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**MYSQL END OF MODULE CHALLENGE ANSWERSHEET**

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| **Assessor** | Godwin |
| **Moderator** | Alex |
| **Due Date** | 16 November 2021 |
| **PASS MARK** | 50% |
| **Student Name** | Lindokuhle Nkamela |

**INSTRUCTIONS**

1. Please adhere to the due dates.

2. Coping/Plagiarism is not accepted.

3. Make sure you write the code in the space provided for each question

4. Upload the Answersheet together with the database dump (backup file)

**1. CREATING DATABASE AND MANIPULATING DATA**

A local shop owner has asked you to design a database which they will use to store information about their suppliers and the products they supply. They sell fresh produce to the public. They provided you with a list of their suppliers and the products they supply to help you design the database. The database consists of TWO tables (*Suppliers* and *Products*).

1.1 Database Creation. Paste you code in the space provided. **[3]**

**CREATE database FruitMarket;**

1.2 Table Suppliers. Paste you code in the space provided. **[8]**

**CREATE table Suppliers(SupplierID VARCHAR(10) Primary Key,CompanyName VARCHAR(30) NOT NULL, ContactPerson VARCHAR(30) NOT NULL, ContactNo VARCHAR(15) NOT NULL DEFAULT 0, ProductCategory VARCHAR(55) NOT NULL);**

3 marks for correct SQL statements

5Marks for correct field-names and keys as stated above

1.3 Products table using details provided below.

**Solution**

Write your code on the space provided in the space provided below. [4]

**CREATE TABLE IF NOT EXISTS Products(ProductId VARCHAR(10) Primary key,**

**ProductName VARCHAR(30) NOT NULL, Price DECIMAL(30,2) NOT NULL DEFAULT 0.00, Weight VARCHAR(15) NOT NULL DEFAULT 0, Stock int(55) NOT NULL,SupplierID VARCHAR(10) NOT NULL, Foreign key (SupplierID) references Suppliers(SupplierID));**

1 Mark for correct SQL and table

2 Marks for correct field-names and sizes, deduct 1 mark for wrong fields sizes and 1 mark for data types

1 mark for correct linking of the foreign key

1.4 Relationship [1]

**One to many**

1.5 Foreign key [1]

**SupplierId**

1.6 Adding records to the database. [1]

Write your answer in the space provided in the space provided.

**INSERT INTO Suppliers(SupplierID, CompanyName, ContactPerson, ContactNo,ProductCategory) VALUES('SUPP0001', 'Fruit City', 'Themba', '0115062089', 'Fruit'), ('SUPP0002', 'Vegan Veggie Xpress', 'Chinyere', '0137228936', 'Vegetables'), ('SUPP0003', 'The Nut House', 'Sam', '0216965133', 'Nuts'), ('SUPP0004', 'The Lazy Cow', 'Angelo', '0216964157', 'Dairy');**

1 Marks for each correct record

Deduct 1 Mark if a single insert is not used

1.7 Add records into the Products table. Write your answer in the space provided. [4]

**INSERT INTO Products(ProductId, ProductName, Price, Weight, Stock, SupplierID) VALUES('1001', 'Lady Finger Bananas', 17.95, '750 g', 45, 'SUPP0001'),('1002', 'Pink Lady Apples', 18.95, '1,5 kg', 15, 'SUPP0001'), ('1003', 'Red Anjou Pears', 22.99, '1 kg', 24, 'SUPP0001'), ('1004', 'Cavendish Bananas', 12.65, '900 g', 18, 'SUPP0001'), ('2001', 'Tenderstem Broccoli', 35.90, '400 g', 8, 'SUPP0002'),('2002', 'Portabellini Mushrooms', 18.99, '250 g', 16, 'SUPP0002'),('3001', 'Raw Almonds', 99.00, '1 kg', 6, 'SUPP0003'), ('3002', 'Macaroon Butter', 32.95, '410 g', 9, 'SUPP0003'), ('3003', 'Organic Coconut Oil', 89.95, '500 ml', 15, 'SUPP0003'), ('4001', 'Ayrshire Milk', 33.95, '3 l', 23, 'SUPP0004'),('4002', 'Simonzola Blue Cheese', 27.65, '270 g', 4, 'SUPP0004');**

