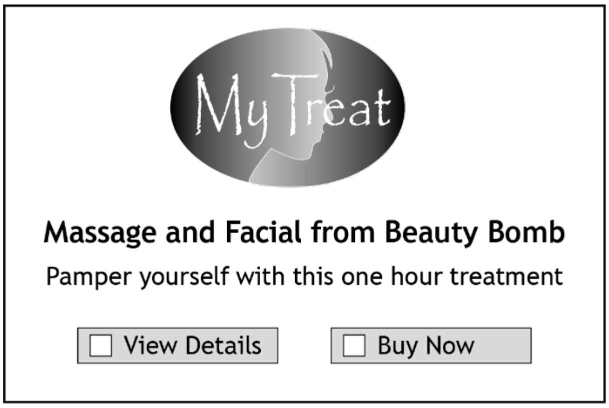
Task 2: database design and development (part A)

MyTreat is a company that is developing a database of voucher offers from a range of suppliers.

Suppliers will offer vouchers in the following categories: Food, Beauty, Adventure and Family. A supplier may have more than one active offer in the database at a time and can sell many vouchers for each offer.

Customers registered with MyTreat will be able to purchase multiple voucher offers. Vouchers will be sent to the customer’s email address.

Vouchers will be promoted on the MyTreat website. An example is shown below.



Massage and Facial from Beauty Bomb

Pamper yourself with this one hour treatment

The database development team at MyTreat asked the staff how they would like to use the database. Some of the comments are shown below.

We want to offer bonuses to customers who spend the most money. I need to know how much money customers are spending.

I need to give suppliers regular updates on how many of their voucher offers have been sold.

Customers often ask us to recommend offers. I would like to be able to look for specific categories of offer to send to the customer.

It’s my job to analyse the voucher offers to see which are most popular. I want to be able to see our best and worst sellers.

I’m responsible for GDPR so I need to be able to keep all the customer and supplier data accurate and up to date.

2a Using the information gathered from the staff comments, create two functional requirements of the database.

(2 marks)

Functional requirement 1
Functional requirement 2

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2b The following tables have sample data showing:

- vouchers included in each customer order
- customers who made orders
- supplier of each voucher

Voucher	CustomerOrder
Voucher2	Order1
Voucher4	Order2
Voucher5	Order3
Voucher4	Order4
Voucher1	Order5
Voucher3	Order6

Customer	CustomerOrder
Customer1	Order1
Customer3	Order2
Customer1	Order3
Customer2	Order4
Customer1	Order5
Customer2	Order6

