



# Computer Organisation

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 2 Overview

## Computer architecture

2.1.1 Outline the architecture of the central processing unit (CPU) and the functions of the arithmetic logic unit (ALU) and the control unit (CU) and the registers within the CPU

2.1.2 Describe primary memory. 2 Distinguish between random access memory (RAM) and read-only memory (ROM), and their use in primary memory

2.1.3 Explain the use of cache memory

2.1.4 Explain the machine instruction cycle

## Secondary memory

2.1.5 Identify the need for persistent storage

Operating systems and application systems

2.1.6 Describe the main functions of an operating system

2.1.7 Outline the use of a range of application software

2.1.8 Identify common features of applications

## Binary representation

2.1.9 Define the terms: bit, byte, binary, denary/decimal, hexadecimal

2.1.10 Outline the way in which data is represented in the computer

## Simple logic gates

2.1.11 Define the Boolean operators: AND, OR, NOT, NAND, NOR and XOR

2.1.12 Construct truth tables using the above operators

2.1.13 Construct a logic diagram using AND, OR, NOT, NAND, NOR and XOR gates



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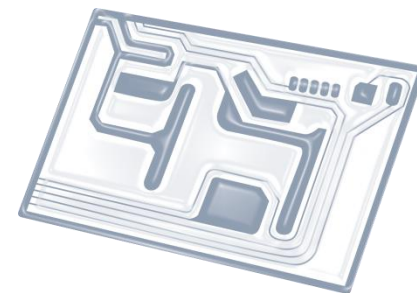


