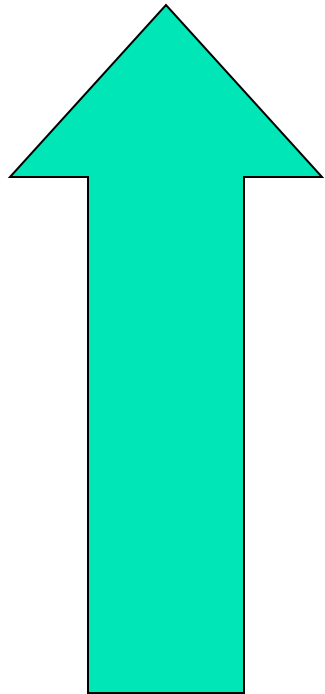
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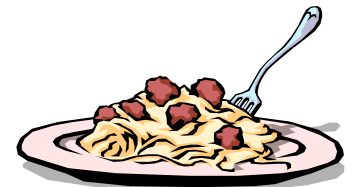
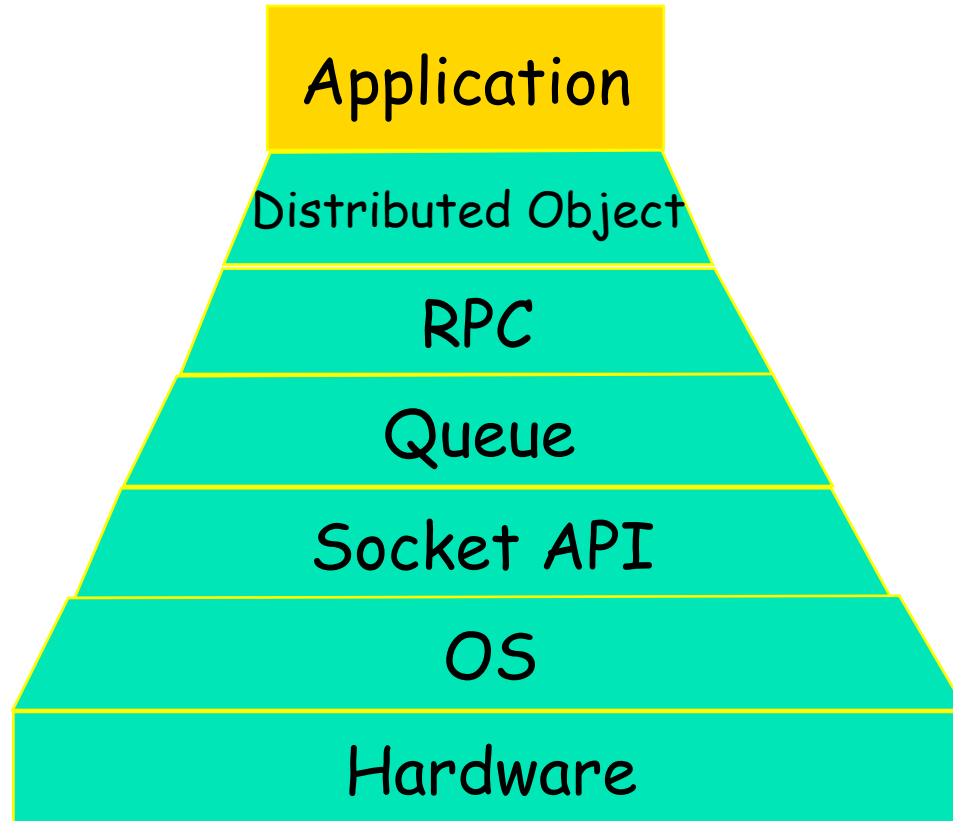
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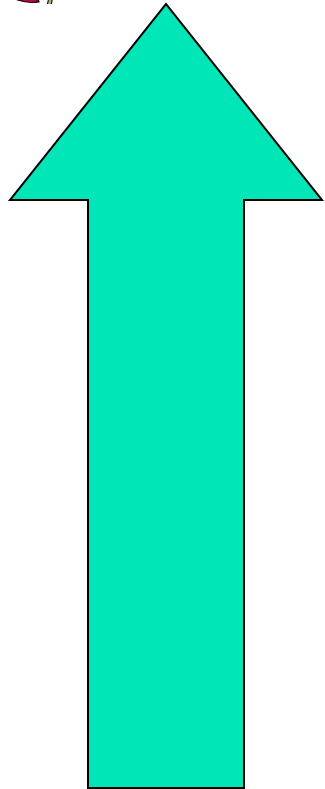
