



4.8 Consequences of Uses of Computing

- 1) Between 2008 and 2010, a company that was gathering data for an online mapping system, using cars fitted with cameras and WiFi equipment, collected some information that was being transmitted on personal WiFi networks. The company apologised for doing this and an investigation found that a small number of software developers had been responsible for adding this functionality to the mapping system data collection software.

In the context of this example, discuss:

- how it was possible for this data to be collected.
- what steps the owners of the networks could have taken to prevent the data from being collected.
- what legal and ethical issues might have arisen as a result of collecting this data.
- what lessons the company might have learnt from the incident and how their practices might have changed as a result of it.

In your answer you will be assessed on your ability to follow a line of reasoning to produce a coherent, relevant and structured response

[12 marks]

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- 2) A company provides a social media service through which members can share information about themselves and view information and news from their friends. The service also displays current affairs news stories to its members.

The service does not have journalists who write the stories but instead it uses algorithms to select news stories written by other organisations and individuals and shows these. Different news stories may be shown to different members.

Discuss:

- how algorithms might determine which current affairs news stories to display to an individual member
- the moral, ethical and legal considerations that the developers of the system and its operators should consider in relation to how the algorithms work and which news stories are displayed.

[6 marks]





- 3) Supermarkets often gather information about their customers and the purchases that they make. This information can be analysed by the supermarket and other companies for a range of purposes.

By analysing the purchases that a shopper has made, it might be possible to identify such things as whether the shopper has children, is pregnant, or lives in a house with a garden. Other types of analysis might include the amount of money a customer spends, the times that they choose to shop at and the differences in shopping habits of different groups of shoppers.

Discuss some of the ethical and legal issues that might arise as a result of the capture and processing of this data.

[6 marks]

- 4) Algorithms and artificial intelligence are being increasingly used to assist with the diagnosis of medical conditions. For example, algorithms based on artificial intelligence can diagnose some medical conditions from X-ray images.

Discuss some of the moral, ethical and legal issues that might arise as a result of using computer systems to assist with diagnosing medical conditions.

In your answer you will be assessed on your ability to follow a line of reasoning to produce a coherent, relevant and structured response.

[6 marks]