7: Control

D: OOP



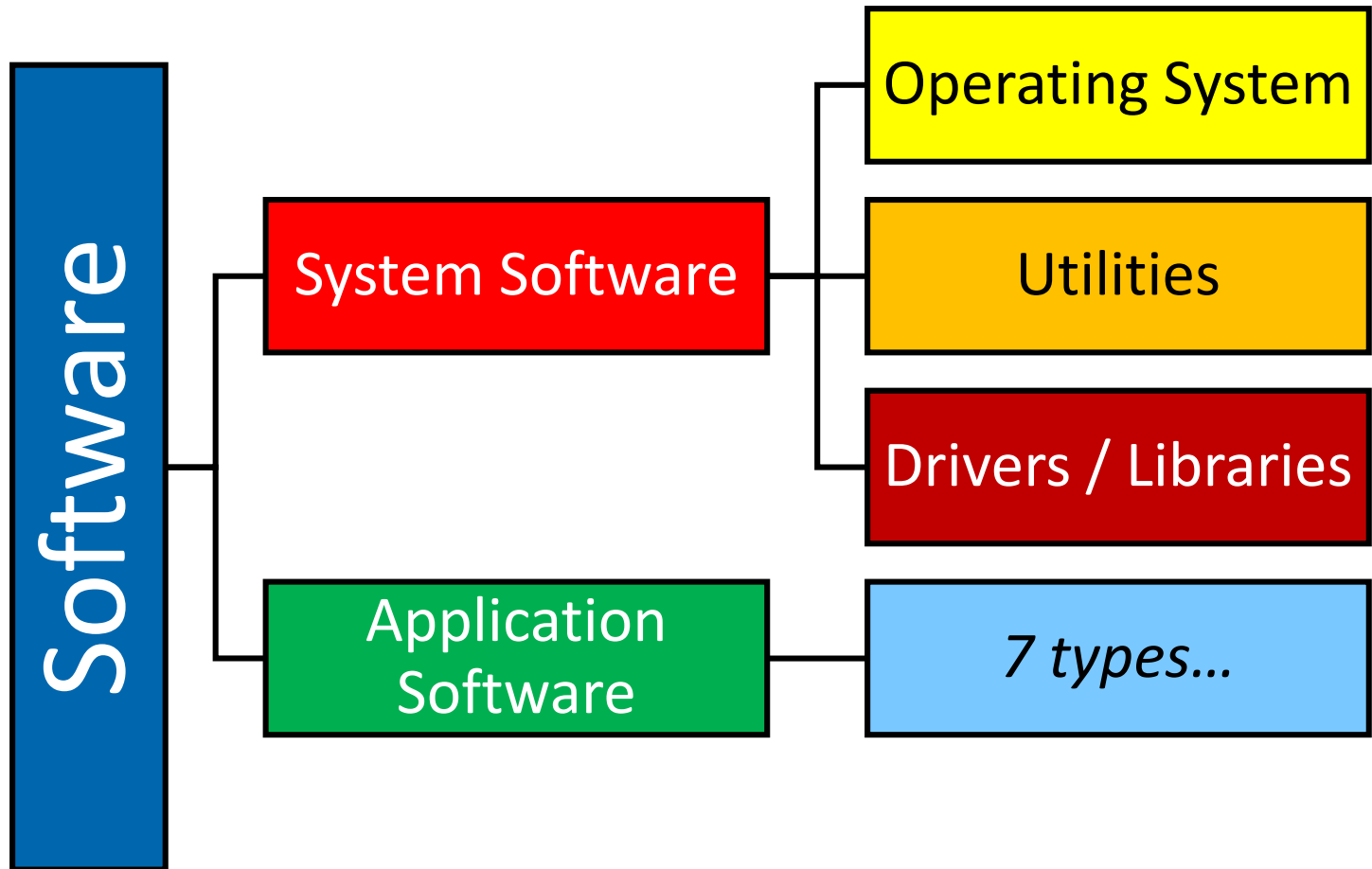
# Topic 2.1.7



Outline the **use** of a range of  
**applications software**



# Hierarchy of software

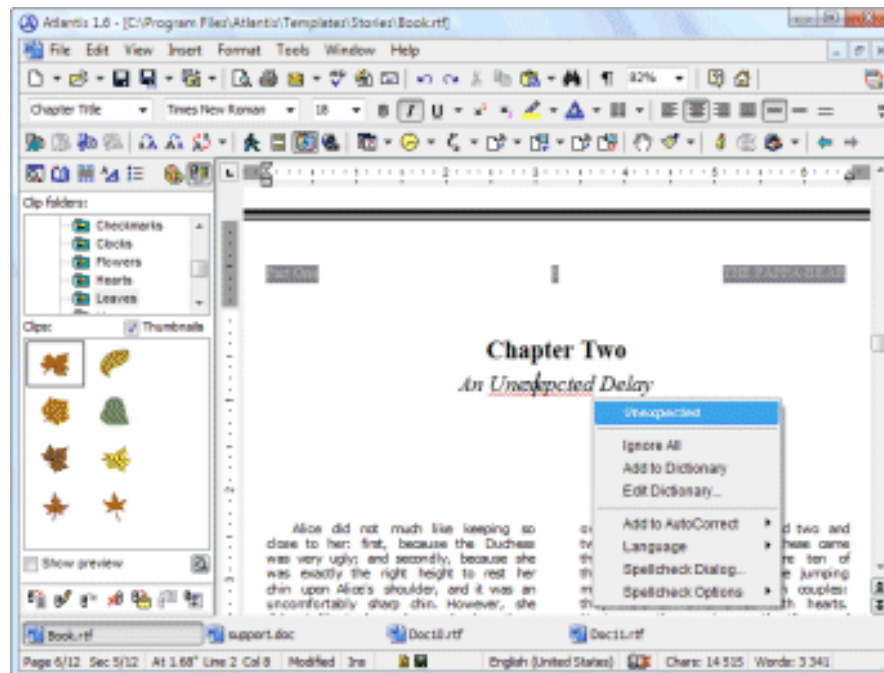


# Common application software

- Word processors
- Spreadsheets
- Database Management Systems (DBMS)
- Email clients
- Web browsers
- Computer Aided Design (CAD)
- Graphic Processing Software

# Word Processor (not Word!)

A program for storing, manipulating, and formatting text entered from a keyboard and providing a printout.



# Spreadsheet (not Excel!)

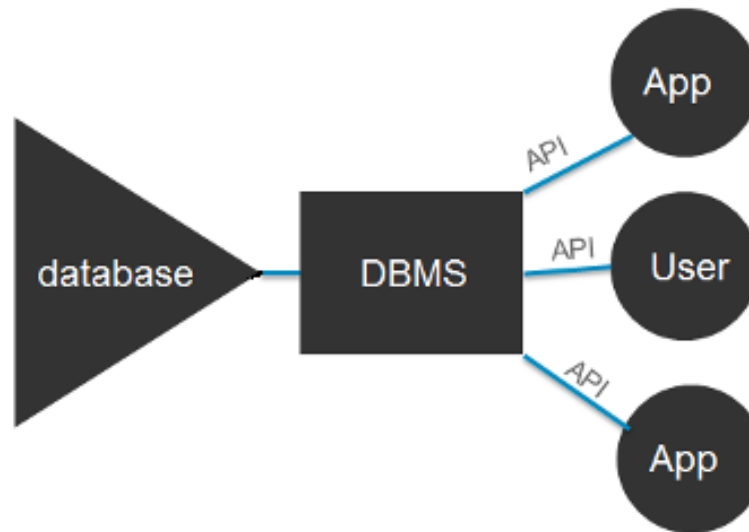
A program in which data is arranged in the rows and columns of a grid and can be manipulated and used in calculations.