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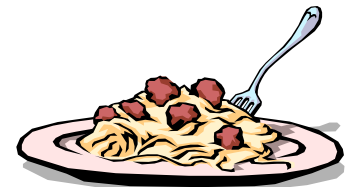
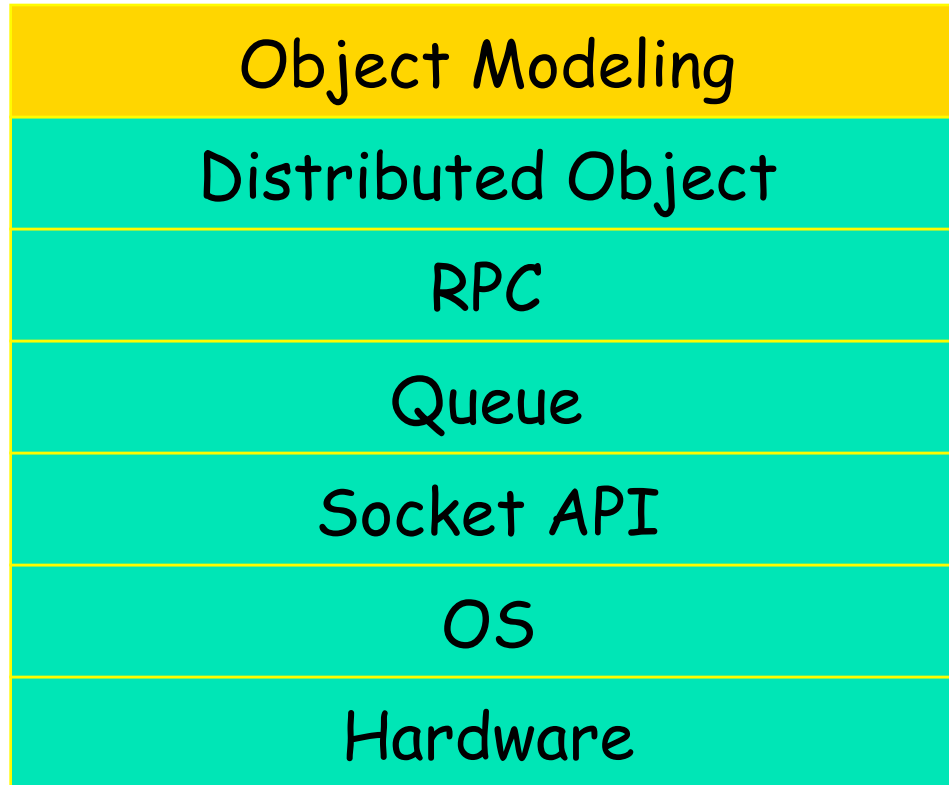
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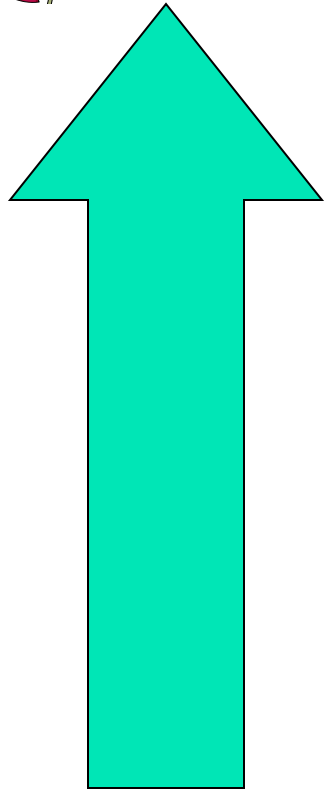
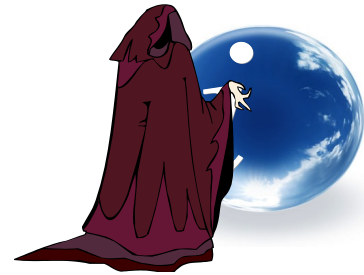
# Encapsulation



