



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



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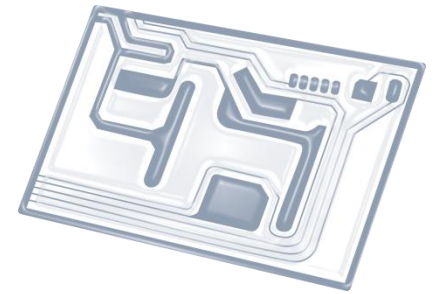
6: Resource management



7: Control

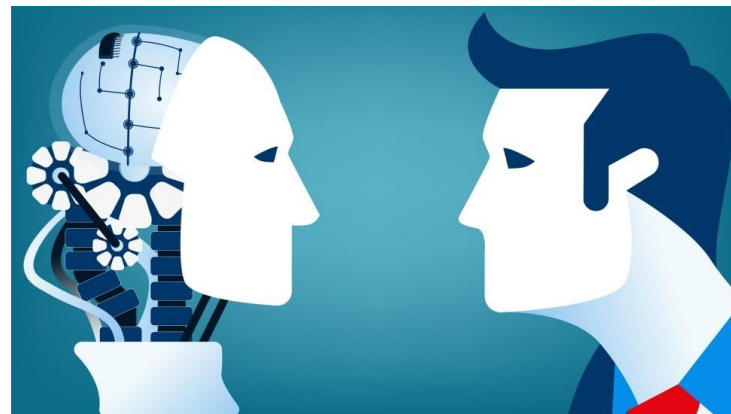
D: OOP





Topic 1.2.16

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



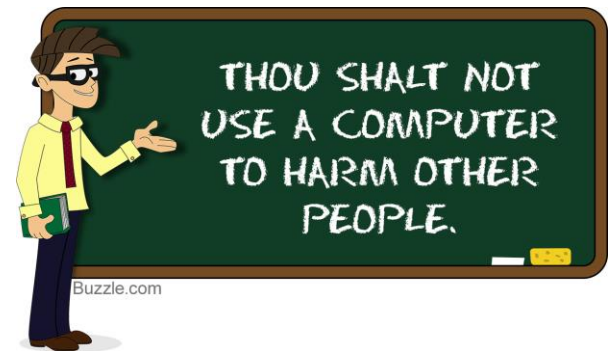
What is an **moral** issue?

- A problem or is presented as any issue with the potential to **help** or **harm** anyone, including oneself.
- Examples of moral issues are:
 - Death
 - Hurt
 - Disadvantaging someone/a group
 - Freedom/restriction
 - Gambling
 - Social constructs (marriage/divorce)



What is an **ethical** issue?

- A problem or situation that requires a person or organization to choose between alternatives that must be evaluated as **right** (ethical) or **wrong** (unethical).
- Examples of ethical issues are:
 - Computer crime
 - Responsibility for computer failure
 - Protection of computer property, records and software
 - Privacy



What is an **economic** issue?

- A problem or situation that is concerned with the organization of the **money**, industry, and trade of a country, region, or society.
- Examples of economic issues are:
 - Generating income
 - Costs
 - Wealth
 - Working



What is an **environmental** issue?

- A problem or situation that is concerned with the protection of the **natural world** of land, sea, air, plants, and animals.
- Examples of economic issues are:
 - Global warming
 - Electronic waste
 - Plastic waste
 - Power generation
 - Fuel / Batteries
 - Loss of habitat
 - Dangerous chemicals



Exam note!

This curriculum point requires you to **discuss** a particular issue

That is exam speak for being able to discuss a given example by describing something from many sides – good vs bad, positive vs negative, old vs new...