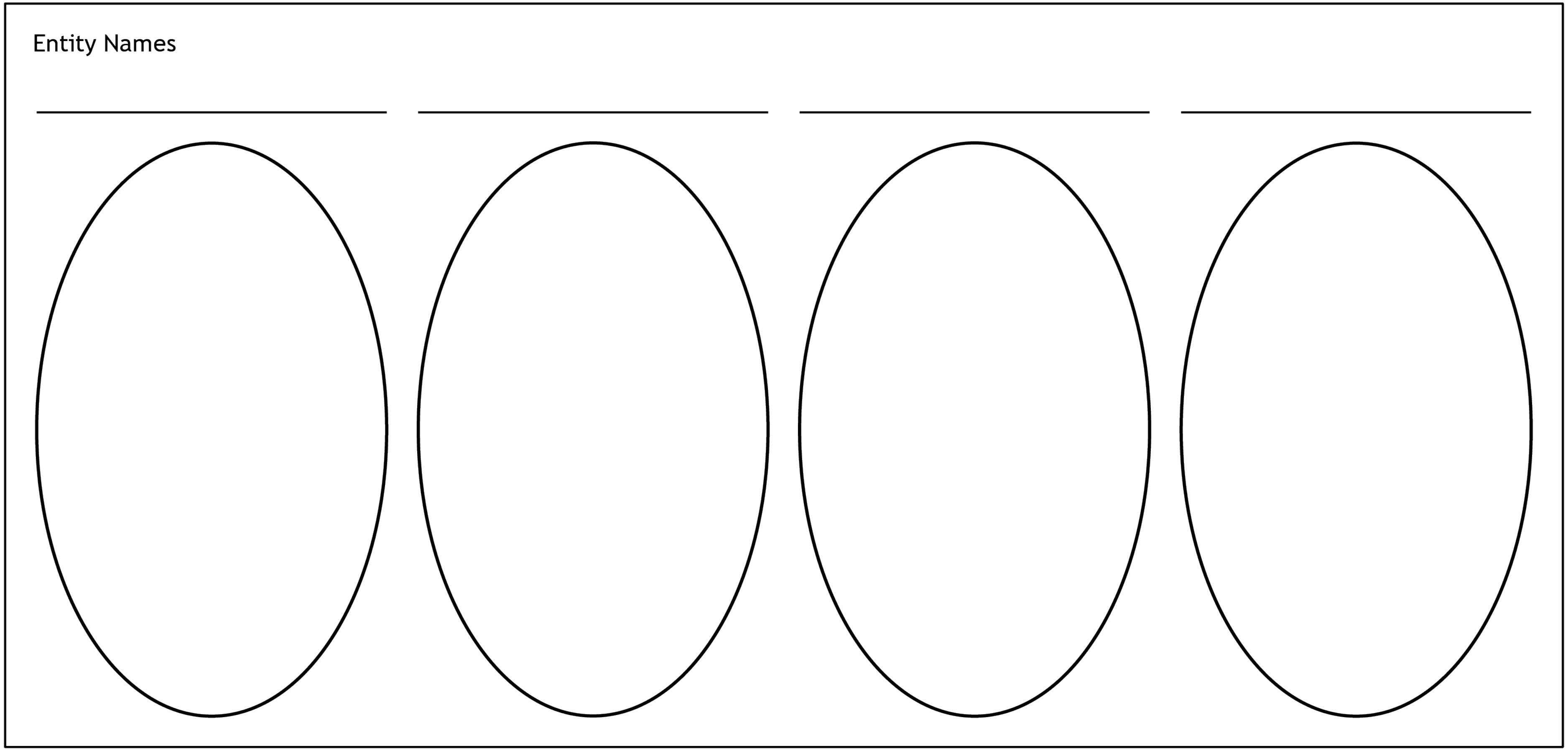
Voucher	Supplier
Voucher1	Supplier3
Voucher2	Supplier1
Voucher3	Supplier3
Voucher4	Supplier2
Voucher5	Supplier2

Using the information from the sample data, complete the blank entity-occurrence diagram on the following page by:

- naming the entities
- completing the sample instances provided for each entity
- showing the association between those instances

(3 marks)

Entity-occurrence diagram



- ♦ Check your answers carefully, as you cannot return part A after you hand it in.
- ♦ When you are ready, hand part A to your teacher or lecturer and collect part B.