	Camera	Optical Zoom	Digital Zoom	Megapixels	Price, \$	F	G
1	Panasonic Lumix DMC-TZ10	12	4	12.1	300		
2	Canon PowerShot SX30	35	4	14.1	499		
3	Sony Cyber-Shot DSC-HX5V	10	20	10.2	290		
4	Fujifilm FinePix S2500HD	18	6.3	12.2	199		
5	Olympus SP-800UZ	30	5	14	245		
6	Canon Ixus 105	4	4	21.1	138		
7	Fujifilm FinePix REAL 3D W3	3	5.7	10	479		
8	Samsung WB600	15	5	12	229		
9	Nikon CoolPix P500	36	4	12.1	119		
10	Olympus XZ-1	4	4	10	427		
11	Sony Cyber-Shot DSC-W310	4	8	12.1	119		
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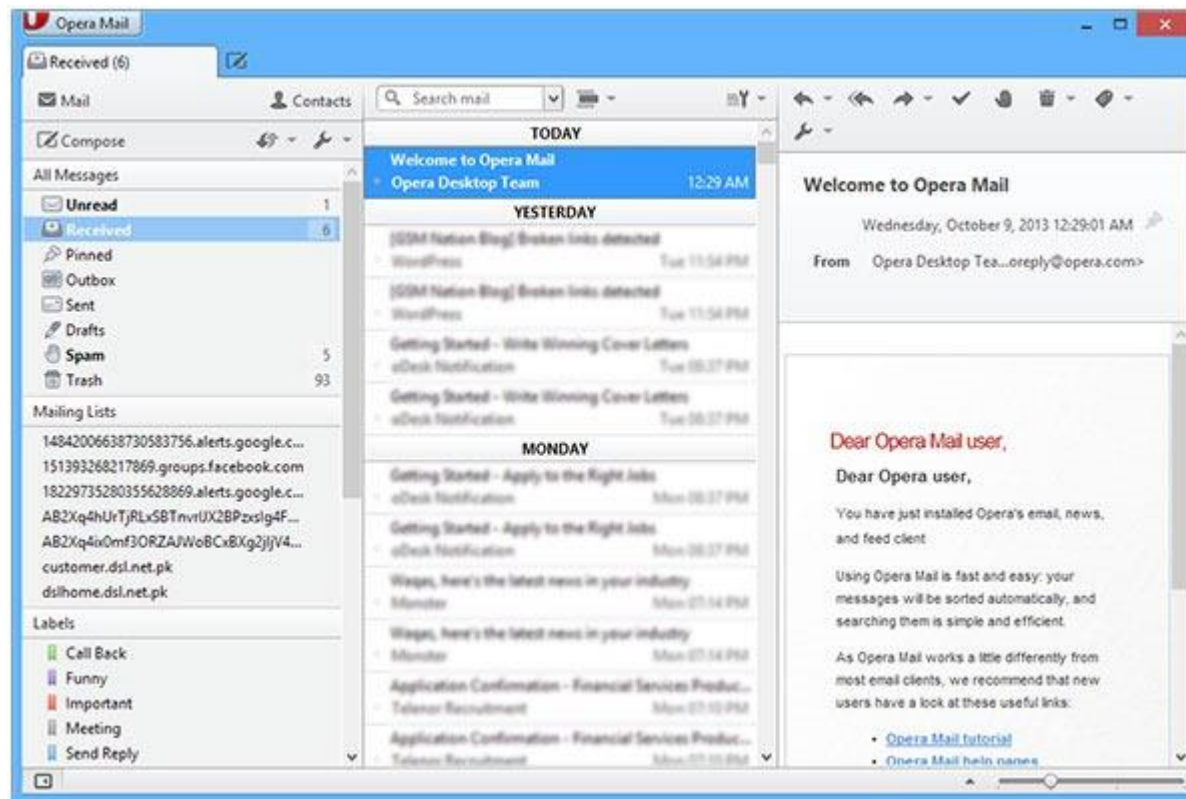
# Database Management System

A **database management system (DBMS)** is system software for creating and managing databases. The **DBMS** provides users and programmers with a systematic way to create, retrieve, update and manage data.



