Task 1: database design and development (part A)

A small passenger airline wishes to create a database as part of a new online booking system. The database will be required to store the following information:

- customer details
- bookings made by customers
- flight details
- scheduled routes

1a The following tables include sample data showing:

- bookings on some flights
- customers that made those bookings
- routes taken by each flight

Flight	Booking
Flight1	Booking1
Flight4	Booking2
Flight3	Booking3
Flight2	Booking4
Flight5	Booking5
Flight1	Booking6

Customer	Booking
Cust1	Booking1
Cust2	Booking2
Cust1	Booking3
Cust3	Booking4
Cust1	Booking5
Cust3	Booking6

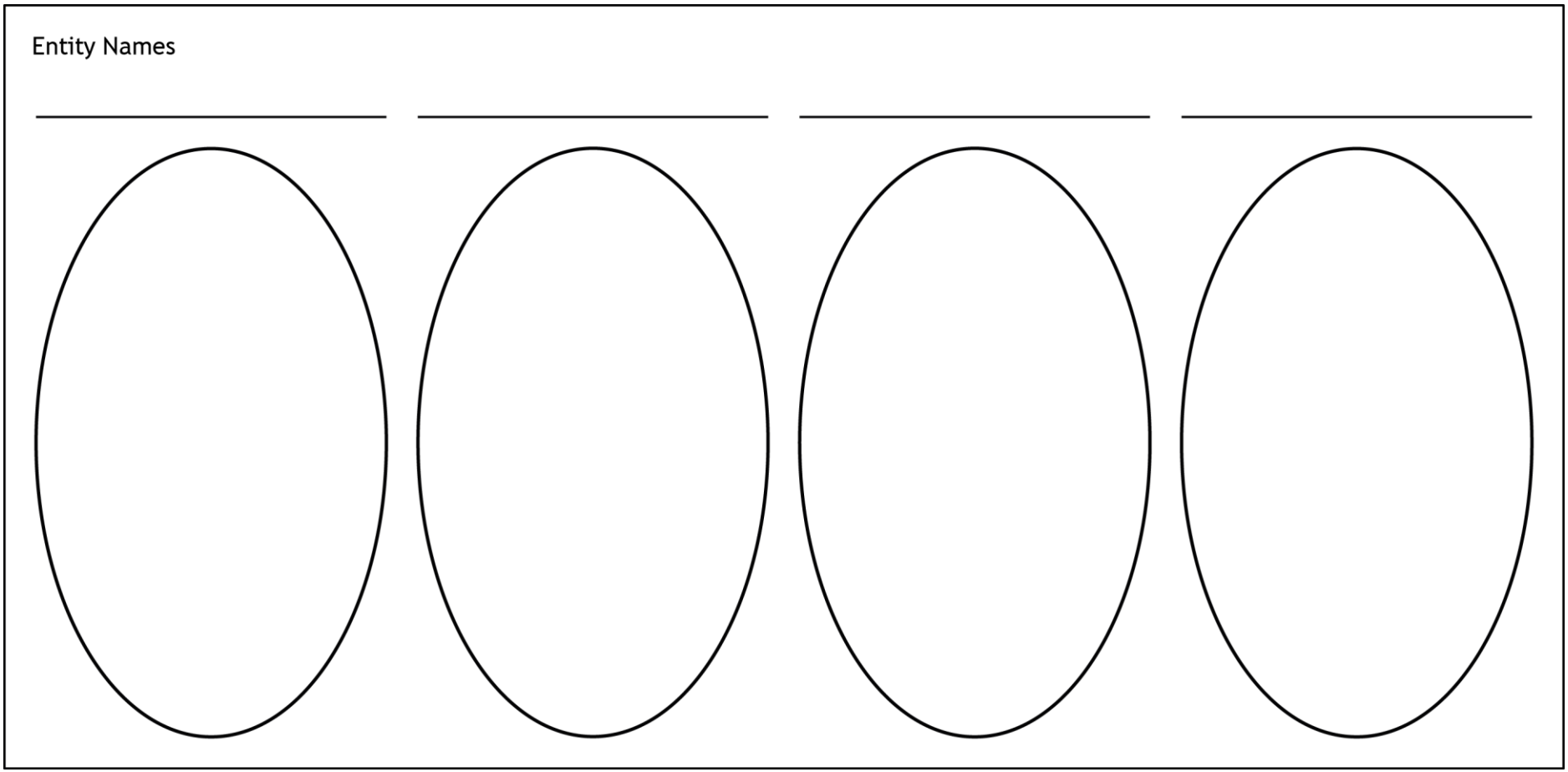
Flight	Route
Flight1	Route1
Flight2	Route1
Flight3	Route3
Flight4	Route3
Flight5	Route2

