



# Basic I.T Skills Training

Delivered by

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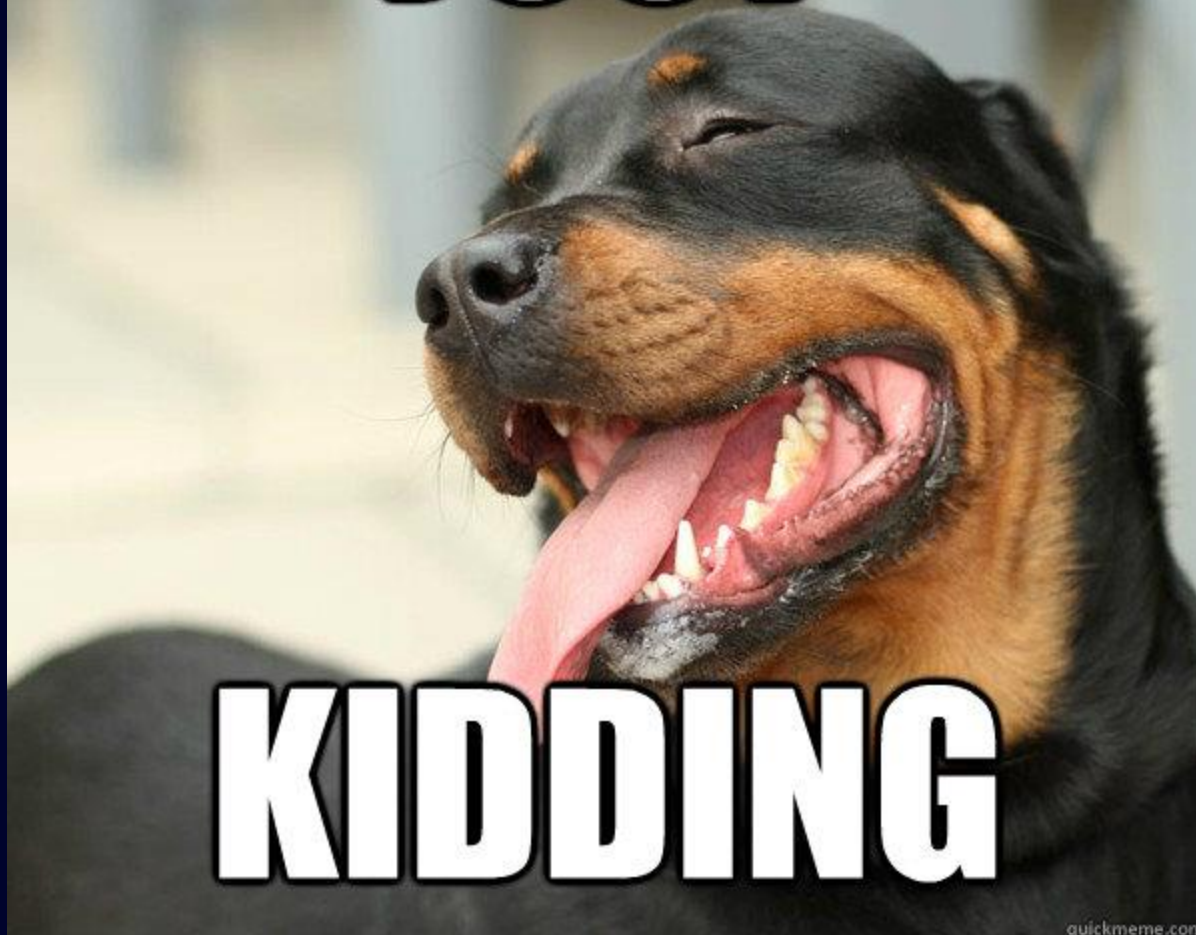
Humberjob  
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# Lesson One

1. Advanced Hacking Skills
2. Programming for Artificial Intelligence
3. Bash Infrastructure automation.

**JUST**



**KIDDING**

# Who is Edward?

- BSc (Hons) Computer Science, dissertation focused on solving Co-Parenting/LawTech problems.
- Advised International Companies on Cyber Security
- Professional Member of the BCS (Professional body for IT in the UK).
- Member of the Society for Computing and Law.
- Microsoft and CompTIA Certified since 2012.
- Built Software for local companies in Hull & Supported other businesses with web, data and hosting projects.
- Former member/moderator of Freeside (Linux cluster) of the University of Hull.
- Founder of Parentull & Codhead Club.



# Who are you?

- Pair off with someone in the group you do not know.
- Chat amongst yourselves and find out the following:
  - Partners name
  - 2 Interesting facts about partner
- When the timer sounds, we will take turns to introduce each other.

Feel free to have a cuppa as you chat!

# Well done!

- We just learned a fundamental element of computer networks.
- Computers communicate by asking for information from each other, then repeating the process until they have the information required to complete their task. This is a very simplistic version, of course – but that's the gist.
- Humans communicate in much more sophisticated ways. We are capable of deception, humour and using subtle communication, such as body language.
- Internet the movie - <https://youtu.be/PbRKp-ZvNhU>

# So! What are we going to learn?

Throughout the course we will cover:

- Basic Logic Concepts.
- Hardware v Software
- Interaction with computers/devices + Basic system use.
- File Types (documents, pictures, audio, web, applications)
- Creating and updating documents
- Internet usage (emails, avoid scams, creating accounts, cookies)
- Basic cyber security

# Why is this stuff important?

- In the workplace:
  - Access, understand and manage information fast.
  - Improve methods of working.
  - Perform competently.
  - Communicate with colleagues/customers more effectively.
  - Become valuable to employer with diverse skillset.
- In personal life:
  - Avoid scams & keep your data secure
  - Perform tasks faster (or automate them entirely!)
  - Maintain equipment & save money.