4 Marks for adding all the records correctly

Deduct 1 mark if a record is missing. Maximum of 2 marks

1.8 SQL query to extract the following ProductId, ProductName, Price, Weight, Stock, ProductCategory [6]

**select Products.ProductId, Products.ProductName, Products.Price, Products.Weight, Products.Stock, Suppliers.ProductCategory from Products left join Suppliers on Products.SupplierID = Suppliers.SupplierId where stock<20 order by Price desc;**

2 marks for correct SQL statement

Maximum of 2 marks for correct fields.

1 mark for the order

1 mark for permanently saving into the database

1.9 View Q1.9 [6]

Your Output in the space below:

**CREATE VIEW Q9 AS SELECT\*, ceiling ((Price\*Stock)+ 0.15) AS TotalPrices FROM Products;**

1 Mark for the view

1 Mark for the correct fields

3 marks for calculation of total price and ceiling

1 mark for correct records

Deduct a mark for incorrect tax calculation, total calculation

1.10 User called ‘yourname\_initialofyoursurname’ with INSERT privileges on to the current database and and Supplier Table. Write your answer in the space provided [3]

**create user 'lindokuhle\_n'@'localhost' IDENTIFIED BY '@LINDOKUHLEnkamela1234' ;**

**grant insert on FruitMarket.Suppliers To 'lindokuhle\_n'@'localhost' ;**

**flush privileges;**

1 mark for the correct user created

1 mark for the privileges

1 mark for correct database and table

1.11 Number of tables accessible. [1]

**One Table**

1.12 Add a record with the following details to the Suppliers table

('SUPP006', 'Fruit&Veg', 'Abdu', '0216965111', 'Nuts');

**INSERT INTO Suppliers(SupplierID, CompanyName, ContactPerson, ContactNo,ProductCategory) VALUES('SUPP0006', 'Fruit&Veg', 'Abdu', '0216965111', 'Nuts');**

1 mark for correct SQL and record details

No mark if the output is wrong

1.13 Display all records in Suppliers table. [2]

**No records, the user only have one privilege which is insert, Hence it cannot view**

**the records in a table.**

1 Mark for correct answer

1 Mark for reason

1.14 View called Q1.14 which will display ONLY the new user you created and the root. [2]

**CREATE VIEW Q114 AS SELECT USER FROM mysql.user WHERE user ='lindokuhle\_n' OR user ='root' ;**

1 Mark for correct view

1 Mark for correct condition

**1.15** SQL statement which produces the given records and permanently saved. Paste the code in the space provided below [3]

**CREATE VIEW Q15 AS SELECT ProductId, ProductName, Price, Weight, Stock, SupplierID FROM Products ORDER BY ProductId DESC;**

1 view created

1 mark for correct Select statements

2 mark for correct condition

**1.16** SQL statement which produces the following output. Paste the code in the space provided. [3]

**CREATE VIEW Q16 as select CompanyName, ContactNo, ProductName, Price FROM Products right join Suppliers on Products.SupplierID=Suppliers.SupplierId;**

1 Mark for creating view

1 Mark for correct fields [no mark for incorrect fields]

1 mark for the correct statement and correct records.

1.17 SQL code with output correctly formatted. [6]

**CREATE VIEW Q17 AS select ROUND(sum(Price), 2) AS Total\_unit\_Price, ROUND(AVG(Price), 2) AS Average\_price, COUNT(ProductId) AS Number\_of\_products from Products;**

1 Mark for permanent SQL statement

3 marks for the correct functions.

