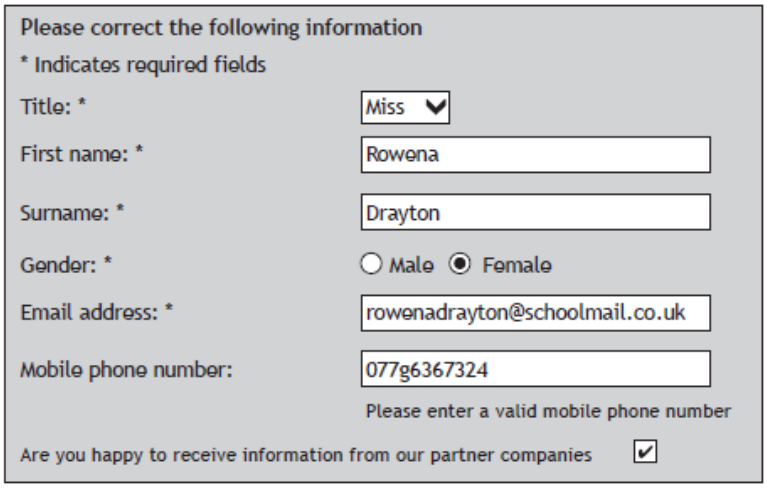
KIND POSITIVE YOURSELF

Revision Questions 3 – Database Design & Development

1. EcoCaledonia recruits employees using an online application form. Rowena completes her form and receives the feedback below:



State the most appropriate data type used to store the value of the "receive information" check box. 1

2. BorrowABike is a company that hires bikes to customers for one day. They have a relational database with three tables as shown below.

Members	Bikes	Hire
MemberID	BikeID	MemberID*
Name	Colour	BikeID*
Address	Wheelsize	HireDate
Phone		Cost

a) Explain why a compound key is required for the Hire table. 1

b) The data dictionary for a table includes the field name. State **two** other items that would be specified in a data dictionary. 2

3. Isnaeworld also allows customers to book tickets for specific attractions within the theme park. Isnaeworld uses a relational database to store bookings for each attraction. The relational database has four tables as shown below.

Customer	Attraction Booking	Theme Park	Attraction
Customer ID	Customer ID*	Park ID	Attraction ID
First Name	Attraction ID*	Name	Park ID*
Surname	Card Number	Town	Manufacturer
Member Status	Ref Number	Postcode	Category
	Date		

Draw an entity relationship diagram to show the relationships between the four tables. 3

4. Super Taxi allows users to book taxis from their smartphones. Super Taxi uses a relational database to keep a record of their cars, drivers, bookings and customers. Each driver can only drive one car but the same car can be used by more than one driver. The cost is set at the time of booking.

Car	Driver	Booking	Customer
Registration	Driver ID	Booking ID	Customer ID
Make	First Name	From	Known As
Model	Surname	To	Card Number
Licence Expires	Mobile	Cost	Expiry Date
	Registration*	Driver ID*	Authorisation Code
		Customer ID*	

a) Draw an entity relationship diagram to show the relationships between the four tables. 3

(b) A query is used to generate the report shown below. This report is displayed on a customer's smartphone once a booking is confirmed. State the tables and fields needed to generate the report below. 3

(c) State the search criteria that would identify this booking. 1

5. GlenSki offers on-to-one skiing lessons at a number of ski resorts in Scotland. Instructors are based at a resort, and customers can book several lessons on one day. A relational database is used to store the data as follows.

Customer	**Lesson**	**Resort**	**Instructor**
CustomerID	InstructorID*	ResortID	InstructorID
FirstName	StartTime	Name	FirstName
Surname	Date	Postcode	Surname
ContactNumber	Duration	Lifts	ResortID*
EmailAddress	CustomerID*		

a) Draw an entity relationship diagram to show the relationships that exist in this database. 3

b) State the primary key used to uniquely identify the Lesson table. 1

c) The following report was generated to show an instructor a list of the lessons that they will deliver on a specific date.

GlenSki 17/12/18 Instructor: 14

Daily Schedule Fred, your lessons today are:

Rafal Avila	9.00am
Martin Iskra	11.00am
Daniella Smith	12.15pm
Rafal Avila	3.00pm

Number of lessons: 4

State the tables and fields needed to output the above report. 3

(d) The report was based on the result of a query using SQL operations. State the **WHERE** clause used to select the data shown in the report.

(e) State the aggregate function that has been used to display the "Number of Lessons" shown as part of this report. 1