



System Design *basics*

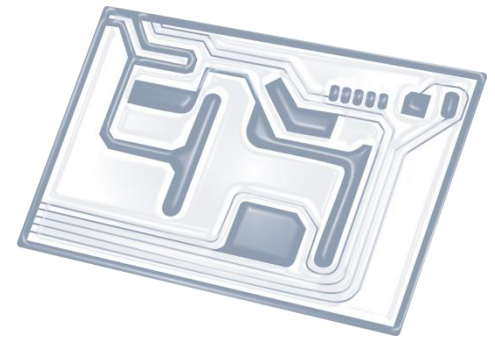
IB Computer Science



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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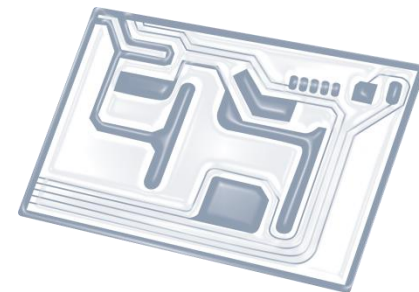


7: Control

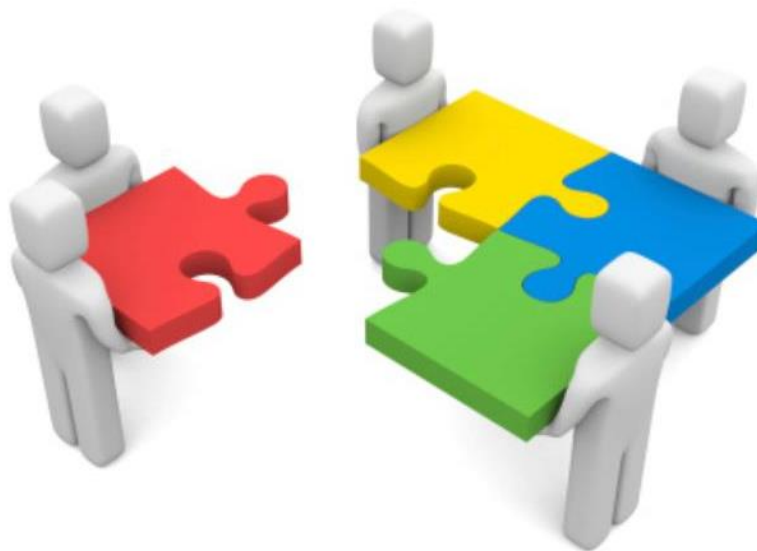
D: OOP



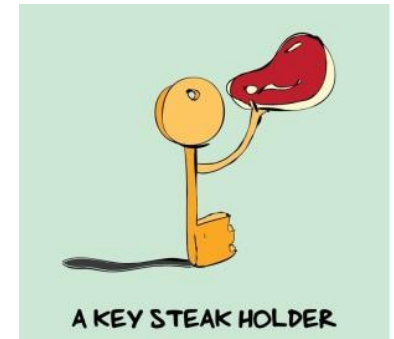
Topic 1.2.4



Identify the **relevant stakeholders** when planning a new system

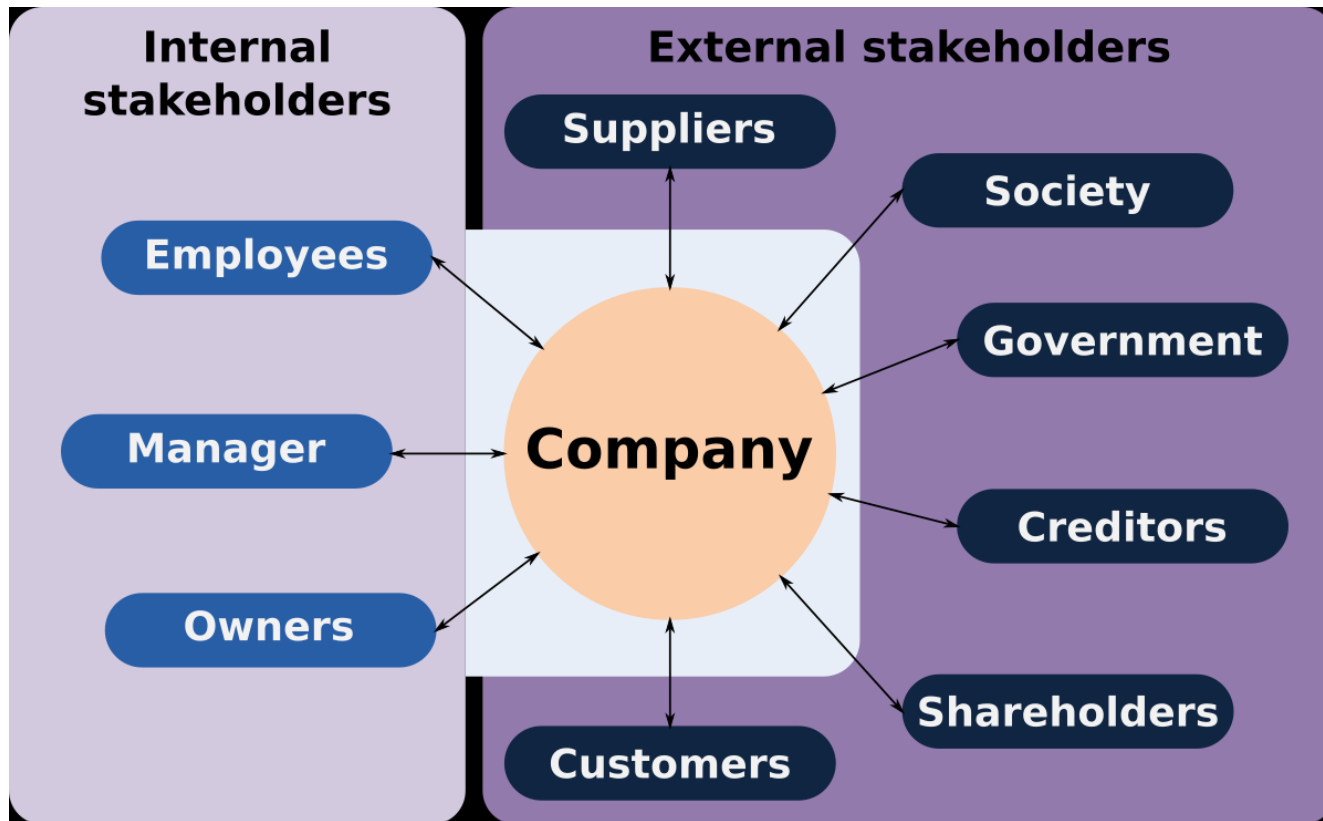


Stakeholder



- A person, group or organization that has **interest** or **concern** in an organization.
- Some examples of key stakeholders are creditors, directors, employees, government (and its agencies), owners (shareholders), suppliers, unions, and the community from which the business draws its resources.
- **Not all stakeholders are equal.** A company's customers are entitled to fair trading practices but they are not entitled to the same consideration as the company's employees.

Internal vs External stakeholders



When **identifying** stakeholder for a new system, be sure to ask:

- Who will be **affected by** the new system?
- Who will the new system **affect**?
- Who will the **end-users** be?
- What are their **needs**?



Utilitarianism

- When designing a new system, we usually try to design it for the greatest good for the greatest number of people.
- This approach is called **utilitarianism**.