Abstraction



# Encapsulation



Abstraction

Application Object Modeling

Distributed Object

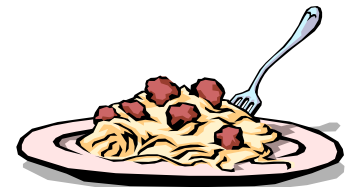
RPC

Queue

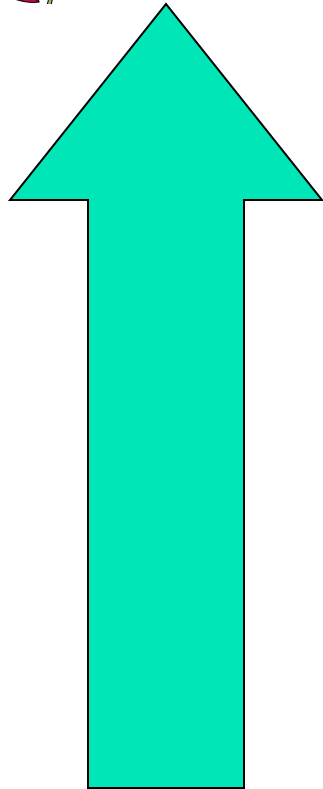
Socket API

OS

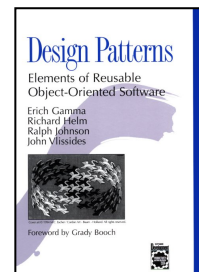
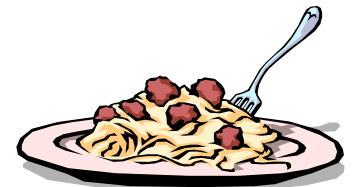
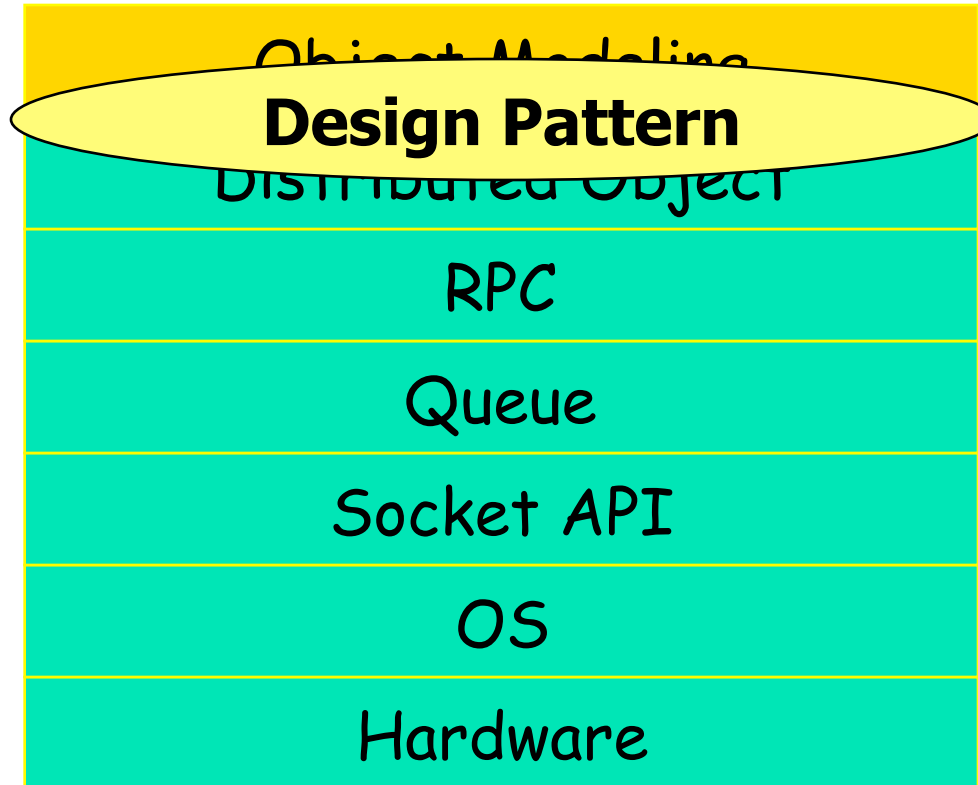
Hardware



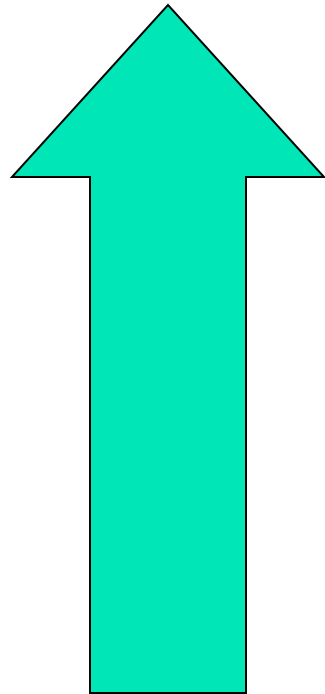
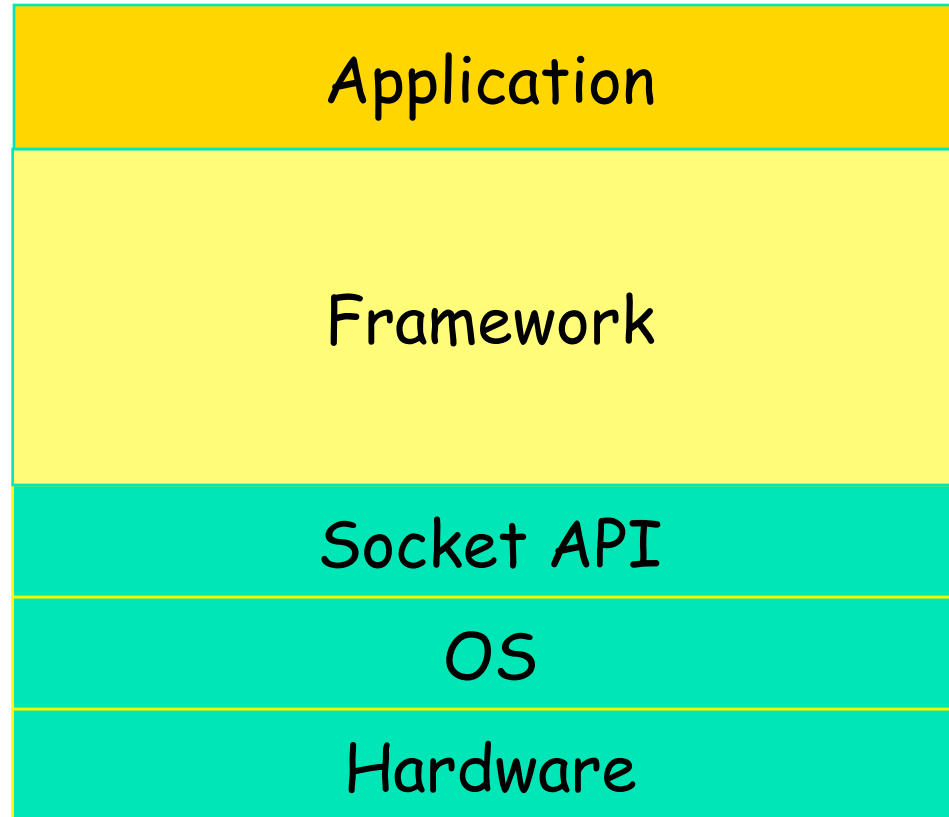
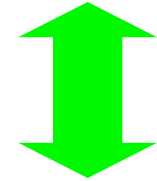
# Encapsulation