Using the information provided by the sample data, complete the blank entity-occurrence diagram provided by:

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

(3 marks)

Entity-occurrence diagram

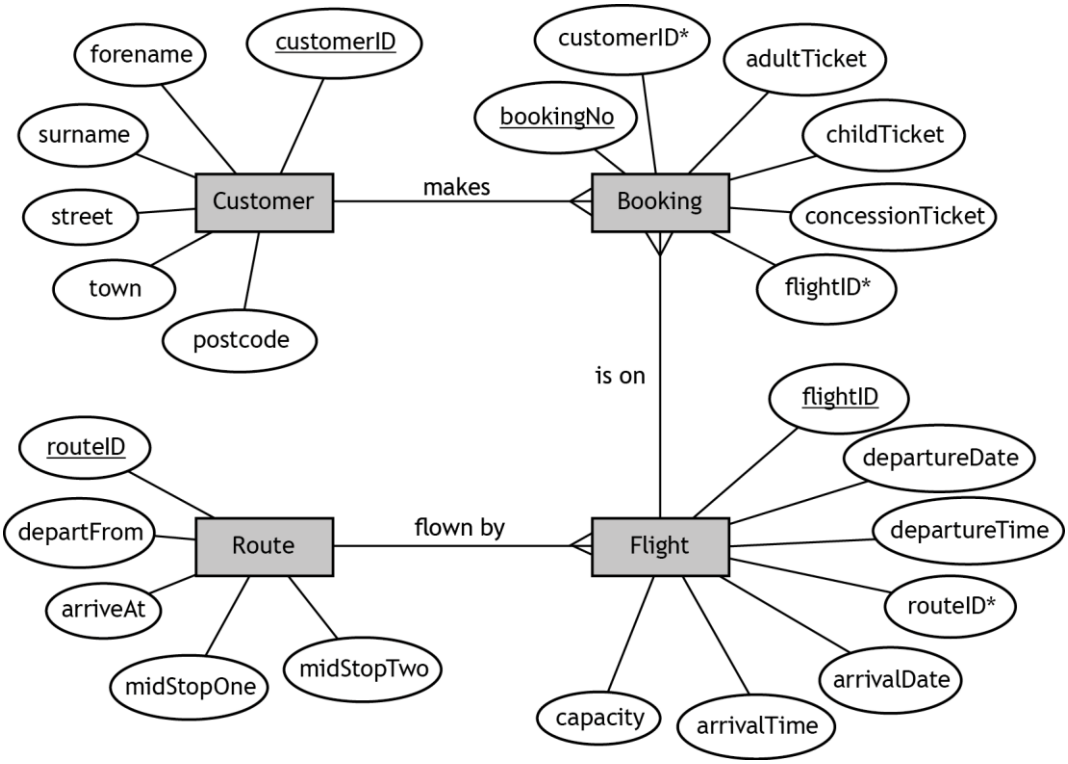


- Check your answers carefully, as you cannot return to part A after you hand it in.
- When you are ready, hand part A to your teacher or lecturer and collect part B.

Candidate name_____ Candidate number_____

Task 1: database design and development (part B)

Following further analysis the entity-relationship diagram below is created.



This design is then implemented.

Your teacher or lecturer will provide you with a completed database file.
This file contains a relational database with the following tables.

Flight Booking Database			
Customer	**Booking**	**Flight**	**Route**
customerID	bookingNo	flightID	routeID
forename	adultTicket	departureDate	departFrom
surname	childTicket	departureTime	arriveAt
street	concessionTicket	arrivalDate	midStopOne
town	customerID*	arrivalTime	midStopTwo
postcode	flightID*	capacity	
		routeID*	

1b(i) John Smith, Customer ID - GR01932, has asked for a copy of the tax he has paid on flight QH182. The tax for a booking is calculated as follows:

- adults pay £5.50
- children pay £2.00
- concessions pay £1.50

Implement the SQL statement that will produce an output with the headings.

forename	surname	Tax (£)

Print evidence of the implemented SQL statement and the output it produced.

(3 marks)

1b(ii) The airline wishes to identify the customer(s) who made a booking with the greatest number of children.

Implement two SQL statements that will find the forename and surname of the customer(s) who made a booking with the greatest number of children.

forename	surname

Print evidence of the implemented SQL statements and the output produced.

(4 marks)

1c The database has primary key fields but has no other validation. Evaluate two potential problems that may occur when adding new data to the Flight table.

Problem 1 **(1 mark)**
Problem 2 **(1 mark)**

Candidate name_____ Candidate number_____