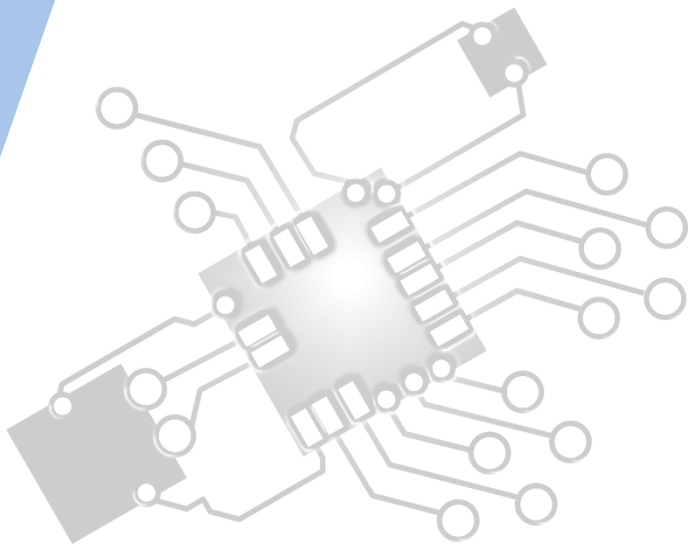
System Design basics

IB Computer Science



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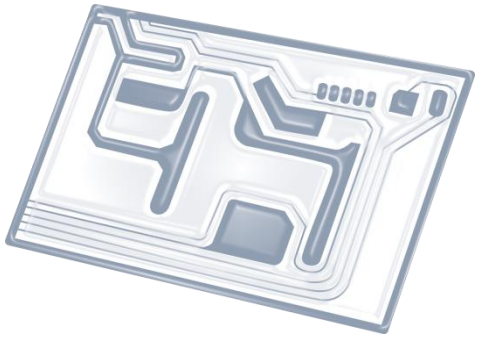
HL Topics 1-7, D1-4



1: System design

2: Computer Organisation

3: Networks

4: Computational thinking

5: Abstract data structures

6: Resource management

7: Control

D: OOP

HL & SL 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

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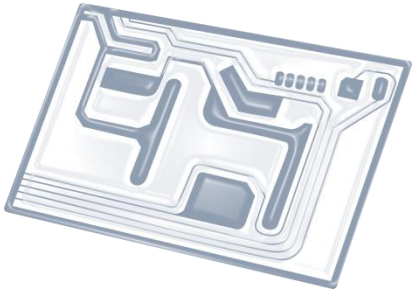

Topic 1.2.16

Discuss the **moral**, **ethical**, **social**, **economic** and **environmental** implications of the interaction between **humans** and **machines**

Key concepts

- **Moral** - right and wrong
- **Ethical** - recommending concepts of right and wrong conduct
- **Social -** relating to society or its organization.
- **Economic** - pertaining to the production, distribution, and use of income, wealth, and commodities
- **Environmental** - relating to the natural world and the impact of human activity on its condition

MANY possible points, some are:

- There used to be a lot of secretaries but now computers do most of the work.
- Many factory jobs lost to automatization.
- A robot can even wash your car.
- Today, huge supercomputers are burning energy to handle the interpretation of voice commands on speech recognition systems like Siri.
- Consumerism has lead us to change our electronic devices almost every 2 years when new editions are released. This creates huge amounts of toxic electronic waste.