1 marks for the headings

1 mark for formatting output

1.18 SQL statement to display the number of distinct supplierid from the products table. Add the SQL statement in the space provided. [3]

**CREATE VIEW Q18 AS SELECT DISTINCT SupplierId FROM Products;**

1 Mark for creating a permanent sql statement

2 Mark for correct SQL statement producing correct output

[lecturer to award a mark if the statement is partially correct]

1.19 SQL statement to produce the following output as shown below. Make sure you save the output permanently as Q1.19.Add the SQL statement in the space provided. [4]

**CREATE VIEW Q19 AS SELECT COUNT(ProductID),SupplierID FROM Products GROUP BY SupplierID;**

1 Mark for permanently saving the solution on to the databases

3 Marks for correct SQL producing correct output

1.20SQL Statement to produce a given output. Add the code in the space provided. [5]

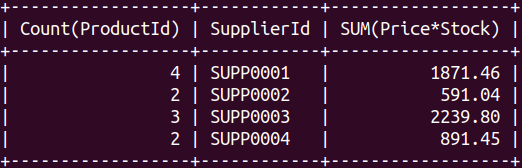
**CREATE VIEW Q20 AS SELECT COUNT(ProductID),SupplierID,SUM(Price\*Stock) FROM Products GROUP BY SupplierID;**

1 Mark for saving output permanently

1 Mark for correct headings

2 Marks for correct functions

1 Mark for correct output

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Make sure the result is visible in your database. Add the SQL statement in the space provided in the LMS.

1.21 SQL Statement to produce a given output. Add the code in the space provided. [2]

**UPDATE Products SET Price='15.95', weight='1kg' WHERE ProductId=1004;**

I mark for correct SQL command

1 Mark for correct output

1.22Create a database dump called FruitMarketYourname.sql and upload it into the LMS.[1]

1 Mark for database dump backup

**QUESTION 2 NORMALISATION (30 Marks)**

Consider the following unnormalised table.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **User\_ID** | **User\_Name** | **MSE\_ID** | **Rec\_Date** | **Subject** | **Text** | **Srvr\_ID** | **Server\_Name** |
| 2301 | Smith | 54101 | 05/07 | Meeting Today | There is... | 3786 | IMAP05 |
| 2301 | Smith | 54098 | 07/12 | Promotions | I like to... | 3786 | IMAP05 |
| 2301 | Smith | 54445 | 10/06 | Next Assignment | Your next... | 3786 | IMAP05 |
| 5607 | Jones | 54101 | 05/07 | Meeting Today | There is... | 6001 | IMAP08 |
| 5607 | Jones | 54512 | 06/07 | Lunch? | Can you... | 6001 | IMAP08 |
| 5607 | Jones | 54660 | 12/01 | Jogging Today? | Can you... | 6001 | IMAP08 |
| 7773 | Walsh | 54101 | 05/07 | Meeting Today | There is... | 9988 | EMEA01 |
| 7773 | Walsh | 54554 | 03/17 | Stock Quote | The latest... | 9988 | EMEA01 |
| 0022 | Patel | 54101 | 05/07 | Meeting Today | There is... | 2201 | EMEA09 |
| 0022 | Patel | 54512 | 06/07 | Lunch? | Can we... | 2201 | EMEA09 |

Normalise the above table to Third Normal Form (3NF). Show all the tables

First Normal Form 2 tables (9 marks) 1 mark for each correct field.

Second Normal Form 3 Tables (10 Marks) 1mark for each correct field.

Third Normal Form 4 Tables (11 Marks) 1mark for each correct field.

**First Normalization form**

**Table1**

|  |  |  |  |
| --- | --- | --- | --- |
| **User\_ID** | **User\_Name** | **Srvr\_ID** | **Server\_Name** |
| 2310 | Smith | 3786 | IMAP05 |
| 5607 | Jones | 6001 | IMAP08 |
| 7773 | Walsh | 99888 | EMEA01 |
| 0022 | Patel | 2201 | EMEA09 |