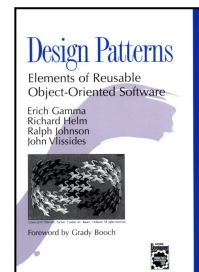
Abstraction



# Infrastructure



Abstraction



# Framework



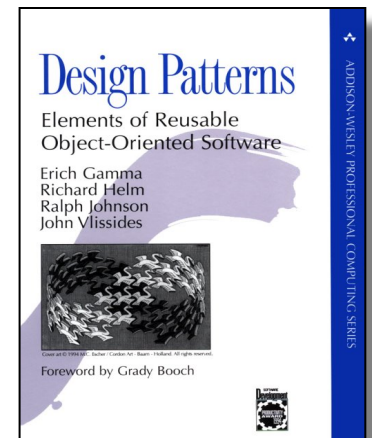
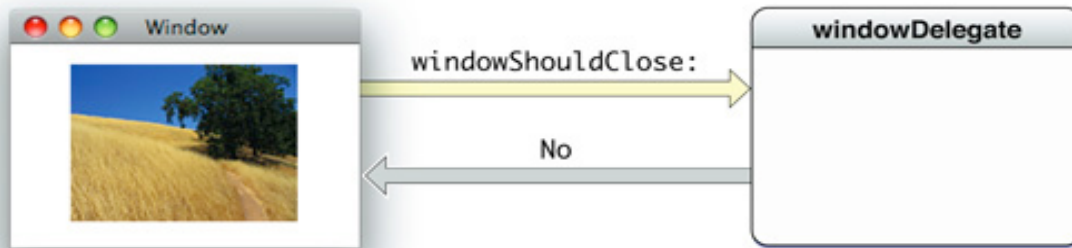
- "A **software framework** is an abstraction in which software providing generic functionality can be selectively changed by user code, thus providing application specific software. It is a collection of software libraries providing a defined application programming interface (API)".
  
- AKA :
  - Middleware
  - Kit
  - Foundation software
  - Adaptation layer
  - ...

# Well know framework

- .NET Framework
- J2EE, JEE
- COCOA
- STREAMS Unix System V driver framework.
- Motif graphical user interface (GUI) toolkit.

