OCR GCSE (J277)

# Module N: Databases and SQL

Workbooklet · 2 parts · 41 marks

N2, N3 and N5 are IGCSE (Cambridge) only and not on J277.

## Contents


| Part | Topic | Marks |
|---|---|---|
| N1 | Databases: tables, records and fields | 21 |
| N4 | SQL: SELECT, FROM and WHERE | 20 |
| | **Total** | **41** |

MODULE N DATABASES AND SQL · N1

# Databases: tables, records and fields

Original practice questions · 21 marks · ~25 minutes · OCR J277 spec 2.2.3

Name _____ Date _____

**Instructions.** Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **21 marks**. Code is written in OCR Exam Reference Language, where arrays are indexed from 0. All data on this sheet is made up.

## 1

**Total: 3 marks**

**(a)** Tick (✓) **one** box in each row to show whether each description is of a table, a record or a field. **[3]**

| Description | Table | Record | Field |
|---|---|---|---|
| All of the data stored about one item, shown as one row. | | | |
| One category of data, such as a name or a price, that is stored for every item and shown as one column. | | | |
| A collection of records about one type of item, where every record has the same fields. | | | |

**2** **Total: 8 marks**

A bike hire company stores details of its bikes in a database table called `TblBike`. `DailyRate` is the cost in pounds to hire the bike for one day.

| BikeID | Type | Colour | Size | DailyRate | Electric |
|---|---|---|---|---|---|
| B101 | Road | Red | M | 18.00 | False |
| B102 | Mountain | Black | L | 25.00 | True |
| B103 | Hybrid | Blue | S | 15.00 | False |
| B104 | Mountain | Green | M | 22.00 | False |
| B105 | Road | Black | L | 30.00 | True |
| B106 | Hybrid | White | M | 26.00 | True |
| B107 | Cargo | Orange | L | 35.00 | True |

**(a)** State the number of records in `TblBike`. **[1]**

**(b)** State the number of fields in `TblBike`. **[1]**

**(c)** Give the `BikeID` of **every** record that has a `Size` of `L` **and** an `Electric` value of `True`. **[2]**

**(d)** The company also wants to store the date that each bike was last serviced. Describe how `TblBike` would need to change. **[2]**

**(e)** The company buys one more bike. Complete the table below to give an example of a full record for this bike that could be added to `TblBike`. **[2]**

| BikeID | Type | Colour | Size | DailyRate | Electric |
|---|---|---|---|---|---|
| | | | | | |

## 3

**Total: 7 marks**

The company's booking program holds the same data in a 2D array called `bikes`, so that the array emulates the table `TblBike`. The first index is the row and the second index is the column. Every element is stored as a string, so `bikes[0,0]` is `"B101"` and `bikes[0,5]` is `"False"`.

| | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| **0** | "B101" | "Road" | "Red" | "M" | "18.00" | "False" |
| **1** | "B102" | "Mountain" | "Black" | "L" | "25.00" | "True" |
| **2** | "B103" | "Hybrid" | "Blue" | "S" | "15.00" | "False" |
| **3** | "B104" | "Mountain" | "Green" | "M" | "22.00" | "False" |
| **4** | "B105" | "Road" | "Black" | "L" | "30.00" | "True" |
| **5** | "B106" | "Hybrid" | "White" | "M" | "26.00" | "True" |
| **6** | "B107" | "Cargo" | "Orange" | "L" | "35.00" | "True" |

**(a)** State what **one row** of the array `bikes` represents and what **one column** represents. **[2]**

Row

Column

**(b)** State the value stored in `bikes[4,1]` **[1]**

**(c)** Bike `B103` is repainted yellow. Write **one** line of code to update its record in the array. **[1]**

**(d)** Write code that uses iteration to output the `BikeID` of every record in the array whose `Electric` value is `"True"`. **[3]**

You must use either:

- OCR Exam Reference Language, or
- a high-level programming language that you have studied.

**4** **Total: 3 marks**

A seed library keeps a database table with one record for each variety of seed it holds. It holds 450 varieties, and it stores 8 items of data about each variety.

**(a)** State the number of records in the table. **[1]**

**(b)** The library then adds 30 new varieties to the table. It also adds one new field to store the month that each variety should be planted. State the number of records and the number of fields the table now has. **[2]**

Records

Fields

**Total for this worksheet: 21 marks**

MODULE N DATABASES AND SQL · N4

# SQL: SELECT, FROM and WHERE

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 2.2.3

Name _____ Date _____

**Instructions.** Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**. Questions 2 to 5 use the table in **Fig. 1**. All data on this sheet is made up.

## 1

**Total: 4 marks**

SQL is used to search for data in a database.

**(a)** Tick (✓) **one** box in each row to show which SQL command does each job. **[3]**

| Job | SELECT | FROM | WHERE |
|---|---|---|---|
| Gives the condition that a record must meet to be included in the results | | | |
| Lists the fields to be shown in the results | | | |
| Names the table that the data is searched in | | | |

**(b)** State what the * means in the SQL statement `SELECT * FROM TblStaff` **[1]**

## 2

**Total: 4 marks**

A bike hire company stores details of its bikes in a database table called `TblBikes`. Part of the table is shown in **Fig. 1**.

**Fig. 1**

| BikeID | Type | FrameSize | Gears | Location |
|---|---|---|---|---|
| B01 | Road | 54 | 18 | Station |
| B02 | Mountain | 48 | 21 | Park |
| B03 | Electric | 52 | 7 | Harbour |
| B04 | Road | 58 | 22 | Harbour |
| B05 | Mountain | 52 | 24 | Station |
| B06 | Electric | 56 | 8 | Park |
| B07 | Road | 50 | 16 | Park |

This SQL statement is run on the table in Fig. 1.

```
SELECT BikeID, Location
FROM TblBikes
WHERE Gears > 20
```

**(a)** Give the output from this SQL statement. **[3]**

**(b)** The last line of the statement is changed to `WHERE Gears >= 22` **[1]**
Identify the `BikeID` of the **one** bike that would no longer be in the output.

## 3

**Total: 3 marks**

Complete the SQL statement to show the `BikeID`, `Type` and `FrameSize` of every bike kept at the Park. **[3]**

**SELECT** .....

**FROM** .....

**WHERE** .....

**4** **Total: 5 marks**

A customer needs a bike with a frame size smaller than 52.

**(a)** Write an SQL statement to show the `Type` and `Gears` of every bike in `TblBikes` with a `FrameSize` less than 52. **[3]**

**(b)** Give the output that a correct statement for part (a) would produce from the data in Fig. 1. **[2]**

**5** **Total: 4 marks**

A member of staff wants to show the `BikeID` and `Location` of every electric bike. They write this SQL statement, which contains **one** error.

```
01 SELECT BikeID, Location
02 WHERE Type = "Electric"
03 FROM TblBikes
```

**(a)** Identify the error in the SQL statement. **[1]**

**(b)** Refine the SQL statement so that it is correct. **[1]**

**(c)** Give the output from the corrected statement using the data in Fig. 1. **[2]**

**Total for this worksheet: 20 marks**