**Student Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**IT Applications Unit 3 Outcome 2**

**Relational database management systems**

**Design Brief**

**Overview**

Fabulous Hats is an online hat store started by Andrea Dickson one year ago. She sells quality hats at affordable prices and has now gained a reputation for providing beautiful hats at affordable prices. However, there has been an increase in customers complaints because not only are the hats slow to arrive, sometimes the wrong hat is sent to the customer.

**Current Practices**

At present, customers view the hats on the Fabulous Hats website. Once customers are ready to order they contact the company by phone or email and place an order. This order is then sent to the warehouse where it is processed. Once processed the hat/s are then sent to the cusomter. Customers pay by credit card over the phone. Andrea knows that this is not an efficient or effective system and she needs a solution that will save the company time and effort in replying, and reduce errors in the processing and sending orders.

**Future Needs**

Andrea would much prefer if customers can logon to the website www.fabuloushats.com.au and view the range of hats for sale. Rather than use email and telephone to collect customer details, customers can place an order using a secure online order form. All the customer needs to do is add the items to their shopping cart (including, item code, hat style, date of order) and then fill in their delivery and payment details. A relational database management system (RDBMS) will manage all data acquired through the online ordering form. The orders can then be processed by this ordering system at the central warehouse in Melbourne and the hats can be sent within three days.

Following is some sample data which you can use to create and test the database.

**Sample Customers and their Orders**

Mrs Isabella Clarke, 14 Thomas St, Essendon 3040

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Code | Item | Quantity | Price per item | Date ordered |
| HAT01 | Plum felt | 1 | $100 | 4th May 2011 |

Mrs Martha Higgins, 25 Gregory Street, Greenvale 3059

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Code | Item | Quantity | Price per item | Date ordered |
| HAT01 | Plum felt | 1 | $100 | 15th May 2011 |

Mr Patrick Parker, 31 Alvin Close, Glen Waverley 3150

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Code | Item | Quantity | Price per item | Date ordered |
| HAT04 | Fedora | 2 | $140 | 22nd May 2011 |

Miss Viola Vincent, 13 Victory Street, Essendon 3040

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Code | Item | Quantity | Price per item | Date ordered |
| HAT02 | Black Feather | 2 | $120 | 22nd April 2011 |

Miss Janelle Jackson, 42 Jelly Close, Greenvale 3059

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Code | Item | Quantity | Price per item | Date ordered |
| HAT03 | Sports Grey | 1 | $30 | 29th April 2011 |

Miss Kathy Kirby, 13 Kite Road, Glen Waverley 3150

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Code | Item | Quantity | Price per item | Date ordered |
| HAT02 | Black Feather | 1 | $120 | 30th April 2011 |

Mr Larry Lane, 56 Late Street, Essendon 3040

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Code | Item | Quantity | Price per item | Date ordered |
| HAT04 | Fedora | 1 | $140 | 4th May 2011 |

Mr Patrick Parker, 31 Alvin Close, Glen Waverley 3150

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item Code | Item | Quantity | Price per item | Date ordered |
| HAT03 | Sports Grey | 1 | $30 | 31st May 2011 |

Your task is to design and develop the relational database management system so that Fabulous Hats can manage their data.

**Design**

1. Normalise the sample data provided to 3rd normal form. (5 marks)
2. Create an entity relationship diagram.

(5 marks)

1. For each table in your database, create a data structure table.

(9 marks)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Field | Data Type | Field Size | Input mask | Caption | Description | Validation Rule | Validation Text |

**Develop**

1. Develop a RDBMS that satisfies the needs of the organisation using a range of software functions and techniques to manipulate and validate the data. Including the
   1. Creation of tables
   2. Create relationships between the tables
   3. Use a range of data types and field sizes
   4. Include electronic validation including input masks and range checks
   5. Use of drop down menus

(11 marks)

1. Construct and produce a range of queries to effectively retrieve required information. Calculated fields will need to be demonstrated in some of the queries
   1. Create a query to list of all customers in Essendon who have spent over $40
   2. Create a query to list of customers who have ordered a Fedora
   3. Create a query that gives a total of how much each customer has spent
   4. Create a query that gives a list of customers and what they have ordered in the last 30 days.

(5 marks)

1. Complete the following testing table, using appropriate test data. (6 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Tested Item** | **Data used** | **Expected Result** | **Actual Result** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Task 2: Written Report (10 marks)**

1. Explain the reasons why Fabulous Hats acquire data from their website. (2 marks)

|  |
| --- |
|  |
|  |
|  |
|  |

1. Explain why their customers (data providers) would supply data via a website to Fabulous Hats. (1 mark)

|  |
| --- |
|  |
|  |
|  |
|  |

1. List two techniques that Fabulous Hats could use on their website to acquire data. (1 marks)

|  |
| --- |
|  |
|  |
|  |
|  |

1. Explain two data acquisition techniques that Fabulous Hats should use on their website. (2 marks)

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. List a range of techniques Fabulous Hats could use on their website to protect the rights of their data providers. (4 marks)

|  |
| --- |
|  |
|  |
|  |
|  |