

MARKSCHEME

May 2006

INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY

Higher Level

Paper 3

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1. Each time a customer visits the fitness centre the card is swiped and information is updated in the customer database. Two of the tables in this relational database are customer and visit. The customer table holds personal information about the customer and the visits table holds information about their visit to the fitness centre.

- (a) Identify *two* non-key fields in the customer table. *[2 marks]*

Award *[1 mark]* for each non-key field identified up to a maximum of *[2 marks]*.

Answers may include:

- firstname
- surname
- address
- phone
- date of birth (age –BOD unlikely calculated field) not both.
- date the customer joined the club.
- Height weight
- Gender
- Place of birth (BOD)

Do not accept a field with a customer ID field.

Reward other acceptable answers only with the approval of the team leader.

- (b) Describe how the customer table and visit table are linked in this relational database. *[2 marks]*

Award [1 mark] for identifying the link.

Award [1 additional mark] for a description of the link identified.

Answers may include for up to *[1 mark]* each:

- each table contains a key field
- the tables are linked using the customer ID.

Reward other acceptable answers only with the approval of the team leader.

- (c) Identify *two* pieces of customer information that are updated in the visit table when the customer uses the swipe card to enter the fitness centre. *[2 marks]*

Award [1 mark] for each piece of customer information identified up to a maximum of [2 marks].

Answers may include:

- time of visit
- date of visit
- number of visits
- other calculated field in the visit table. E.g frequency of use

Reward other acceptable answers only with the approval of the team leader.

2. **Fitness Zone believes that investment in an expert system will improve the advice that it offers to its customers.**

a) **Describe two components of an expert system in a fitness centre.** [4 marks]

*Award [1 mark] for each component identified up to a maximum of [2 marks]
Award [1 additional mark] for the description of the component up to a maximum of [2 additional marks].*

Components may include:

- knowledge base/database designed by an expert of health and/or fitness information – database alone is not enough
- inference engine of rules to apply
- GUI for client to query expert system.

Reward other acceptable answers only with the approval of the team leader.

b) **Explain two policies the fitness centre should introduce when implementing the expert system for its customers.** [4 marks]

*Award [1 mark] for each policy identified up to a maximum of [2 marks].
Award [1 additional mark] for giving a reason for the policy up to a maximum of [2 additional marks].*

Policies may include:

- the system must be reliable and record data accurately
- customer data must be kept secure
- customer data will not be shared without customers consent.
- Responsibilities of the various parties involved in designing or using the system
- Sharing of information from the system or sharing the use of the system with non customers

Reward other acceptable answers only with the approval of the team leader.

c) **Using material from your personal research, evaluate ways in which an expert system could benefit the users of a fitness centre.** [4 marks]

Select the level of marks to award for each way:

Level 1	<i>Identifies strength or limitation</i>	1 mark
Level 2	<i>Describes and considers strength or limitation but not both</i>	2 marks
Level 3	<i>Evaluation is clear but lacks detail and considers strength(s) and limitation(s)</i>	3 marks
Level 4	<i>Evaluation is clear and detailed and considers strength(s) and limitation(s)</i>	4 marks

Where students have provided more than two ways, consider the description of the **two** ways with the best marks. Award a maximum of **[4 marks]** for the question.

Answers may include:

Strengths

- sets realistic targets based on evidence (e.g. age, current fitness) - resulting in improved performance
- accommodates for disabilities/injuries and modifies the program - enables injured customers to exercise without exacerbating injury
- ensures privacy of personal details (e.g. age, weight, fitness level) - allows for privacy without need to disclose details to fitness centre staff.
- Saves time for users – they do not need to wait to be seen by a fitness instructor

Limitations

- lacks personal contact - can be less motivational
- limited to the customer data that is input and its knowledge base - whereas staff may be aware of other situations
- requires the customer to have a level of computer literacy - daunting for some customers.

Reward other acceptable answers only with the approval of the team leader.

3. **Fitness Zone intends to open two more centres, one based in London and the other in Paris. The company intends to set up a VPN which will allow its customers to access various IT based services from their homes. They will be given a user ID and a password to enable this.**

With reference to the case study and using your own research, discuss the possible success of the following services.

- Accessing customer fitness results using VPN from home.
- Updating customer fitness results when an existing customer uses the facilities during a visit to one of the other centres.
- Setting up a personalised Web page for each customer on the Fitness Zone Web site and providing the customer with relevant dietary advice.

[12 marks]

Select the level of marks to award for each of the above services:

Level 1	<i>Describes the service.</i>	1 mark
Level 2	<i>Describes the service with some balanced argument.</i>	2 marks
Level 3	<i>Discusses the service with a balanced argument supported with evidence</i>	3 marks
Level 4	<i>Discusses the service with balanced argument, supporting evidence plus an appraisal.</i>	4 marks

Award a maximum of **[12 marks]** for the question.

Accessing customer fitness results using VPN from home.

- Customer accesses their data in the privacy of their home
- Customer could work out what equipment to take with them on the basis of their fitness report
- Reduces the need to print information in the fitness centre

Updating customer fitness results when an existing customer uses the facilities during a visit to one of the other centres.

- Ensures data on system is up to date
- Training programme can continue whilst the customer is away from home
- Centre staff can see data from their clients using other centres

Setting up a personalised Web page for each customer on the Fitness Zone Web site and providing the customer with relevant dietary advice.

- Customer has user-friendly access to personalised dietary advice and information
 - Customer can easily see the elements of their training programme
 - Information can be pushed to the customer every time they log on.
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