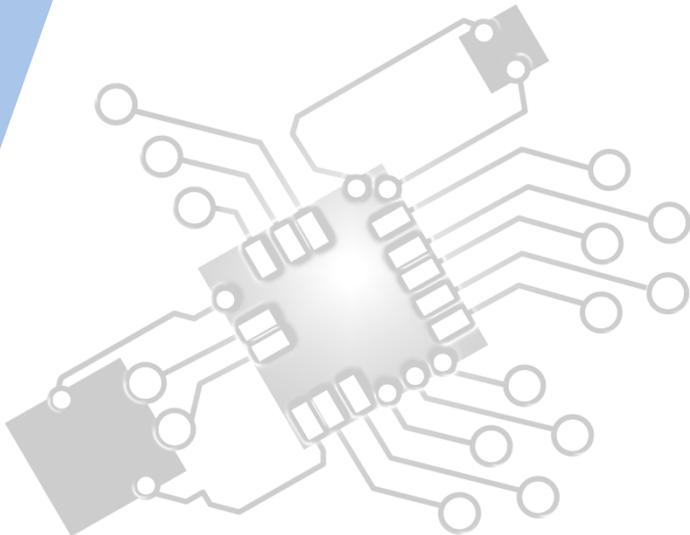




# *System Design* *basics*

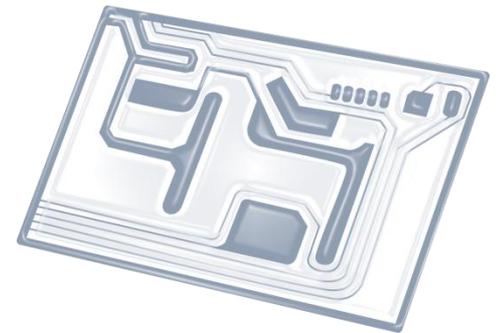
IB Computer Science



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**Dartford Grammar School**  
*Computer Science Department*



# HL Topics 1-7, D1-4



1: System design



2: Computer Organisation



3: Networks



4: Computational thinking



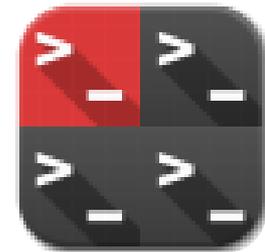
5: Abstract data structures



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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4: Computational thinking



5: Abstract data structures

6: Resource management

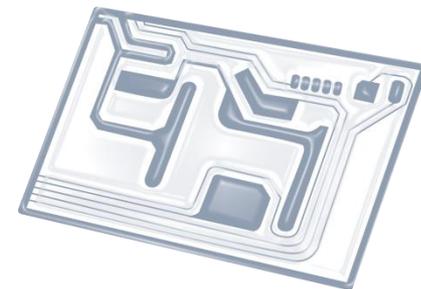


7: Control

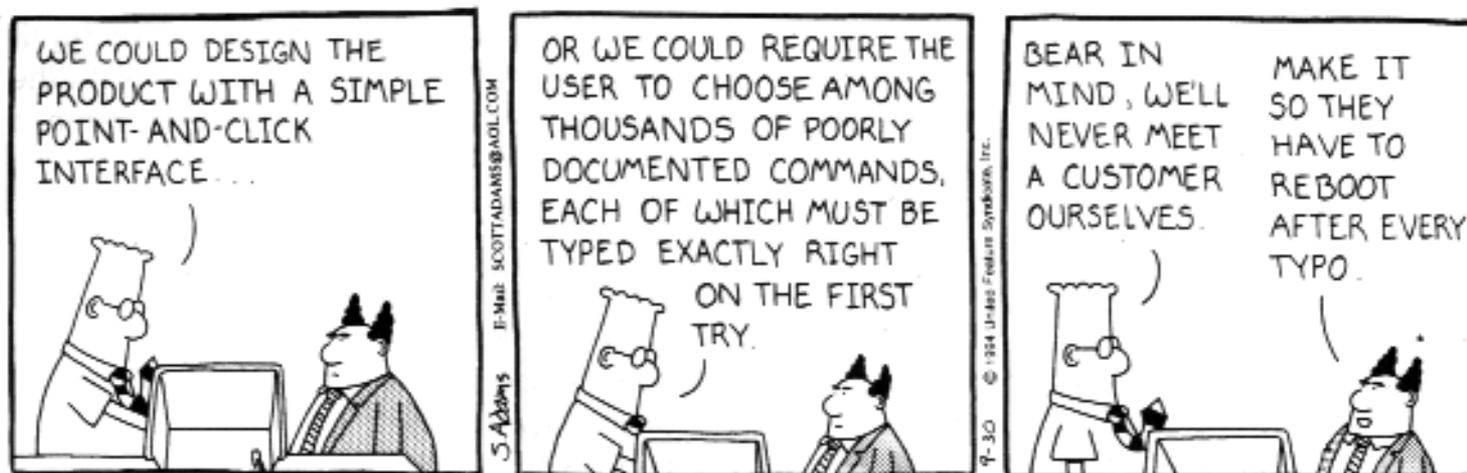
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# Topic 1.2.15



Identify a range of **usability problems** that can occur in a system



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# Systems to consider:

- Ticketing
- Online payroll (paying salaries/wages)
- Scheduling (transport)
- Voice recognition
- Systems that provide feedback

From	Time	Plat	Expected
Glasgow Queen St	15:50		Arrived
Glasgow Central	16:11	12	On time
London Kings X	16:14	2	16:11
Glasgow Queen St	16:18	14	On time
Inverness	16:22	15	On time
London Kings X	16:23	11	On time
London Euston	16:24	8	16:18
Aberdeen	16:29	19	16:26
Dunblane	16:33	16	On time
Page 1 of 2			16:09:50

