Task 2: database design and development

An IT support team requires a database to store network problems raised by staff. A wide range of problems (from forgotten passwords to potential security breaches) are reported by staff from the admin, sales, and management departments. Each problem will be given a problem ID.

Details for all staff are added to the database. Their full name, unique email address and department is stored. When a member of staff wants to report a problem, they send an email to the support team with a description of the problem.

When the support team receive an email, they note the date that the problem was raised along with its importance (on a scale of 1 to 4). A rating of 1 is urgent and should be addressed as soon as possible. Any resolved problems are also marked as completed.

Task 2: database design and development (part A)

2a The IT support team needs to create a database to store details of problems that staff report.

Complete the staff details and problem details in the analysis of inputs table below:

(2 marks)

Staff details:	**Problem details:**
forename surname One mark for correct staff details: Email (address) Department	date description rating One mark for correct problem details: ProblemID Completed Email address

- 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 2: database design and development (part B)

2b Complete the data dictionary below for the Staff and Problem entities by:

- identifying the required key fields
- adding the missing range validation

(3 marks)

Entity: Staff					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
forename		text	30	N	
surname		text	60	N	
department		text	10	N	restricted choice: admin, sales and management
email	PK	text	100	Y	

Entity: Problem					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
problemID	PK	number		Y	
email	FK	text	100	Y	
dateRaised		date		Y	
description		text	255	Y	
rating		number		Y	Range Check >=1 <=4
completed		boolean		Y	

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

Candidate name_____ Candidate number_____

Task 2: database design and development (part C)

2c Your teacher or lecturer will provide you with a database file containing two linked tables.

Entity: Staff					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
forename		text	30	N	
surname		text	60	N	
department		text	10	N	restricted choice: admin, sales and management
email	PK	text	100	Y	

Entity: Problem					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
problemID	PK	number		Y	
email	FK	text	100	Y	
dateRaised		date		Y	
description		text	255	Y	
rating		number		Y	range: >=1 and <=4
completed		boolean		Y	

Using the data dictionary above, complete the relational database by adding the required validation to the department field.

Print evidence of the implemented department field validation.

(1 mark)

2d Eva Livingstone has moved from sales to management.

(i) Implement the SQL statement that will make the following change:

forename: Eva
surname: Livingstone
department: management
email: eliv123@email.net

(2 marks)

Print evidence of the SQL statement and the Staff table, clearly showing that the change has been implemented.

```
UPDATE Staff
SET department = "management"
WHERE email = "eliv123@email.net";
```

(ii) The support team notice that a lot of issues were raised on 7th July 2022.

Implement an SQL statement to output the forename, surname and problem description for all problems raised on 7th July 2022 which remain incomplete. Sort the list based on the urgency of the problems (most urgent first).

SELECT forename, surname, description FROM Staff,Problem
WHERE Staff.email = Problem.email
AND dateRaised = 07/07/2022 AND completed = False
ORDER BY rating (ASC);

(5 marks)

Print evidence of the SQL statement and the output.

2e Fiona Bradley no longer wants problem ID106 recorded on the database, as a colleague has already reported the issue.

The following SQL statement was written to remove the entry but is not fit for purpose.

```
DELETE *
FROM Problem
WHERE rating = 1
AND email = "fbr530@email.net";
```

(i) Explain why this query is not fit for purpose.

(1 mark)

The statement would delete all of Fiona's problems with a rating of 1

(ii) Describe how this query could be improved to ensure it is fit for purpose.

(1 mark)

The problemID (Primary Key) = 106 should be used as the search criteria

Candidate name_____ Candidate number_____