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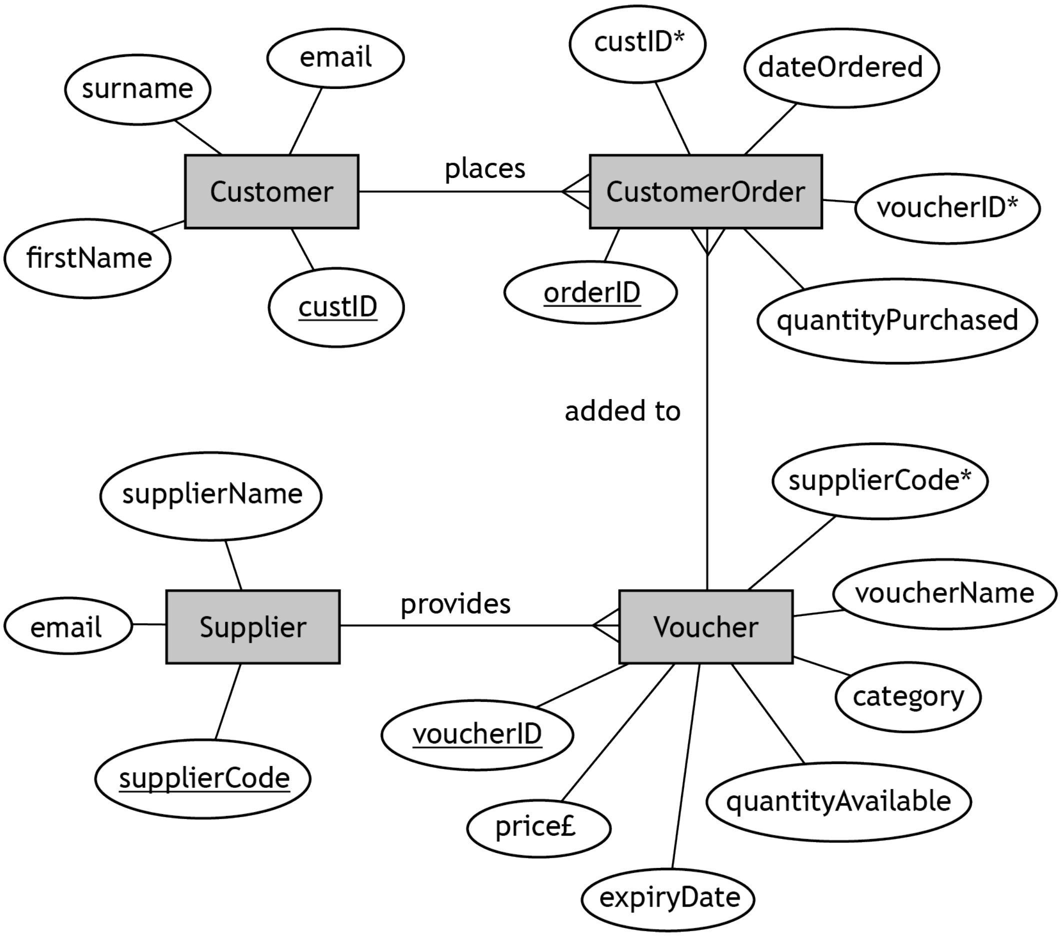
Task 2: database design and development (part B)

The entity-relationship diagram for the MyTreat database is shown below.



The design is then implemented.

Your teacher or lecturer will provide you with a completed and populated database file.

2c MyTreat would like to know how much money is being spent on the different types of escape room vouchers.

A query is required to find customers who have purchased vouchers for an escape room from the 'Adventure' category. The output should include the amount of money spent by the customer on the voucher.

Implement the SQL statement to produce the following output.

(3 marks)

firstName	surname	voucherID	Amount of Money Spent on Voucher £
Neville	Wilson	V368	32
Bailey	Donald	V369	80
Aziah	Moqsud	V890	172
Chukka	Radebe	V890	86
Becky	Bennett	V890	344

2d MyTreat would like to know how many vouchers are still available for voucher ID V543.

Implement the SQL statement(s) to produce the following output.

(4 marks)

voucherID	supplierName	voucherName	Still Available
V543	SkatePark	Skate park and lunch	198

For 2c and 2d print evidence of:

- the implemented SQL statement(s)
- the output produced

2e A query is designed to find the number of customers who bought a voucher from the ‘Family’ category that costs less than £15.00.

The expected output from the query is shown below.

supplierName	voucherName	price£	Number of Customers
Cuddle World	Teady Bears’ Picnic	10.00	4
WonderPlay	Trampoline	4.00	3
WonderPlay	Softplay and lunch for 2	12.00	2
Family Fun Club	Softplay and cake	6.00	1

The SQL statement shown below was implemented.

```
SELECT Supplier.supplierName, Voucher.voucherName,
Voucher.price£, Sum(Voucher.price£) AS [Number of Customers]
FROM CustomerOrder, Supplier, Voucher
WHERE CustomerOrder.voucherID=Voucher.voucherID AND
Supplier.supplierCode=Voucher.supplierCode AND
Voucher.price£<15 AND Voucher.category="Family"
GROUP BY Supplier.supplierName, Voucher.voucherName,
Voucher.price£;
```

The query to test the above SQL statement is provided with the database.

Test the SQL statement by running the query.

Amend the query to produce the expected output as shown above.

(2 marks)

Print evidence of the amended SQL statement.

2f The `Voucher` table has no validation.

Evaluate one potential problem that may occur when adding new data to this table.

(1 mark)

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