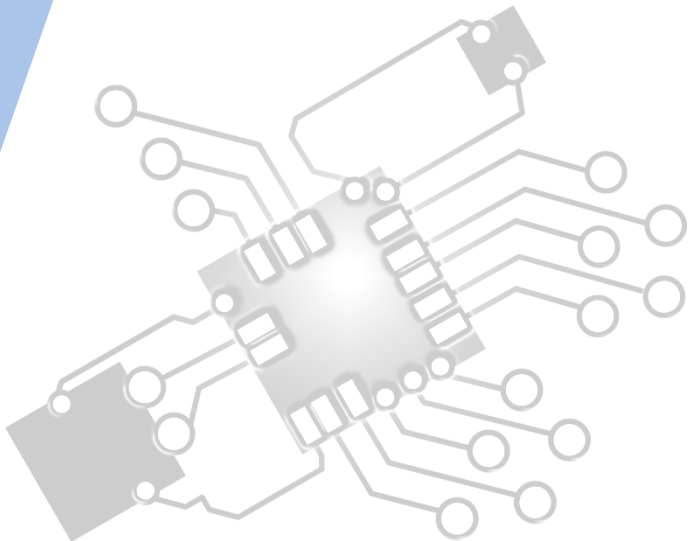




System Design *basics*

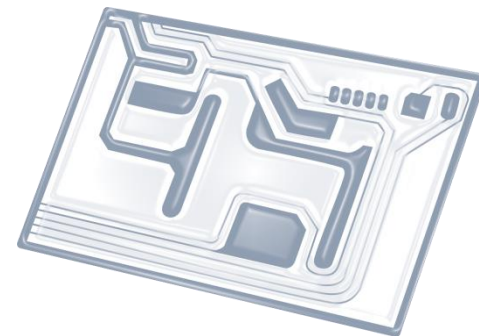
IB Computer Science



Content developed by
Dartford Grammar School
Computer Science Department



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 1.2 Overview

Components of a computer system

- 1.2.1 Define the terms: hardware, software, peripheral, network, human resources
- 1.2.2 Describe the roles that a computer can take in a networked world
- 1.2.3 Discuss the social and ethical issues associated with a networked world

System design and analysis

- 1.2.4 Identify the relevant stakeholders when planning a new system
- 1.2.5 Describe methods of obtaining requirements from stakeholders
- 1.2.6 Describe appropriate techniques for gathering the information needed to arrive at a workable solution
- 1.2.7 Construct suitable representations to illustrate system requirements
- 1.2.8 Describe the purpose of prototypes to demonstrate the proposed system to the client
- 1.2.9 Discuss the importance of iteration during the design process
- 1.2.10 Explain the possible consequences of failing to involve the end-user in the design process
- 1.2.11 Discuss the social and ethical issues associated with the introduction of new IT systems

Human interaction with the system

- 1.2.12 Define the term usability
- 1.2.13 Identify a range of usability problems with commonly used digital devices
- 1.2.14 Identify methods that can be used to improve the accessibility of systems
- 1.2.15 Identify a range of usability problems that can occur in a system
- 1.2.16 Discuss the moral, ethical, social, economic and environmental implications of the interaction between humans and machines



1: System design

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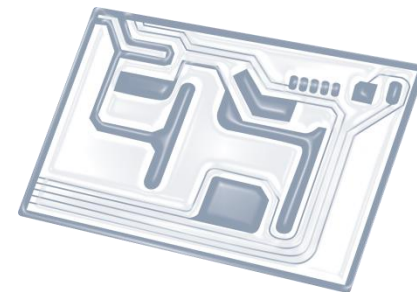


7: Control

D: OOP



Topic 1.2.2



Describe the **roles** that a **computer** can take in a **networked world**

Client vs Server

- **Client:** a computer accessing resources hosted by an other computer, the server. Resources could be documents, printers, scanners etc.
- **Server:** a computer hosting resources to be shared across the network, like documents, printers etc.
- ***A computer can be both client and server in a network at the same time!***

Additional roles for computers

- **DNS Server:** a special type of server mapping web addresses to IP addresses allowing us to surf the web without having to look up the IP address of every website they want to visit.
- **Router:** a computer routing network packages between two networks usually using a different medium for information transfer, like phone cables or glass fibre connections.
- **Firewall:** a computer or software package monitoring and protecting the network traffic of a computer or computer network. It decides which computers get access to the network or computer based on a set of rules. It can be looked at as an analogy to the bouncer in a disco.