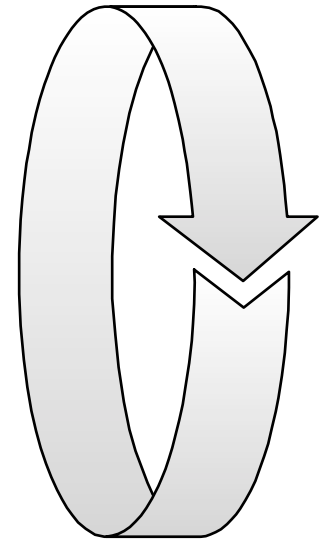
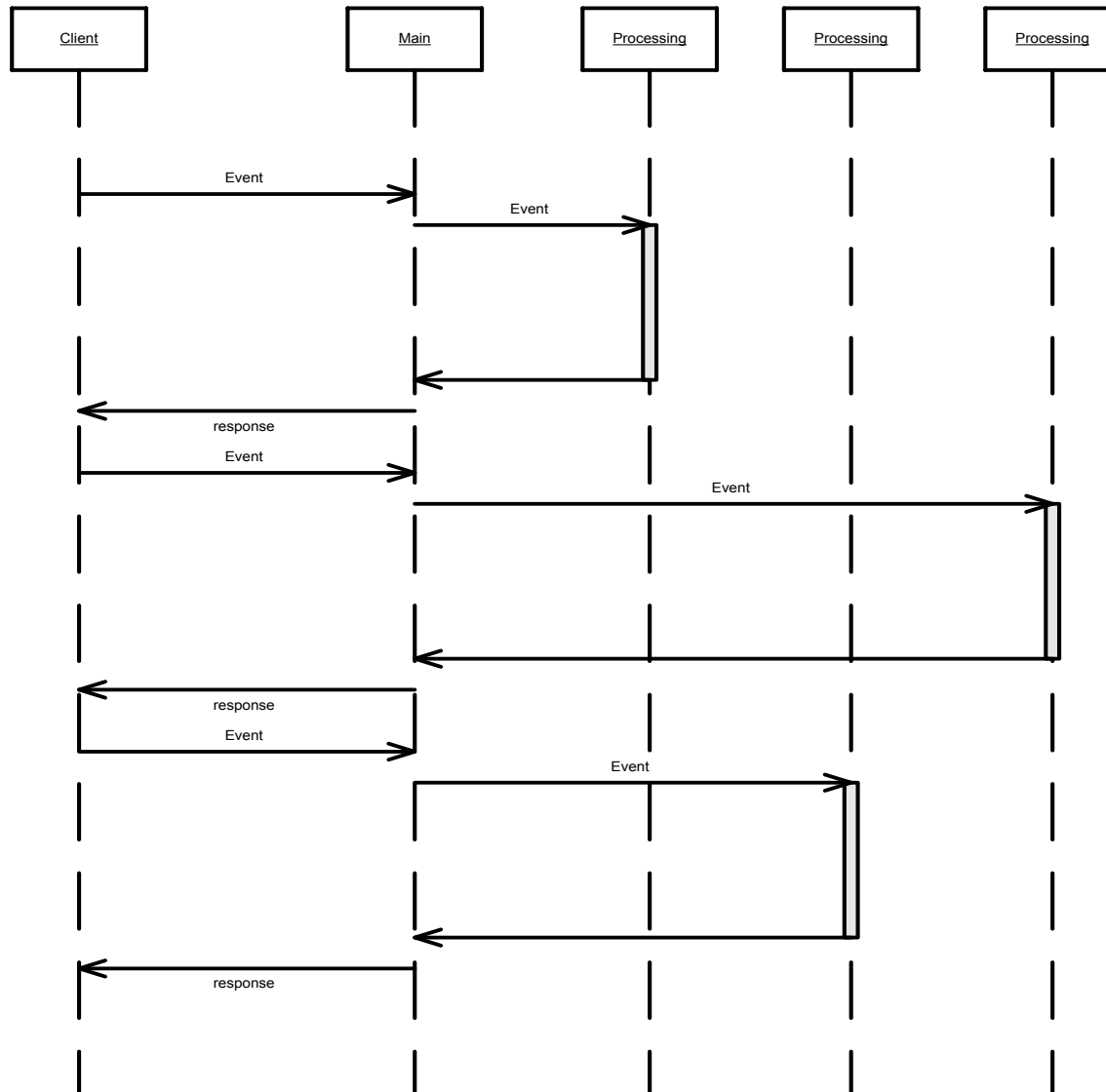






