MYSQL END OF MODULE CHALLENGE

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Moderator	Joel / Ryan / Oslin
Due Date	3 Feb 2023
Total Mark	/ 117
Pass Mark	50%

INSTRUCTIONS

1. Please adhere to the due dates. There are two documents provided in the LMS.
   i) Challenge with the questions
   ii) Answer sheet to be used for your answers
2. Coping/Plagiarism is not accepted.
3. Make sure you write the code in the space provided on the document called Answer_sheet.doc for each question

4. At the end of the challenge, upload 2 files i.e database dump(mysql backup) and the answer sheet document

5. Submission will be invalid if the **TWO** files are not uploaded

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 Write an SQL statement to create a database and give it a name FruitMarket. [3]

1.2 Create Suppliers table using details provided below. [8]

Write an SQL statement to create the table shown below.

Field	Type	Null	Key	Default	Extra
SupplierID	varchar(10)	NO	PRI	NULL	
Companyname	varchar(30)	NO		NULL	
ContactPerson	varchar(30)	NO		NULL	
ContactNo	varchar(13)	NO		000-000-0000	
ProductCategory	varchar(55)	NO		NULL	

1.3 Create Products table using details provided below. [4]

Write an SQL statement to create the table shown below.

NB- For text, you are advised to use varchar.

Field	Type	Null	Key	Default	Extra
ProductID	int	NO	PRI	NULL	
ProductName	varchar(30)	YES		NULL	
Price	decimal(10,2)	YES		NULL	
Weight	varchar(10)	YES		NULL	
Stock	int	YES		NULL	
SupplierID	varchar(10)	YES	MUL	NULL	

1.4 What type of relationship is this? [1]

1.5 Name the foreign key. [1]

1.6 Write a single SQL statement to add the following records at once. [1]

SupplierId	CompanyName	ContactPerson	ContactNo	ProductCategory
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

1.7 Add the following records into the Products table. [4]

SUPP0001:Fruit City

ProductID	ProductName	Price	Weight	Stock
1001	Lady Finger Bananas	R17,95	750 g	45
1002	Pink Lady Apples	R18,95	1,5 kg	15
1003	Red Anjou Pears	R22,99	1 kg	24
1004	Cavendish Bananas	R12,65	900 g	18

SUPP0002:Vegan Veggie Xpress

PRODUCTS				
ProductID	**ProductName**	**Price**	**Weight**	**Stock**
2001	Tenderstem Broccoli	R35,90	400 g	8
2002	Portabellini Mushrooms	R18,99	250 g	16

SUPP0003: The Nut House

PRODUCTS				
ProductID	**ProductName**	**Price**	**Weight**	**Stock**
3001	Raw Almonds	R99,00	1 kg	6
3002	Macaroon Butter	R32,95	410 g	9
3003	Organic Coconut Oil	R89,95	500 m✦	15

SUPP0004: The Lazy Cow

PRODUCTS				
ProductID	**ProductName**	**Price**	**Weight**	**Stock**
4001	Ayrshire Milk	R33,95	3 ✦	23
4002	Simonzola Blue Cheese	R27,65	270 g	4

1.8 Write an SQL query to extract the following ProductId, ProductName, Price, Weight, Stock, ProductCategory. The query must retrieve records where stock on hand is below 20 order by Price in descending order as shown below: [6]

ProductId	ProductName	Price	Weight	Stock	ProductCategory
3001	Raw Almonds	99.00	1kg	6	Nuts
3003	Organic Coconut Oil	89.95	500ml	15	Nuts
2001	Tenderstem Broccoli	35.90	400g	8	Vegetables
3002	Macaroni Butter	32.95	410g	9	Nuts
4002	Simonzola Blue Cheese	27.65	270g	4	Dairy
2002	Portabellini Mushrooms	18.99	250g	16	Vegetables
1002	Pink Lady Aples	18.95	1.5kg	15	Fruit
1004	Cavendish Bananas	12.65	900g	18	Fruit

