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Faculty:	**Computing Science**					
Course:	**BSCH**			**Stage/year:**	**2**	
Subject:	**Relational Databases**					
Study Mode:	Full time	☑		Part-time		
Lecturer Name:	**Gemma Deery**					
Assignment Title:	**Worksheet 3**					
Date due:	**15/12/2024**					
Date submitted:	**14/12/2024**					

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Signed: Ian Mwai Gachoki **Date: 14/12/2024**

Please note: **Students** MUST **retain a hard / soft copy of** ALL assignments as well as a receipt issued and signed by a member of Faculty as proof of submission.

Run the DDL and DML statements provided in Graded_Practical_3_DDL_DML.sql file (on Moodle).

You will need to set up the JDBC API on your computer and use the skeleton QueryMySQL.java class provided on Moodle to complete the practical.

Create and execute the following queries:

How many relationships exist between these tables? Specify their type & cardinality

The schema reveals two relationships between the tables.

The supplier relationship is one-to-many (1:N), as one supplier can offer numerous parts due to the one-to-many (1:N) supplier relationship.

The part relationship is one-to-many (1:N), Each part can have more than one supplier because of the one-to-many (1:N) part relationship.

List all the records in supplier, parts, & supplies tables. One table at a time.

```
MariaDB [Graded_Practical]> SELECT * FROM supplier;
+-------------+-------+--------+--------+
| supplierNum | name  | status | city   |
+-------------+-------+--------+--------+
| S1          | Smith |     20 | London |
| S2          | Jones |     10 | Paris  |
| S3          | Blake |     20 | Paris  |
| S4          | Clark |     20 | London |
| S5          | Adams |     30 | Athens |
+-------------+-------+--------+--------+
5 rows in set (0.000 sec)

MariaDB [Graded_Practical]> SELECT * FROM parts;
+---------+-------+--------+--------+--------+
| partNum | name  | colour | weight | city   |
+---------+-------+--------+--------+--------+
| P1      | Nut   | Red    |   12.0 | London |
| P2      | Bolt  | Green  |   17.0 | Paris  |
| P3      | Screw | Blue   |   17.0 | Oslo   |
| P4      | Screw | Red    |   14.0 | London |
| P5      | Cam   | Blue   |   12.0 | Paris  |
| P6      | Cog   | Red    |   19.0 | London |
+---------+-------+--------+--------+--------+
6 rows in set (0.000 sec)
```

```
MariaDB [Graded_Practical]> SELECT * FROM supplies;
+-------------+---------+----------+
| supplierNum | partNum | quantity |
+-------------+---------+----------+
| S1          | P1      |      300 |
| S1          | P2      |      200 |
| S1          | P3      |      400 |
| S1          | P4      |      200 |
| S1          | P5      |      100 |
| S1          | P6      |      100 |
| S2          | P1      |      300 |
| S2          | P2      |      400 |
| S3          | P2      |      200 |
| S4          | P2      |      200 |
| S4          | P4      |      300 |
| S4          | P5      |      400 |
+-------------+---------+----------+
12 rows in set (0.001 sec)
```

1. Update the supplier table to reflect a change in supplier's status to the value 45 for all suppliers from London.

```
Connected to MySQL server...
supplierNum         name                status              city
S1                  Smith               45                  London
S2                  Jones               10                  Paris
S3                  Blake               20                  Paris
S4                  Clark               45                  London
S5                  Adams               30                  Athens
```

2. Show the number of suppliers in each city ordered from highest to lowest.

```
Connected to MySQL server...
city                supplier_count
London              2
Paris               2
Athens              1
```

3. List only the name and weight of all the parts except the Red parts whose weight is greater than 15.0.

```
Connected to MySQL server...
name                    weight
Nut                     12.0
Bolt                    17.0
Screw                   17.0
Screw                   14.0
Cam                     12.0
```

4. Show all entries from the supplies table with their corresponding part names and supplier names. Rename the columns to appropriate ones. (You will need a different JDBC method to get access aliases, search the internet).

```
Connected to MySQL server...
partNum             name                supplierNum         name                quantity
P1                  Nut                 S1                  Smith               300
P2                  Bolt                S1                  Smith               200
P3                  Screw               S1                  Smith               400
P4                  Screw               S1                  Smith               200
P5                  Cam                 S1                  Smith               100
P6                  Cog                 S1                  Smith               100
P1                  Nut                 S2                  Jones               300
P2                  Bolt                S2                  Jones               400
P2                  Bolt                S3                  Blake               200
P2                  Bolt                S4                  Clark               200
P4                  Screw               S4                  Clark               300
P5                  Cam                 S4                  Clark               400
```

5. Show the names of all suppliers that appear more than once in the supplies table.

```
Connected to MySQL server...
name
Clark
Jones
Smith
```

6. Supplier with supplierNum = S3 has closed down his business. Delete all the records related to this supplier from all relevant tables.

```
Connected to MySQL server...
Query executed successfully. Rows affected: 1
```

```
Connected to MySQL server...
Query executed successfully. Rows affected: 1
```

```
Connected to MySQL server...
supplierNum         name                status              city
S1                  Smith               45                  London
S2                  Jones               10                  Paris
S4                  Clark               45                  London
S5                  Adams               30                  Athens
```

```
Connected to MySQL server...
supplierNum          partNum              quantity
S1                   P1                   300
S1                   P2                   200
S1                   P3                   400
S1                   P4                   200
S1                   P5                   100
S1                   P6                   100
S2                   P1                   300
S2                   P2                   400
S4                   P2                   200
S4                   P4                   300
S4                   P5                   400
```

7. List all the parts except those with a quantity between 200 and 300.

```
Connected to MySQL server...
partNum              name                 colour               weight               city
P3                   Screw                Blue                 17.0                 Oslo
P5                   Cam                  Blue                 12.0                 Paris
P6                   Cog                  Red                  19.0                 London
```

8. List part names, their colour, and supplier(s) name who supply them.

```
Connected to MySQL server...
name                 colour               supplier_names
Nut                  Red                  Smith,Jones
Bolt                 Green                Clark,Smith,Jones
Screw                Blue                 Smith
Screw                Red                  Smith,Clark
Cam                  Blue                 Smith,Clark
Cog                  Red                  Smith
```

What do I submit?

- Save this document with your name and student number.
- For queries 2-10, take screen shot (java console this time) after executing each SQL statement.
- Include a suitable SELECT statement to highlight the changes made using the DELETE and UPDATE queries.
- Place all the screen shots in the document (no explanation needed for this lab, include only the screen shots).
- Submit the document on Moodle.