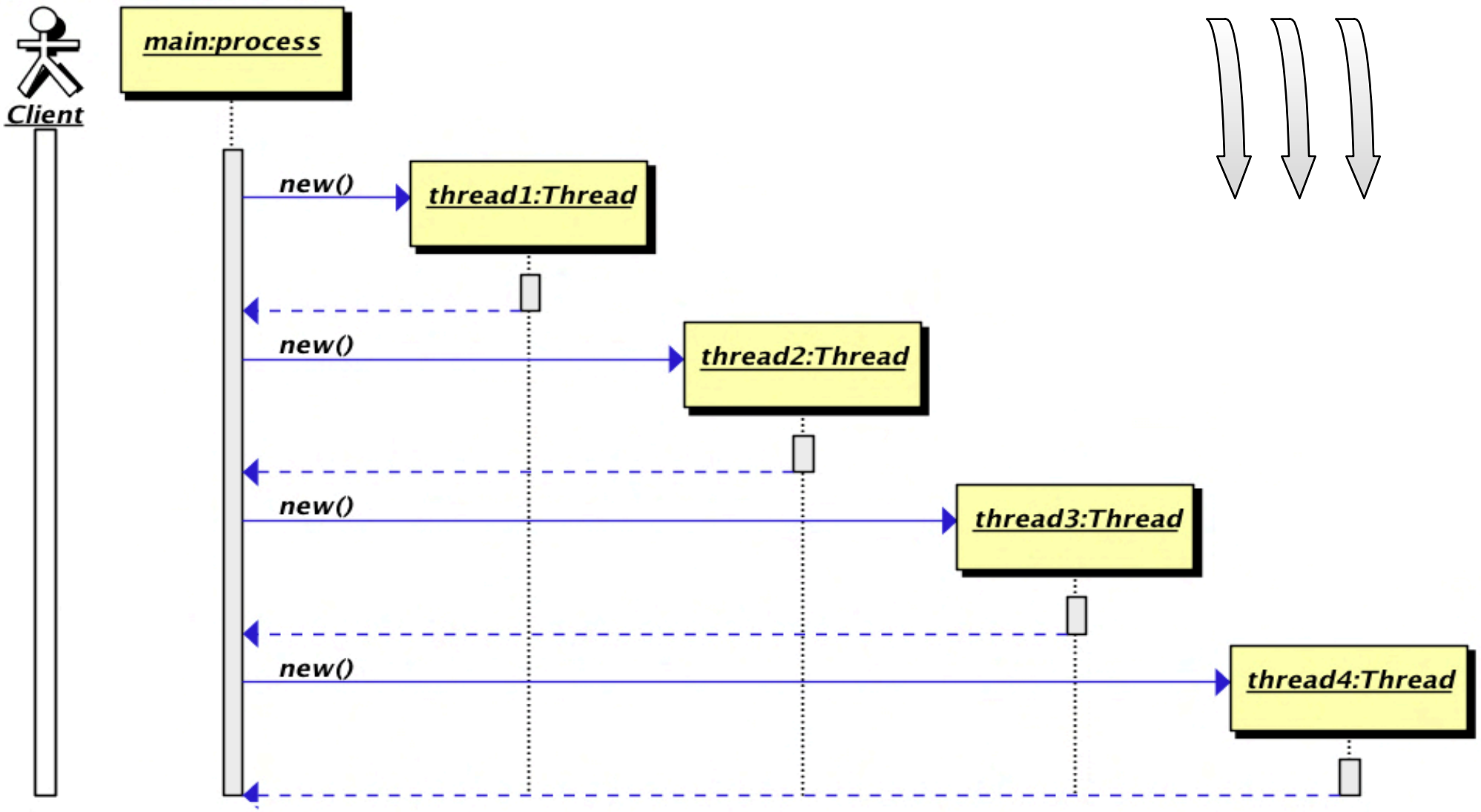
**Traduction en cours**

# Software Application "Structure"

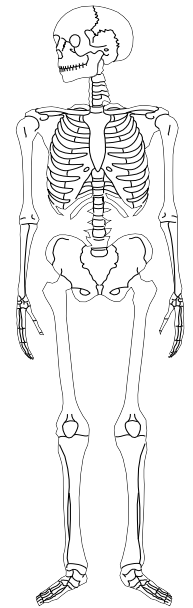




## Thread Pool Creation

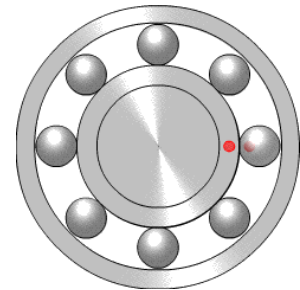
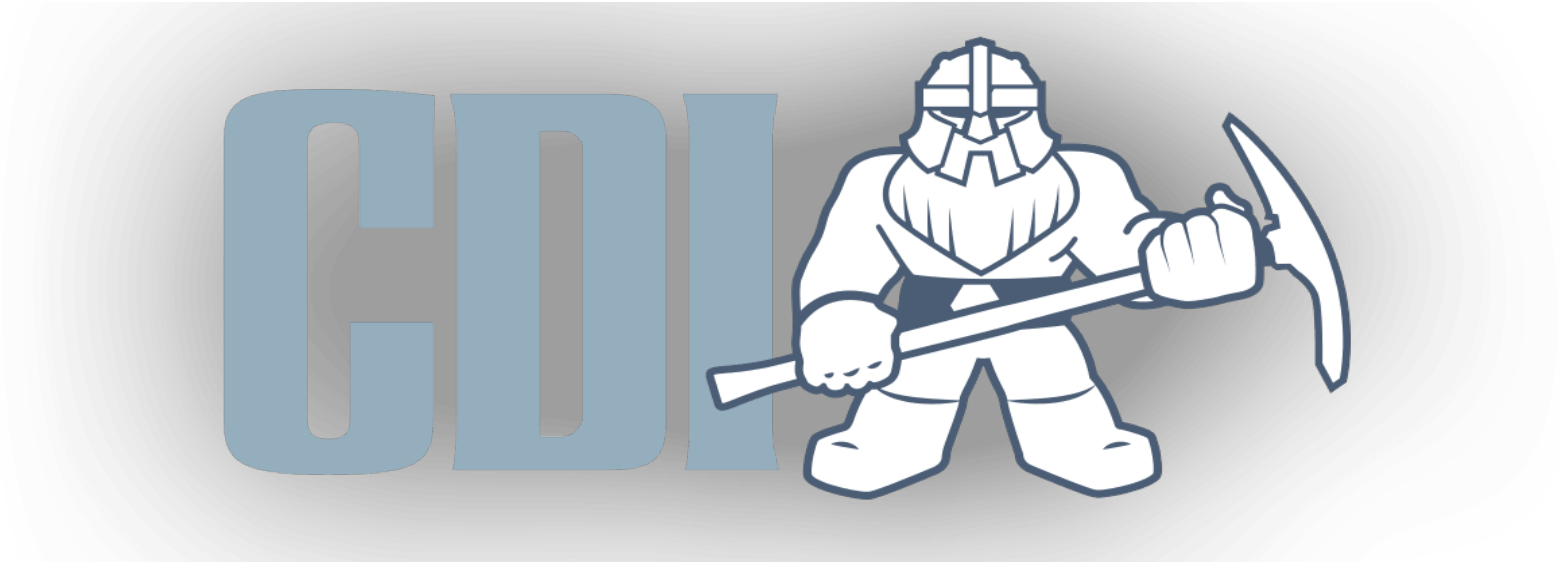