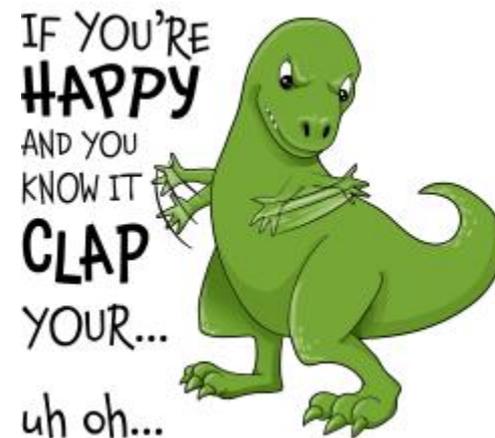
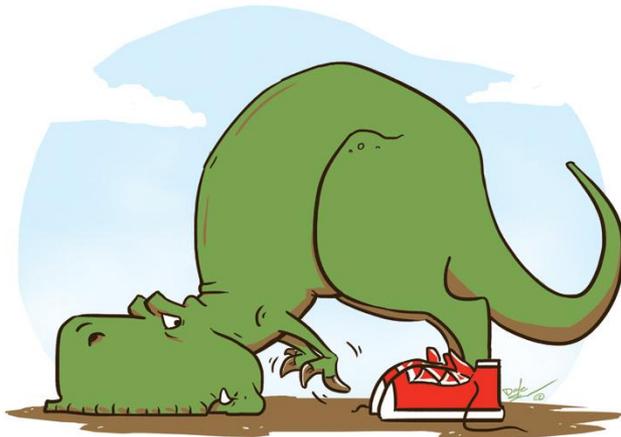
Arrivals

<b>WESTJET</b>		BOARDING PASS / CARTE D EMBARQUEMENT		SMITH/JOHN MR
06JAN12	FLT / VOL 553	GATE / PRT	<b>GATE</b>	GATE / PRT GATE
SMITH/JOHN MR		SEQ 001		06JAN12
DEP: CALGARY INTL AB	6:00PM	PNR DXAJGR		FLT / VOL 553
ARR: VANCOUVER BC	6:29PM			
TERMINAL / AEROGARE	BOARDING TIME / HEURE D EMBARQUEMENT	SEAT / PLACE		SEAT / PLACE
<b>MAIN</b>	<b>5:30PM</b>	<b>4D</b>		<b>4D</b>
<div style="border: 2px solid red; padding: 5px; display: inline-block;">             ELECTRONIC / ELECTRONIQUE              8382177546344 / 3           </div>				

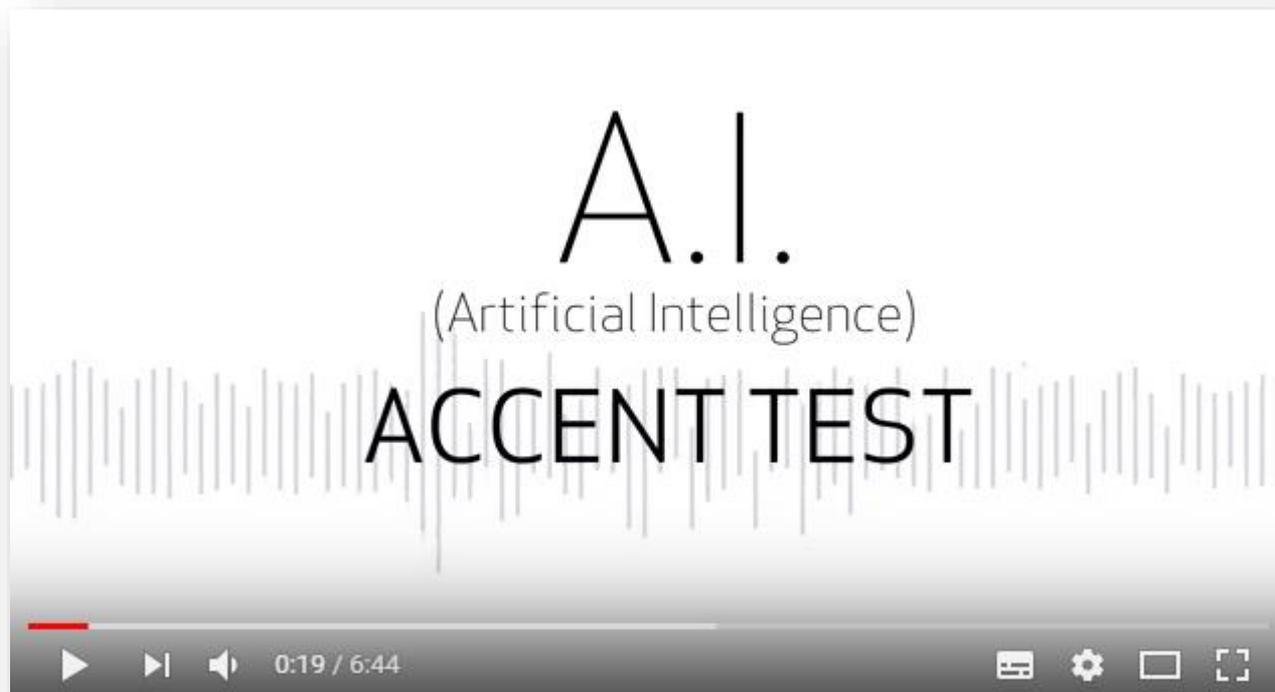


# Possible issues...

- What would happen if someone can't access the system?
- What would happen if they can only access certain parts?
- What happens if they misunderstand what the system requires as input?
- What would happen if they can't access the output?



# Case study: **Recognising Accents**



YouTube video link: <https://youtu.be/gNx0huL9qsQ>