1. Ethics and Ownership

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Candidates should be able to:	Notes and guidance
Show understanding of the need for and purpose of ethics as a computing professional	Understand the importance of joining a professional ethical body including BCS (British Computer Society), IEEE (Institute of Electrical and Electronic Engineers)
Show understanding of the need to act ethically and the impact of acting ethically or unethically for a given situation	
Show understanding of the need for copyright legislation	
Show understanding of the different types of software licencing and justify the use of a licence for a given situation	Licences to include free Software Foundation, the Open Source Initiative, shareware and commercial software
Show understanding of Artificial Intelligence (AI)	Understand the impact of AI including social, economic and environmental issues
	Understand the applications of AI

- Why ethics are important
    - Help stop the misuse of computers
    - The use of computer needs to be governed
    - Help keep users safe when using computers
    - Provides rules for using computers
    - Help stop intellectual property theft
    - Reference to laws
    - Reference to security issues
- Importance of joining a professional ethical body
    - Has ethical guidelines to follow
        - so clients and other staff know the standards being applied
        - so he does not have to decide what is ethical it's written down
    - Clients and staff know he is reputable
        - Recognition of his skills / knowledge
        - There may be a test / requirement for entry
    - They provide help and support
        - For example if he needs legal service

- - They run training courses
    - to keep his skills up-to-date
- Professional ethical body
  - BCS (British Computer Society)
  - IEEE (Institute of Electrical and Electronic Engineers)
- Copyright
  - Formal and legal rights to ownership
  - Protect intellectual property
  - Protects against unauthorized reproduction of work
  - Provides for legal right of redress
- Free Software Foundation
  - Source code comes with the software
  - No charge
  - If the software is modifies, the edited source code must be released under the same license
  - Can still be copyrighted
  - Set restrictions on what the user can do
- Open Source Initiative
  - Run the software for any legal purpose as they wish
  - The source code comes with the software
  - Study the program source code and modify it where necessary to meet their needs
  - Redistribute copies of the software to friends and family
- Shareware
  - The software is free for a trial period (may be limited in feature)
  - Do not have access to the source code
  - After the trial a fee is requested
  - If the user wants to continue to use the software they need to pay
- Commercial software
  - The software can be legally used only after a fee has been paid
  - Source code not provided
  - The software is purchased
  - With a license restricts the number of users
  - The program code for the software cannot be edited
  - Restricted use

- Limited number of installation allowed
- How AI can help
  - Machines can learn from past problems/mistakes
    - They can adapt to stop the same problem occurring again
    - They can learn to predict what might happen and raise an alert
  - Machines can learn how to work more efficiently
    - When an action slows the system down, it can prevent this happening again
    - When an action increases the speed of the system, it can repeat this when necessary to improve the efficiency
- Impact of AI
  - Job lost
  - More efficient production
  - More leisure time
  - Help us to conserve natural resource
  - Detection of pollution
  - Renewable energy
- Applications of AI
  - Transport: autonomous vehicles delivery drones
  - Criminal justice system: facial recognition
  - Advertising and use of data: purchasing assistant
  - Healthcare: artificial limb technology, medical procedures require extreme precision
  - Military: drones used to carry out dangerous tasks, attacking drone, auto-defense system
  - Environmental protection: climate change prediction, energy usage regulation