Calls back



**We will call you back**

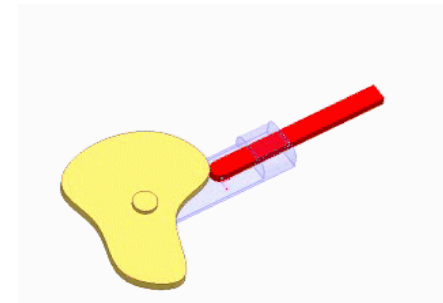
# Context Dependancy Injection (CDI)



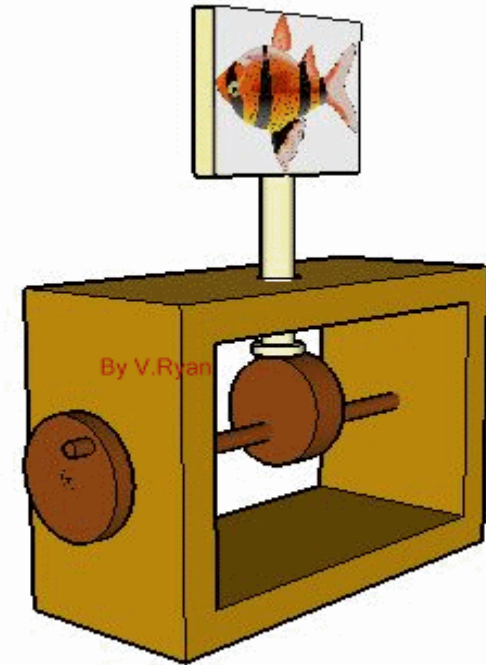
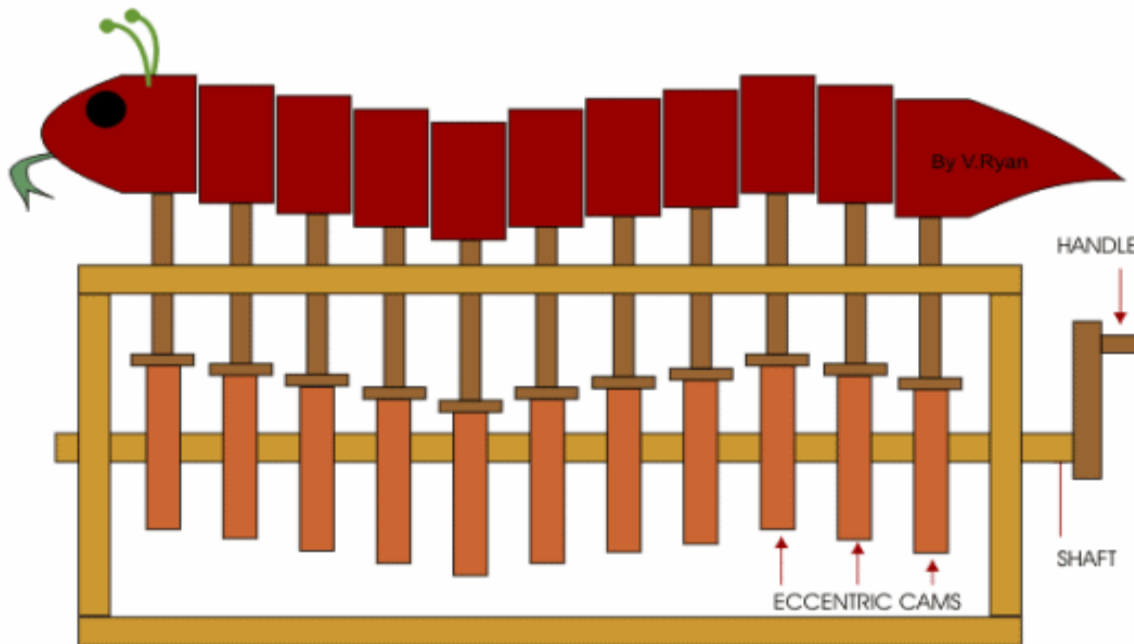


# Arbre à cames

- Un arbre à cames est un dispositif mécanique permettant de transformer un mouvement rotatif en mouvement longitudinal et réciproquement.