Most importantly..

**I.T Skills are the “reading/writing” of the modern world.**



# Why is this stuff important?

Digital Literacy can be defined as:

“THE POWER TO USE DIGITAL TOOLS TO SOLVE PROBLEMS,  
PRODUCE INNOVATIVE PROJECTS, ENHANCE  
COMMUNICATION, AND PREPARE FOR THE CHALLENGES  
OF AN **INCREASINGLY DIGITAL WORLD.**”

# Announcements

- Resources will be posted on <https://github.com/CodheadClub/ITSkillsTraining>
- We will take regular quizzes, you will need to browse to menti.com and enter the code provided.
- Questions/comments welcome, do shoutout or raise your hand.



# Question Time!

- Menti.com
- Enter code (to be given in class)

# Basic Logic

## What is logic?

- The science of thinking correctly.
- A reasoning system to get to the most practical answer based on the evidence.

*“a particular way of thinking, especially one that is reasonable and based on good judgment”*

- Cambridge Dictionary 2022

# Basic Logic

## **What is logic? (cont)**

- However! We have already established that humans and computers communicate differently....

So is it possible that they also reason differently?

# Basic Logic

## **What is logic? (cont)**

- Short answer: Yes!
- Long answer: Computers reason using the 'logic', normally predefined, within applications and machine code. This means there are only a limited amount of actions a computer can perform, most of which require humans to initiate them.

# Examples – Logic.

Statements	Not Statements
<ul style="list-style-type: none"><li>• <math>4 + 2 = 3 \times 2</math></li><li>• John. F. Kennedy was U.S President</li><li>• Hull is not a Northern city.</li><li>• Edward is tall and drinks tea.</li></ul>	<ul style="list-style-type: none"><li>• <i>Have you done it?</i></li><li>• Turn the <b>computer</b> off.</li><li>• <i>Pass me the <b>cup</b>.</i></li></ul>

Statements can be translated into logic.

$4+2 = 6$ .  $3 \times 2 = 6$ . Therefore, they are equivalent and the statement is true.

John. F. Kennedy was a U.S. President therefore the statement is true.

Hull is based in the North of England, therefore this statement is false.

Edward is tall and drinks tea, therefore the statement is true.

As Humans, we can grasp this concept quite easily.  
But here's how it might look to a computer:

```
int multiply = 3*2;
```

```
int addition = 4+2;
```

```
if(addition == multiply)
```

```
{
```

```
    dosomething();
```

```
}
```

# Basic Logic

- So, why am I telling you all this?
- It's important to be able to use logic to think through problems you are trying to solve.
- Thinking may help resolve why the computer might not be working the way you want it too.
- There might be a different process to the way you are used to thinking in order to complete the task, or the interface may have changed or there may have been other updates.
- And remember, it doesn't matter if you get it "wrong" or "fail" – that's part of learning.



# Basic Logic

- Further investigation
  - Resources on the github page
- Books
  - How to Win Every Argument: The Use and Abuse of Logic – Madsen Pirie
  - Sets, Logic and Maths for Computing
  - GCHQ Puzzle Books I & II

# Basic Logic

- Finally, if you can't resolve the issue after 25-30 minutes, take a short walk and talk the issue through, either with someone or an inanimate object... like a rubber duck! (seriously!)



# Question Time!

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# Tea break

After the break: Hardware v Software



# Hardware v Software

- What is Hardware?
- What is Software?
- Are there any other types of 'ware'?

# Hardware

- Simply put, it is the “physical” element of a computing device.
- We don’t need to worry about the ‘internal’ hardware, so for us, hardware is:
  - Smart phone
  - Desktop
  - Laptop
  - Tablet

Q: Are there any other ‘physical elements’?



# Hardware

- Other examples –
  - Wearables
  - Smart Devices
  - Virtual Reality Headsets
  - TVs
  - Gaming Consoles
  - Check out systems



# Peripherals

- Printers
- Keyboard
- Mice
- Speakers
- Monitors (Screens)
- USB Devices
- Bluetooth devices
- Gaming controllers



**Peripherals should not be confused with “Smart” or “IoT” devices. Whilst the lines can seem blurred sometimes, many “smart”/”IoT” gadgets are devices in their own right – not peripherals or add-ons to a computer / phone.**



# Question Time!

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# Software

- Non-physical or “virtual” element which runs on the hardware.
  - Software usually runs inside of an operating system – like Windows, MacOS, ChromeOS or Linux.
  - On Mobile, These are called “apps” and run on Android or iOS.
- Can be thought of as a set of instructions to the computer, normally issued by human interaction.
  - Exception being if the computer has automated scheduling setup or the program has code which executes at certain times.
- What can software actually do?



# Question Time!

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- Enter code (to be given in class)

# Operating Systems

- Manages computer hardware and software.
- Allocates resources and schedules resource use for software.
- Often comes with some basic software and the ability to adjust preferences to suit the person using the device.
- Windows, Mac OS, ChromeOS, Android and iOS are all examples of operating systems.
- We will cover more about operating systems through basic system usage + other topics.

# Basic System Use

- Examples will be given using Windows. If anyone has brought a Mac, ChromeOS or Linux machine, don't worry. There will be equivalents on your machine.
- Time to get practical!

# Basic System Use

- Exercise 1 – Familiarisation with System GUI

## Objectives

- Learn and identify the different areas of the GUI
- Use the knowledge to complete simple tasks
- Review with quiz



# Question Time!

- Menti.com
- Enter code (to be given in class)

*That's all Folks!*