Task 2: database design and development (part A)

The Scottish Amateur Women's Football Association keeps details of clubs and players who play their leagues.

Each club plays matches in one of three football leagues. Each club's football pitch is identified by an address (street and postcode). The date each club was first formed is recorded. The Association's rules state that no club is allowed to have the same name as another.

Players are given a unique registration number. The Association records their forename, surname, date of birth and the club they play for. Players are required to supply a mobile phone number, so they can be contacted about match fixtures or cancellations. Each club is required to inform the Association of each player's shirt number and their preferred playing position (Striker, Midfielder, Defender or Goalkeeper).

Players cannot be registered unless they are a member of one of the Association's clubs.

2a The Association wants to create a database to keep club and player details.

Complete the missing club and player details in the analysis of inputs table below:

(2 marks)

Club details:	**Player details:**
Street Postcode 1 mark for identifying the remaining attributes of club: • club name • date formed • league	Forename Surname 1 mark for identifying the remaining attributes of player: • registration • mobile number • date of birth • position • shirt number

- 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, by identifying the primary and foreign keys in the relational database.

(2 mark)

Entity: Club					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
clubName	PK	text	20	Y	length <= 20
street		text	40	Y	length <= 40
postcode		text	8	Y	length <= 8
formed		date		Y	
league		number		Y	Restricted choice: 1,2,3

Entity: Player					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
forename		text	20	Y	
surname		text	30	Y	
registration	PK	number		Y	Range: >= 100000 and <= 999999
clubName	FK	text	20	Y	Existing clubName from Club table
mobileNo		text	12	Y	length = 12
dateOfBirth		date		Y	
position		text	10	Y	Restricted choice: Striker, Midfielder, Defender, Goalkeeper
shirtNumber		number		Y	Range: >= 1 and <= 25

- 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: Club					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
clubName	PK	text	20	Y	length <= 20
street		text	40	Y	length <= 40
postcode		text	8	Y	length <= 8
formed		date		Y	
league		number		Y	Restricted choice: 1,2,3

Entity: Player					
Attribute name	**Key**	**Type**	**Size**	**Required**	**Validation**
forename		text	20	Y	
surname		text	30	Y	
registration	PK	number		Y	Range: >= 100000 and <= 999999
clubName	FK	text	20	Y	Existing clubName from Club table
mobileNo		text	12	Y	length = 12
dateOfBirth		date		Y	
position		text	10	Y	Restricted choice: Striker, Midfielder, Defender, Goalkeeper
shirtNumber		number		Y	Range: >= 1 and <= 25

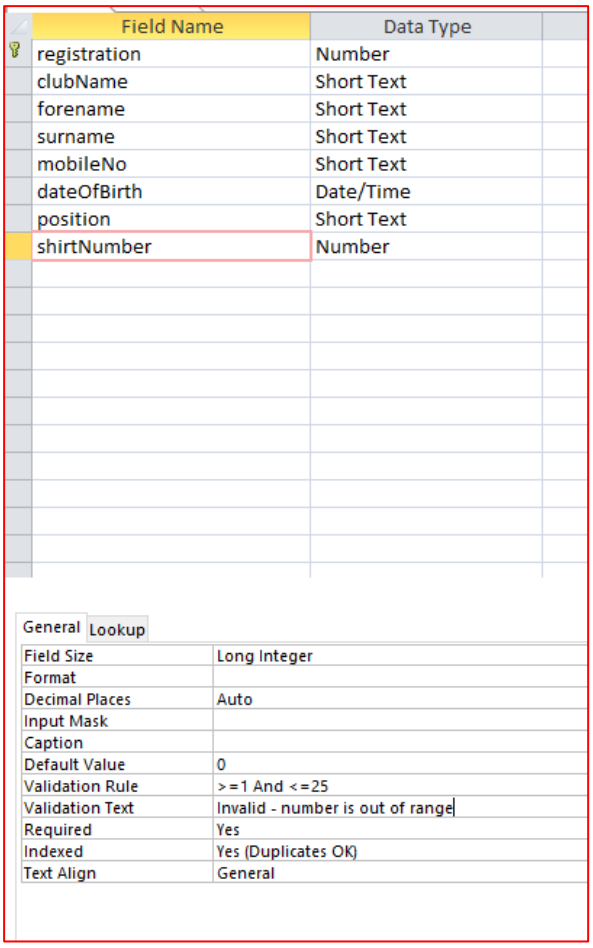
Using the data dictionary above, complete the relational database by:

- adding the required validation to the shirtNumber field.

(1 mark)

Print evidence to show that you have added the validation to the database, to match the data dictionary requirements.

Evidence – Range Check



Field Name	Data Type
registration	Number
clubName	Short Text
forename	Short Text
surname	Short Text
mobileNo	Short Text
dateOfBirth	Date/Time
position	Short Text
shirtNumber	Number