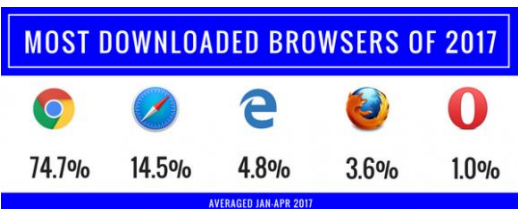
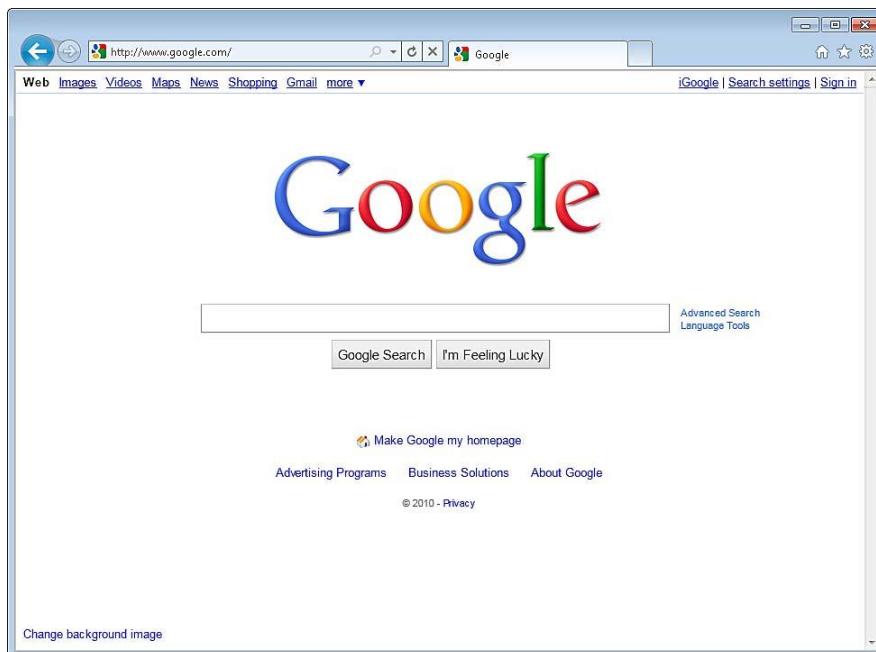
# Email clients (not webmail like Gmail!)

A computer program used to access and manage a user's **email**



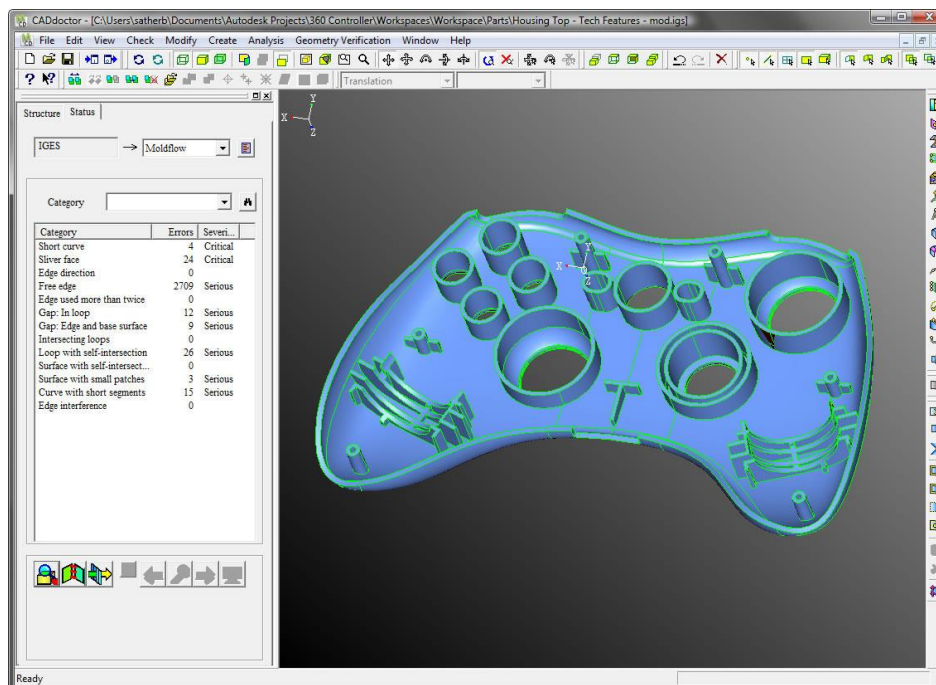
# Web browser

A software application for retrieving, presenting, and traversing information resources on the World Wide Web.



# Computer Aided Design (CAD)

Programs that use computer systems to assist in the creation, modification, analysis, or optimization of a design.



# Graphic Processing Software

In computer graphics, graphics software or image editing software is a program or collection of programs that enable a person to manipulate visual images on a computer.