**Table 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **User\_ID** | **MSEID** | **Rec Date** | **Subject** | **Text** |
| 2310 | 54101 | 05/07 | Meeting Today | There is.. |
| 2310 | 54098 | 07/12 | Promotions | I like to... |
| 2310 | 54445 | 10/06 | Next Assignment | Your next... |
| 5607 | 54101 | 05/07 | Meeting Today | There is.. |
| 5607 | 54512 | 06/07 | Lunch? | Can you... |
| 5607 | 54660 | 12/01 | Jogging Today? | Can you... |
| 7773 | 54101 | 05/07 | Meeting Today? | There is.. |
| 7773 | 54554 | 03/17 | Stock Quote | The latest |
| 0022 | 54101 | 05/07 | Meeting Today | There is... |
| 0022 | 54512 | 06/07 | Lunch | Can we... |

**Second Normalization form(2NF)**

**table1**

|  |  |  |  |
| --- | --- | --- | --- |
| **User\_ID** | **User\_Name** | **Srvr\_ID** | **Server\_Name** |
| 2310 | Smith | 3786 | IMAP05 |
| 5607 | Jones | 6001 | IMAP08 |
| 7773 | Walsh | 99888 | EMEA01 |
| 0022 | Patel | 2201 | EMEA09 |

**table2**

|  |  |  |
| --- | --- | --- |
| **User\_ID** | **MSEID** | **Rec Date** |
| 2310 | 54101 | 05/07 |
| 2310 | 54098 | 07/12 |
| 2310 | 54445 | 10/06 |
| 5607 | 54101 | 05/07 |
| 5607 | 54512 | 06/07 |
| 5607 | 54660 | 12/01 |
| 7773 | 54101 | 05/07 |
| 7773 | 54554 | 03/17 |
| 0022 | 54101 | 05/07 |
| 0022 | 54512 | 06/07 |

**table3**

|  |  |  |
| --- | --- | --- |
| **Rec Date** | **Subject** | **Text** |
| 05/07 | Meeting Today | There is.. |
| 07/12 | Promotions | I like to... |
| 10/06 | Next Assignment | Your next... |
| 05/07 | Meeting Today | There is.. |
| 06/07 | Lunch? | Can you... |
| 12/01 | Jogging Today? | Can you... |
| 05/07 | Meeting Today? | There is.. |
| 03/17 | Stock Quote | The latest |
| 05/07 | Meeting Today | There is... |
| 06/07 | Lunch? | Can we... |

**Third normalization form(3NF)**

**table 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **User\_ID** | **User\_Name** | **Srvr\_ID** | **Server\_Name** |
| 2310 | Smith | 3786 | IMAP05 |
| 5607 | Jones | 6001 | IMAP08 |
| 7773 | Walsh | 99888 | EMEA01 |
| 0022 | Patel | 2201 | EMEA09 |

**table 2**

|  |  |  |
| --- | --- | --- |
| User\_ID | MSEID | Rec Date |
| 2310 | 54101 | 05/07 |
| 2310 | 54098 | 07/12 |
| 2310 | 54445 | 10/06 |
| 5607 | 54101 | 05/07 |
| 5607 | 54512 | 06/07 |
| 5607 | 54660 | 12/01 |
| 7773 | 54101 | 05/07 |
| 7773 | 54554 | 03/17 |
| 0022 | 54101 | 05/07 |
| 0022 | 54512 | 06/07 |

**table3**

|  |  |
| --- | --- |
| **Rec Date** | **Subject** |
| 05/07 | Meeting Today |
| 07/12 | Promotions |
| 10/06 | Next Assignment |
| 05/07 | Meeting Today |
| 06/07 | Lunch? |
| 12/01 | Jogging Today? |
| 05/07 | Meeting Today? |
| 03/17 | Stock Quote |
| 05/07 | Meeting Today |
| 06/07 | Lunch |

**table 4**

|  |  |
| --- | --- |
| **Subject** | **Text** |
| Meeting Today | There is.. |
| Promotions | I like to... |
| Next Assignment | Your next... |
| Meeting Today | There is.. |
| Lunch? | Can you... |
| Jogging Today? | Can you... |
| Meeting Today? | There is.. |
| Stock Quote | The latest |
| Meeting Today | There is... |
| Lunch | Can we... |