

Name: Max H

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## Data 2 - Homework

Date:

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Time:

Total marks available: 26

Total marks achieved: \_\_\_\_\_

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Complete this homework and submit as a pdf, you may not use chatGPT or other LLM's but you are encouraged to use the textbook and google if you need assistance answering

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## **Questions**

**Q1.**

Describe how data may be transformed into information.

(2)

By adding structure, context and meaning so the data is not just raw facts and figures with no understanding added to them.

**(Total for question = 2 marks)**

**Q2.**

A new digital system is being developed that will be used to gather details about passengers using trams in a large city.

Paper questionnaires will be handed out to passengers in the tram carriages.

Passengers will be asked to complete the questionnaires and to post them into boxes left in each carriage.

The data from the questionnaires will be stored on a server.

The questionnaire asks for the customers' home postcode.

Describe **one** way that the company may make use of this data.

(3)

The company may use this data to analyse the general vicinity of people's postcodes to determine which region or area gets the tram the most, which they can use to work on routes that the tram uses and advertise use of trams in those areas to increase their customer base.

**(Total for question = 3 marks)**

**Q3.**

A retailer is developing a new online shopping system.

Customers can log into their accounts to search for items and place orders.

Describe **two ways** in which data may be generated by the new online shopping system. (4)

1 Customer searches, as what they search could be of interest in promoting products they may like or be interested in.

2 Customer purchases to inform on trends or to help push promotion of products to ensure they do become more popular.

**(Total for question = 4 marks)**

**Q4.**

A company is developing a new central heating control system.

Describe how a sensor could be used to generate data for this system.

(3)

The sensor could be used to record the temperature of areas that the system expands over and use that data to determine which areas require the most heating to reach room temperature or temperature that is required for that area (e.g. walk-in fridges).

**(Total for question = 3 marks)**

**Q5.**

A retailer is developing a new online shopping system.

Customers can log into their accounts to search for items and place orders.

When a customer searches for an item, the server sends information about the product back to the client as a JSON file.

Explain why a JSON file is used in this situation.

JSONS are data storage files that can easily store and represent complex data structures such as arrays and dictionaries. They are very readable for developers and easy to refer to to search and add new items to. Furthermore, they are very commonly used for this specific purpose so it would be wise to follow industry standards.

**(Total for question = 3 marks)**

**Q6.**

State **two** methods of generating data.

(2)

1 Research

2 Questionnaires

**(Total for question = 2 marks)**

**Q7.**

Sawdde sells stationery online and in high street stores.

Sawdde are looking into ways of encouraging customers to buy more products in store and online.

Evaluate the use of transactional data in encouraging customers to buy more products in store and online.

**(9)**

The use of transactional data may prove efficient for Sawdde in encouraging customers to buy more products in-store and online. Namely, it could be used to tailor marketing efforts for individual customers. This could be done by recommending products relevant to previous purchases or replacement of components or even items that complement previously purchased products. The data can also help identify what is trending based on by how many customers purchase a certain product or type of product, so that they can promote those items even more.

However, the use of such data can lead customers to feel like their privacy is being taken for granted as some may not want their purchasing habits being tracked. Using this data too much may drive a rift between the organisation and some customers as they may lose their trust. Also, analysing and utilising transactional data needs technology and skilled data analysts, both of which are very costly. Furthermore, resources must be diverted to ensuring the data collected is kept secure.

In conclusion, transactional data used effectively can increase sales and create long-term relationships between the customer and the organisation, given that the company makes sure to use this data responsibly and take care of ensuring that data being held is secure.

**(Total for question = 9 marks)**