1.9 Create a view called Q9 for the above SQL query to include TotalPrice

TotalPrice=(Price * Stock) plus 15%

Show the final output rounded off to the next integer value

Your Output should look as below: [6]

ProductId	ProductName	Price	Weight	Stock	ProductCategory	TotalPrice
3001	Raw Almonds	99.00	1kg	6	Nuts	683.1000
3003	Organic Coconut Oil	89.95	500ml	15	Nuts	1551.6375
2001	Tenderstem Broccoli	35.90	400g	8	Vegetables	330.2800
3002	Macaroni Butter	32.95	410g	9	Nuts	341.0325
4002	Simonzola Blue Cheese	27.65	270g	4	Dairy	127.1900
2002	Portabellini Mushrooms	18.99	250g	16	Vegetables	349.4160
1002	Pink Lady Aples	18.95	1.5kg	15	Fruit	326.8875
1004	Cavendish Bananas	12.65	900g	18	Fruit	261.8550

1.10 Write an SQL statement to create a user called ‘yourname_initialofyoursurname’ and grant INSERT privileges to FruitMarket database Supplier Table.The username should have yourfirstname underscore and intitial for your surname eg ‘godwin_d’. [3]

1.11 Log in with the new username created above and run a show tables command. How many tables do you see. [1]

1.12 Add the following record into the database using the new account created.

('SUPP006', 'Fruit&Veg', 'Abdu', '0216965111', 'Nuts'); [1]

1.13 Display all records in the Suppliers table using the new user account created. How many records are displayed. Explain your answer. [2]

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

Write the SQL syntax in the space provided. Make sure your output reflects in your database

1.15 Write an SQL statement which produces the following records from products table and save the records permanently. **[3]**

ProductId	ProductName	Price	Weight	Stock	SupplierId
4002	Simonzola Blue Cheese	27.65	270g	4	SUPP0004
3001	Raw Almonds	99.00	1kg	6	SUPP0003
2001	Tenderstem Broccoli	35.90	400g	8	SUPP0002
3002	Macaroni Butter	32.95	410g	9	SUPP0003
4001	Ayrshire Milk	33.95	3l	23	SUPP0004
1003	Red Anjou Pear	22.99	1kg	24	SUPP0001
1001	Lady Finger Bananas	17.95	750g	45	SUPP0001

Make sure the SQL Result is visible in the database permanently

1.16 Create an SQL statement which produces the following output. Save the statement permanently as Q1.16 in your database **[3]**

CompanyName	ContactNo	ProductName	Price
Fruit City	0115062089	Lady Finger Bananas	17.95
Fruit City	0115062089	Pink Lady Aples	18.95
Fruit City	0115062089	Red Anjou Pear	22.99
Fruit City	0115062089	Cavendish Bananas	12.65
Vegan Veggie Xpress	0137228936	Tenderstem Broccoli	35.90
Vegan Veggie Xpress	0137228936	Portabellini Mushrooms	18.99
The Nut House	0216965133	Raw Almonds	99.00
The Nut House	0216965133	Macaroni Butter	32.95
The Nut House	0216965133	Organic Coconut Oil	89.95
The Lazy Cow	0216964157	Ayrshire Milk	33.95
The Lazy Cow	0216964157	Simonzola Blue Cheese	27.65
Fruit&Veg	0216965111	NULL	NULL

The solution should be seen in the database. Also write the syntax of the SQL statement in the space provided

1.17 Write a SQL statement to produce the above permanently saved in your database as Q1.17. Format your output correctly to 2 decimal places. [6]

Total_unit_price	Average_price	NumbeR_of_products
410.93	37.36	11

Make sure the result is visible in your database.