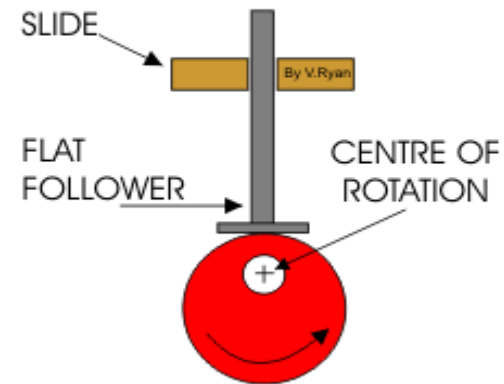
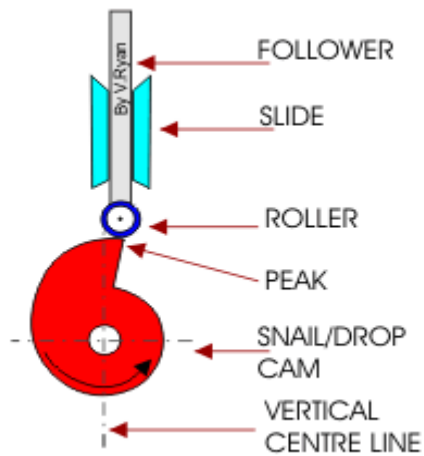


# Mechanical Toys



<http://www.technologystudent.com/cams/cam10.htm>

# Mechanical Toys



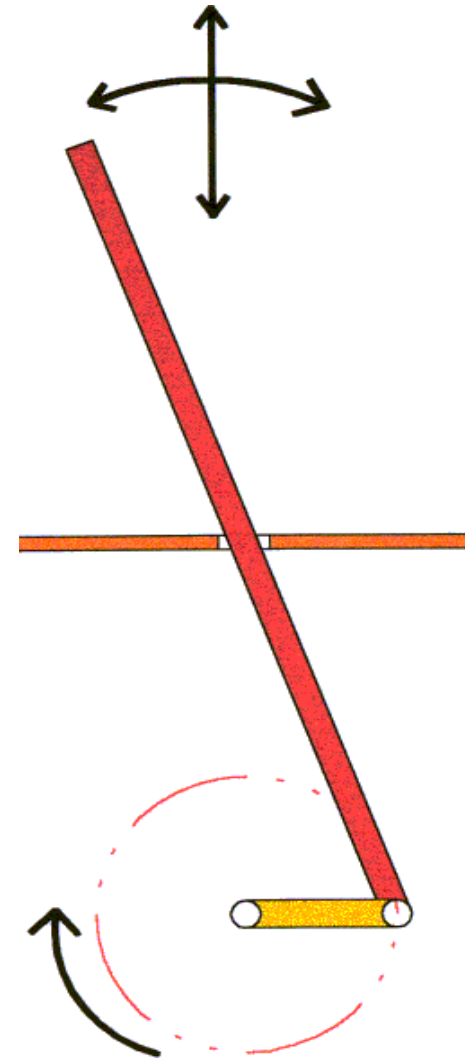
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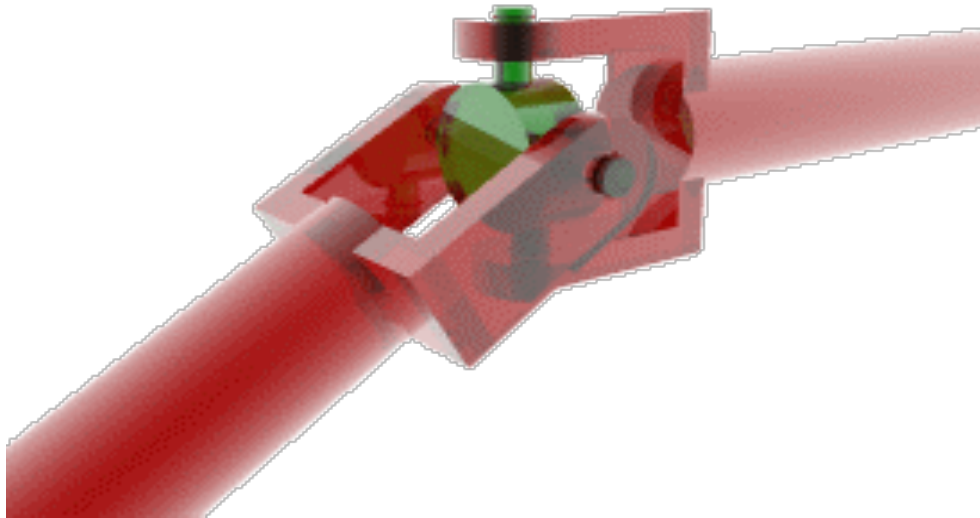


# Transforming Motion

The crank slider transforms a rotation into a combined motion up and down and from side to side.



# Joint de cardan



# Pulleys