General | Lookup

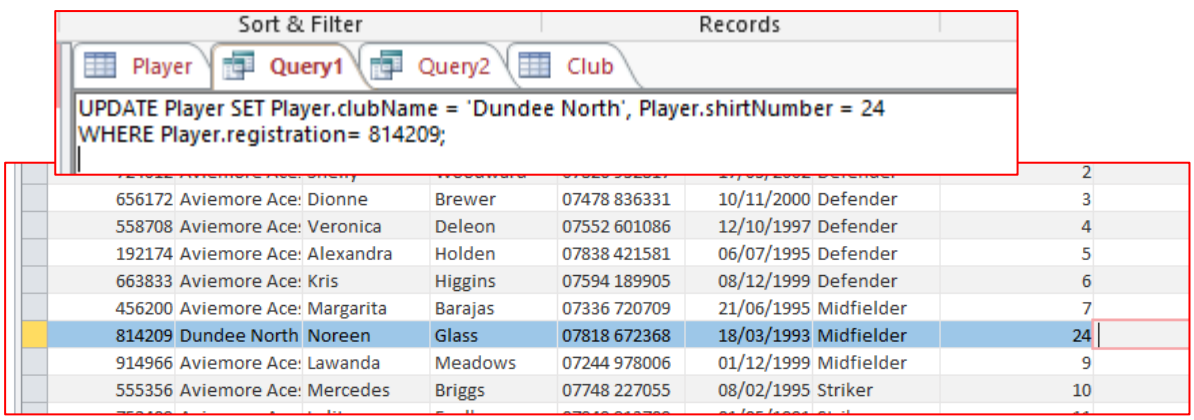
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	>=1 And <=25
Validation Text	Invalid - number is out of range
Required	Yes
Indexed	Yes (Duplicates OK)
Text Align	General

2d (i) Noreen Glass, registration number 814209, has moved teams from Aviemore Aces to Dundee North. She will play in the number 24 shirt at her new club.

Implement **one** SQL statement that will make the required changes to Noreen's information.

(3 marks)

Print evidence of the SQL statement and the Player table, clearly showing the change you have implemented.



Sort & Filter | Records

Player | Query1 | Query2 | Club

```
UPDATE Player SET Player.clubName = 'Dundee North', Player.shirtNumber = 24
WHERE Player.registration= 814209;
```

							2
656172	Aviemore Ace:	Dionne	Brewer	07478 836331	10/11/2000	Defender	3
558708	Aviemore Ace:	Veronica	Deleon	07552 601086	12/10/1997	Defender	4
192174	Aviemore Ace:	Alexandra	Holden	07838 421581	06/07/1995	Defender	5
663833	Aviemore Ace:	Kris	Higgins	07594 189905	08/12/1999	Defender	6
456200	Aviemore Ace:	Margarita	Barajas	07336 720709	21/06/1995	Midfielder	7
814209	Dundee North	Noreen	Glass	07818 672368	18/03/1993	Midfielder	24
914966	Aviemore Ace:	Lawanda	Meadows	07244 978006	01/12/1999	Midfielder	9
555356	Aviemore Ace:	Mercedes	Briggs	07748 227055	08/02/1995	Striker	10

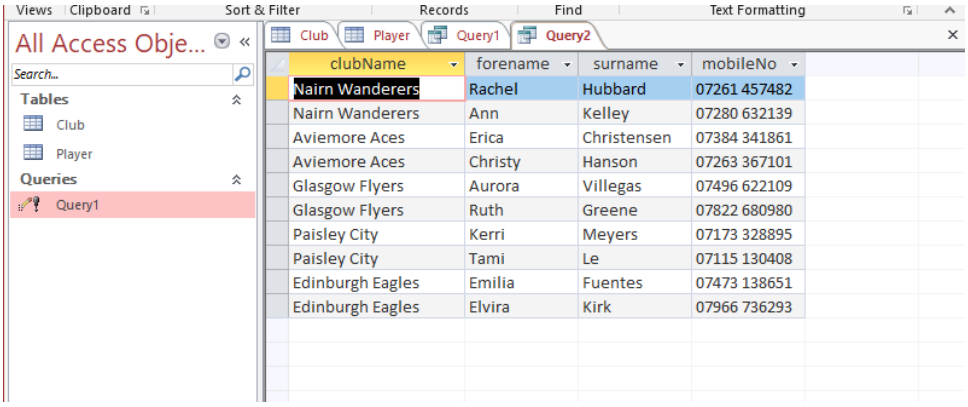
(ii) The Association would like to invite suitable players to a goalkeeper coaching day.

Implement an SQL statement that will only display a list of club names, players' full names and mobile phone numbers for all league 1 goalkeepers.

(4 marks)

Print evidence of the SQL statement and the output.

```
SELECT Club.clubName, Player.forename, Player.surname, Player.mobileNo
FROM Player, Club
WHERE (((Club.clubName)=[Player].[clubName]) AND ((Club.[league])=1)) AND Player.position = "Goalkeeper"
```



clubName	forename	surname	mobileNo
Nairn Wanderers	Rachel	Hubbard	07261 457482
Nairn Wanderers	Ann	Kelley	07280 632139
Aviemore Aces	Erica	Christensen	07384 341861
Aviemore Aces	Christy	Hanson	07263 367101
Glasgow Flyers	Aurora	Villegas	07496 622109
Glasgow Flyers	Ruth	Greene	07822 680980
Paisley City	Kerri	Meyers	07173 328895
Paisley City	Tami	Le	07115 130408
Edinburgh Eagles	Emilia	Fuentes	07473 138651
Edinburgh Eagles	Elvira	Kirk	07966 736293

2e The Association's rules state that players who play in the 'Striker' position are given a shirt number between 10 and 15.

Test the following SQL statement, which is intended to identify strikers who do not have the correct shirt number:

```
SELECT forename, surname
FROM Player
WHERE shirtNumber <10
OR shirtNumber > 15;
```

Explain why the output is not correct.

(1 mark)

1 mark for identifying:

The SQL statement finds all players with the required shirtnumber rather than just the strikers.

2f The following SQL statement produces an error when executed.

```
INSERT INTO Player
VALUES (220745,"Unknown","Erin","Smith","07993 874657",
"31/05/1999","Striker",23);
```

(i) Identify the value in the SQL statement that produces an error.

(1 mark)

Unknown

(ii) Explain why this error is expected if the database is fit for purpose.

(1 mark)

1 mark for either:
Referential integrity has been implemented

or

The database should prevent a player being added to the database if they do not have a valid club

Candidate name_____ Candidate number_____