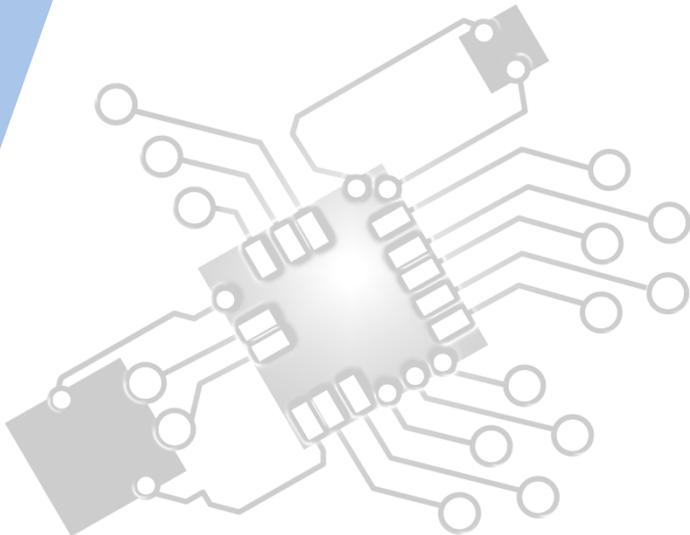




System Design *basics*

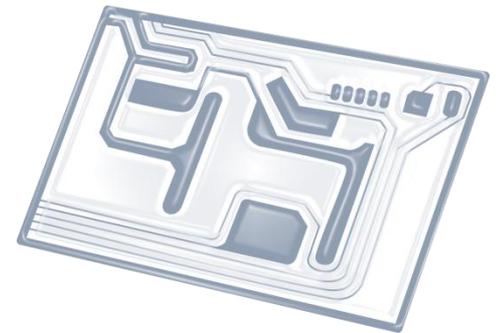
IB Computer Science



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



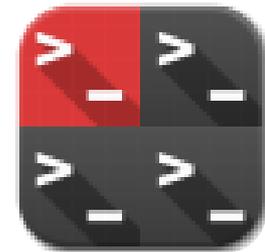
5: Abstract data structures



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

2: Computer Organisation



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5: Abstract data structures

6: Resource management

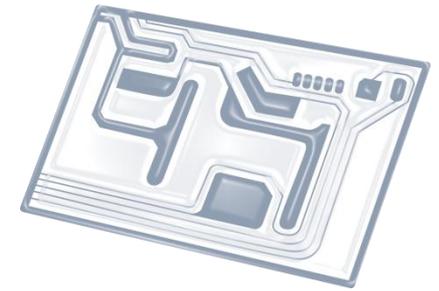


7: Control

D: OOP



Topic 1.2.14



Identify **methods** that can be used to **improve** the **accessibility** of systems





Accessibility

Refers to the design of products, devices, services, or environments for people with disabilities or specific needs.

Includes specialist peripherals/software like:

- Braille keyboards
- Eye-typers
- Accessible controllers
- Screen readers
- Voice synthesizers



Types of disabilities

There are **four** different **types of disabilities** that can affect the way people use and interact with digital devices.



Visual



Auditory



Mobility and
Dexterity



Cognitive

Case study: **Microsoft Xbox controller**



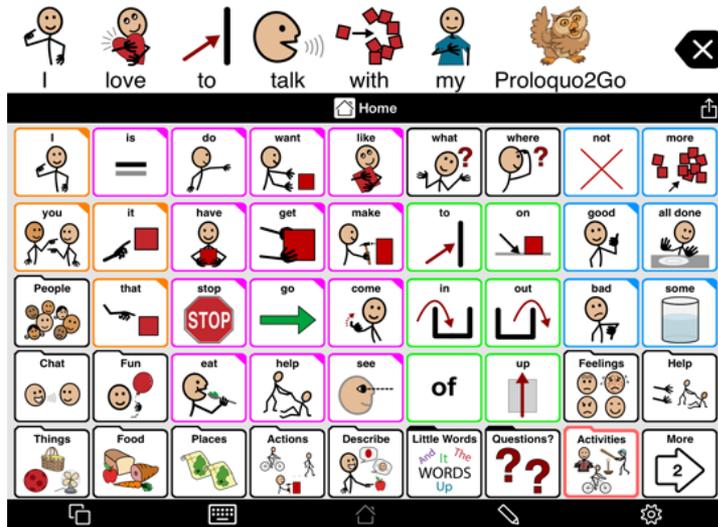
Video: [YouTube – Microsoft Xbox Adaptive Controller](#)

4 specific ways to improve accessibility of a system:

- Touch screens
- Voice recognition
- Text-to-speech
- Braille keyboard



Touchscreen



Voice recognition



How does voice recognition work?

Here is a [video link](#) (YouTube) that explains it.

Text-to-speech



How does TTS work?

Here is a [video link](#) (YouTube) that explains it.

Braille keyboard

