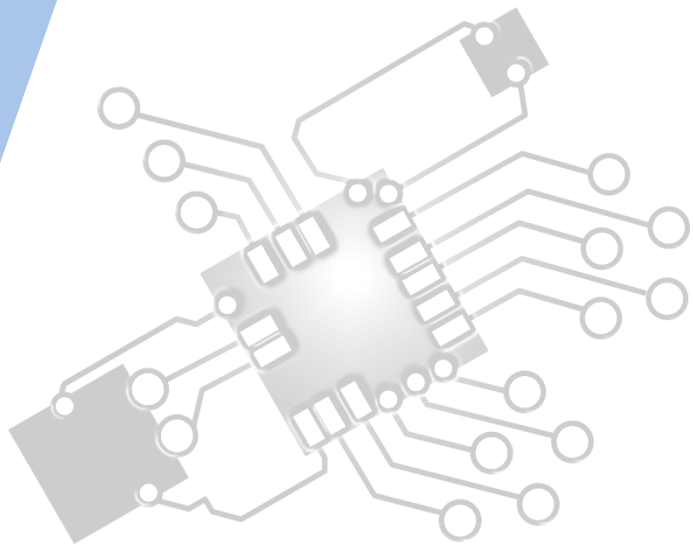
Features of OOP

IB Computer Science



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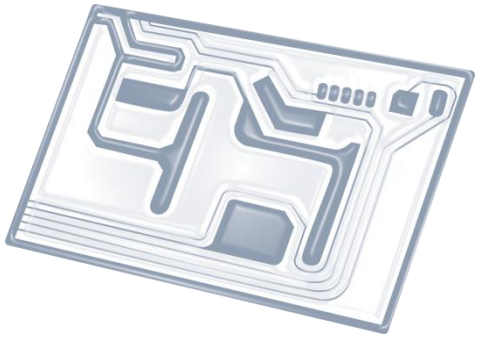
HL Topics 1-7, D1-4



1: System design

2: Computer Organisation

3: Networks

4: Computational thinking

5: Abstract data structures

6: Resource management

7: Control

D: OOP

HL & SL D.2 Overview

D.2 Features of OOP

D.2.1 Define the term encapsulation

D.2.2 Define the term inheritance

D.2.3 Define the term polymorphism

D.2.4 Explain the advantages of encapsulation

D.2.5 Explain the advantages of inheritance

D.2.6 Explain the advantages of polymorphism

D.2.7 Describe the advantages of libraries of objects

D.2.8 Describe the disadvantages of OOP

D.2.9 Discuss the use of programming teams

D.2.10 Explain the advantages of modularity in program development

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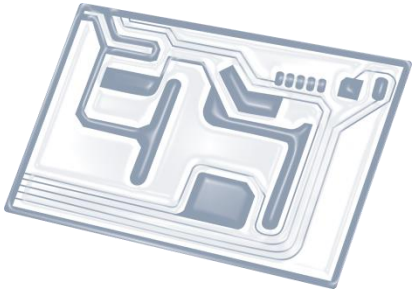
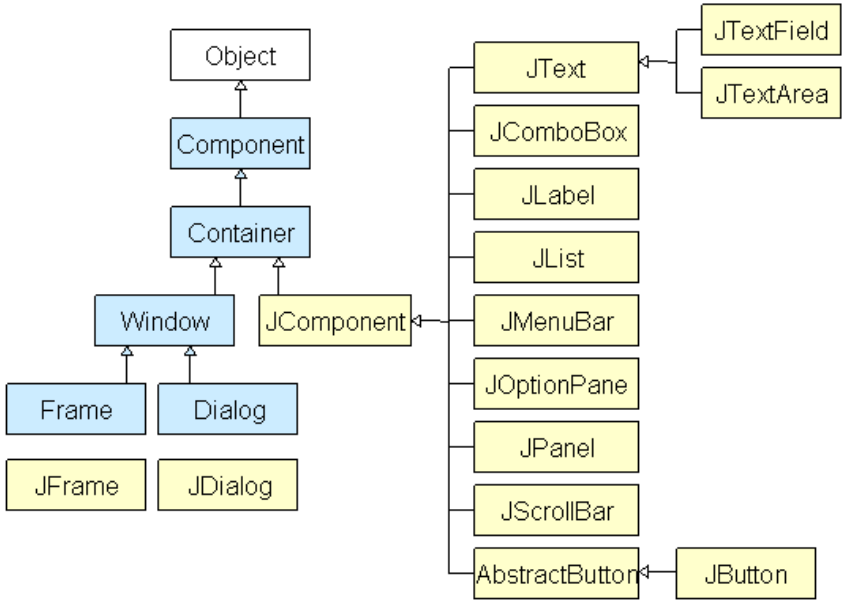


Topic D.2.7

Describe the **advantages** of **libraries** of objects

Biggest advantage: Time saving!

- **Sorting algorithms** do not have to be **re-invented**
- **Complex algorithms** and processes can be reused



5 Most used Java libraries

- **#1: JUnit** (imported by 64% of top Java projects)
  - **JUnit** is a unit testing framework for Java programs
- **#2: SLF4J** (imported by 22% of top Java projects)
  - **SLF4J** is a simple facade for logging systems allowing the end-user to plug-in the desired logging system
- **#3: Log4j** (imported by 16.76% of top Java projects)
  - **Log4j** is a tool to help the programmer output log statements to a variety of output targets
- **#4: Google Guava** (imported by 15.6% of top Java projects)
  - **Google Guava** is a set of common libraries for Java, mainly developed by Google engineers
- **#5: apache-commons** (imported by 12.63% of of top Java projects)
  - **Commons Proper** is dedicated to one principal goal: creating and maintaining reusable Java components

Useful to know: APIs

Video (YouTube) link: https://youtu.be/6STSHbdXQWI

**This is not part of the examined syllabus, but might be useful when doing the Internal Assessment*