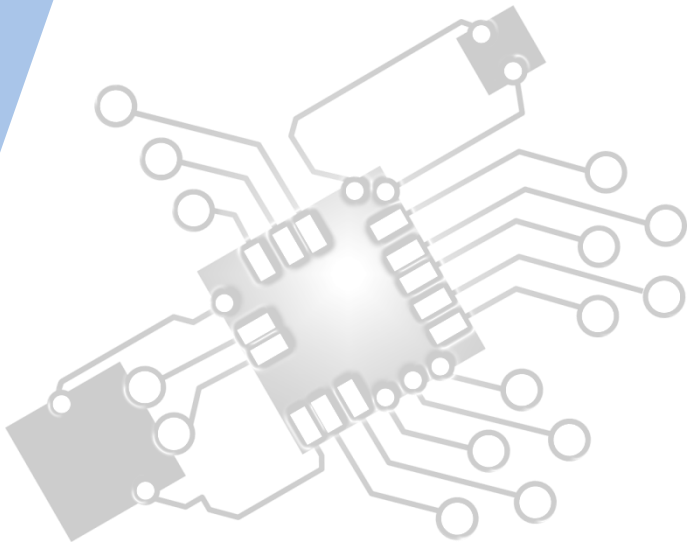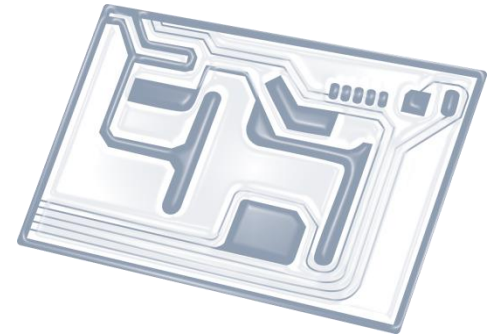# Resource Management

IB Computer Science

Content developed by
Dartford Grammar School
Computer Science Department

HL Topics 1-7, D1-4

1: System design

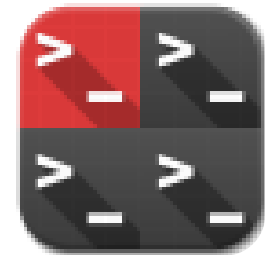2: Computer Organisation

3: Networks

4: Computational thinking

5: Abstract data structures

6: Resource management

7: Control

D: OOP

HL only 6 Overview

System resources

6.1.1 Identify the resources that need to be managed within a computer system

6.1.2 Evaluate the resources available in a variety of computer systems

6.1.3 Identify the limitations of a range of resources in a specified computer system

6.1.4 Describe the possible problems resulting from the limitations in the resources in a computer system

Role of the operating system

6.1.5 Explain the role of the operating system in terms of managing memory, peripherals and hardware interfaces

6.1.7 Outline OS resource management techniques: scheduling, policies, multitasking, virtual memory, paging, interrupt, polling

6.1.8 Discuss the advantages of producing a dedicated operating system for a device

6.1.9 Outline how an operating system hides the complexity of the hardware from users and applications

1: System design

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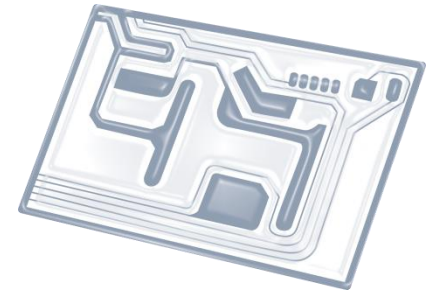5: Abstract data structures

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Topic 6.1.4

Describe the **possible problems** resulting from the limitations in the resources in a computer system

What is the **consequence** to the **user**

- If the processor is too slow?

- If the processor has only one core?

- If the amount of primary memory is limited?

- If the amount of cache is limited?

- If network connectivity is limited?

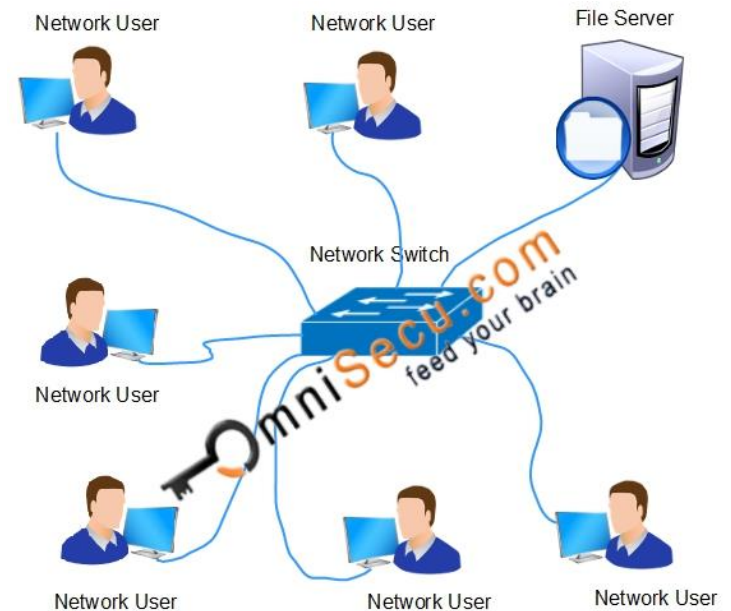- If user access is limited to a single user per device?

Specific examples in syllabus

- User time wasted if primary memory is too small or processor speed inadequate
- **Multi-access** and **multi-programming** environments should be considered as well as single-user systems

Multi-user system

- Either many users on the same machine
- Or many users connected to the same network

Multi-programming system

- **Multi-programming system** = system that can have different programs (apps) installed

- **Single programming system** = can only run one program/set of programs