1.18 Write an SQL statement to display the number of distinct supplierid from the products table.
Make sure the result is visible in your database save it as Q1.18. [3]

1.19 Write an SQL statement to produce the following output as shown below. Make sure you save the output permanently as Q1.19. [4]

Count(ProductId)	SupplierId
4	SUPP0001
2	SUPP0002
3	SUPP0003
2	SUPP0004

Make sure the result is visible in your database.

1.20 Define a query to produce the following output shown below. Make sure the query is saved permanently in the database as Q1.20. [5]

Count(ProductId)	SupplierId	SUM(Price*Stock)
4	SUPP0001	1871.46
2	SUPP0002	591.04
3	SUPP0003	2239.80
2	SUPP0004	891.45

Make sure the result is visible in your database.

1.21 Write an SQL statement to produce the following changes to a record which existed already giving the final output as shown below. Write your code in the space provided. [2]

1004	Cavendish Bananas	15.95	1kg	18	SUPP0001

1.22 Create a database dump called FruitMarketYourname.sql [1]
Example FruitMarketArden.sql

1.23 What is the purpose of applying ON Delete cascade in a foreign key constraint?

[2]

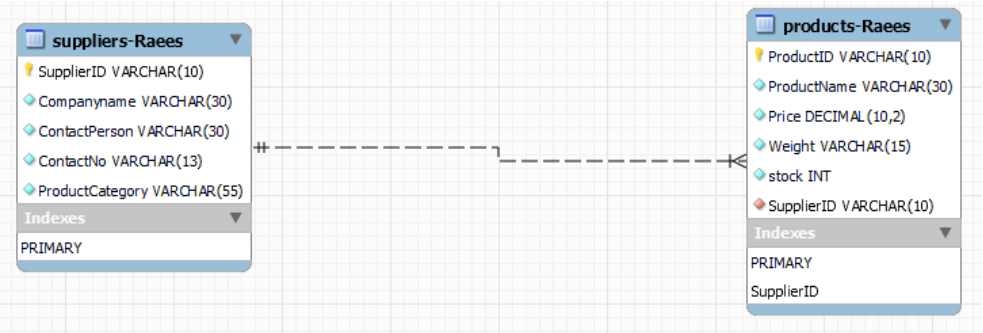
1.24 What is the difference between composite key and candidate key?

[2]

1.25 What is the difference between SQL and DBMS?

[2]

1.26 Create an EER diagram from the two tables (Suppliers and Products). Edit the table names and add your firstname as shown in the example below. Add the screenshot as your solution. [3]



1.27 Write a MySQL statement to extract the following records in that order.

ProductID	ProductName	Price	Weight	stock	SupplierID
4001	Ayrshire Milk	33.95	3l	23	SUPP0004
1004	Cavendish Bananas	12.65	900g	18	SUPP0001
2002	Portabellini Mushrooms	18.99	250g	16	SUPP0002
1002	Pink Lady Aples	18.95	1.5kg	15	SUPP0001

NB The records are sorted using the stock. [3]

1.28 Write an SQL statement to for products table to produce the following records:

supplierid	prices	group_concat(distinct productName)
SUPP0003	221.90	Macaroni Butter,Organic Coconut Oil,Raw Almonds
SUPP0002	54.89	Portabellini Mushrooms,Tenderstem Broccoli
SUPP0004	61.60	Ayrshire Milk,Simonzola Blue Cheese
SUPP0001	72.54	Cavendish Bananas,Lady Finger Bananas,Pink Lady Aples,Red Anjou Pear

[5]

Total Question 1=[87]

PLEASE TURN TO THE NEXT PAGE FOR THE NORMALIZATION QUESTION

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

Normalize 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. [9]

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

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

Show all the tables on the Answer Sheet provided.
NB: Make use of Google Sheets to provide your answers on the first, second, and third normal forms.

Submission will be based on the following file (LMS):

- answer sheet
- google sheet (Normalization)
- FrutMarket_your_name_and_initial.sql

Total Question 2=[30]

END