CSE 3241 Project Checkpoint 03
SQL and More SQL

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Submitted to the Carmen Dropbox

1. Provide a current version of your ER Diagram and Relational Model as per Project Checkpoint 02. **If you were instructed to change the model for Project Checkpoint 02, make sure you use the revised versions of your models.** You must highlight and indicate the corrections/modifications.

   We completely changed our Normalized Relational Schema. Due to some incorrect primary keys, our original Normalized Relational Schema had unnecessary tables. Check "Corrected Normalized Relational Schema" for our updated model. Link

2. Given your relational schema, create two different text files. Name them Create.txt and Populate.txt. Create.txt should contain the SQL code to create your database schema. The Populate.txt should contain the SQL code to populate your database with at least 20 sample records for each different table that does not contain data provided in the original project documents. See slides about data preparation on this module on Carmen.
   The data is incorporated into the .db file. With our foreign key set up, is it very difficult to insert data all at once into an empty database without the correct ordering.

3. Given the database schema you generated in question 2, create the third txt file and name it Queries.txt. It should contain the SQL code for following queries. If your schema cannot provide answers to these queries, revise your ER Model and your relational schema to contain the appropriate information for these queries:

   a. Find the description of all equipment by MANUFACTURER released before YEAR

	Name	Serial_number
1	Drill	Y8Msbpd3ldTkoFW2n7sd
2	Lawn Machine	eGLTS8f6WuGgzDv0pi9a
3	Lawn Machine	4B5vI4gVMn9pmRr1JEVy
4	Lawn Machine	MBeoRSk203VRPw3GNSY6
5	Lawn Machine	XeaNCSmQtQiXePiyHdJ3
6	Lawn Machine	yA2fOxXCJ3Bxk1lOaEEL

   b. Give all the watering equipment and their date of their checkout (renting) from a single member (you choose how to designate the member)

	Serial_num	Equipment_type	Checkout_date_time
1	XjLKjp7K8q4XlAKkB7ws	watering	2023-01-15 12:41:15
2	eGLTS8f6WuGgzDv0pi9a	watering	2023-01-15 12:41:15
3	XjLKjp7K8q4XlAKkB7ws	watering	2023-01-27 23:12:47

   c. List all the gardening equipment and their unique identifiers with less than 2 units held by the warehouse.

	Serial_num	Equipment_type	Name	Copies
1	ZrQSWXFpaBiPpubDdWrv	gardening	Pipes	1

   d. Give all the members who checked out (rented) an electric equipment delivered by DRONE and the electric equipment they checked out.

	First_nam	Last_name	Phone	Rental_nu	Serial_num	Equipmer
1	Grissel	Cyster	582-962-0745	1	Y8Msbpd3ldTkoFW2n7sd	electric
2	Grissel	Cyster	582-962-0745	2	Y8Msbpd3ldTkoFW2n7sd	electric
3	Lucien	Savell	703-623-9145	5	Y8Msbpd3ldTkoFW2n7sd	electric
4	Geoffry	Santoro	672-290-8553	6	Y8Msbpd3ldTkoFW2n7sd	electric
5	Riki	Weatherhogg	938-128-5024	8	zz6T3NyH1mLPEgkkvlhN	electric
6	Riki	Weatherhogg	938-128-5024	9	zz6T3NyH1mLPEgkkvlhN	electric
7	Marsh	Padgham	736-886-7733	14	MBeoRSk203VRPw3GNSY6	electric
8	Caria	Ladds	470-505-2698	17	XeaNCSmQtQiXePiyHdJ3	electric
9	Zabrina	Bramble	418-321-8785	20	yA2fOxXCJ3Bxk1lOaEEL	electric
10	Zabrina	Bramble	418-321-8785	20	XeaNCSmQtQiXePiyHdJ3	electric

e. Find the total number of items rented by a single member (you choose how to designate the member)

	First_name	Last_name	Phone	Total_Items_Rented
1	Riki	Weatherhogg	938-128-5024	3

f. Find the member who has rented the most computer & internet items and the total number of items they have checked out.

	Phone	First_name	Last_name	Total_Rented
1	736-886-7733	Marsh	Padgham	2

4. For Project Checkpoint 02, you were asked to come up with **three** additional interesting queries that your database can provide. Give what those queries are supposed to retrieve in plain English, as relational algebra and then as SQL. Your queries should include joins and at least one should include an aggregate function, and they should be the same as the queries you outlined for Worksheet 02. If you were instructed to fix the queries in Checkpoint 02, make sure you use the fixed queries here. These queries should be provided in a plain text file named “ExtraQueries.txt”.

1.Find the maximum of payment which member is also an employee

relational algebra: Phone $\mathcal{F}_{\text{MAX Amount}}(\text{PAYMENT} \bowtie_{\text{Phone=Phone}} (\sigma_{\text{is\_Emp= TRUE}}(\text{PERSON}))$

	Phone	First_name	Last_name	MAX(Amount)
1	188-975-9849	Crysta	Cometto	249

2.List the employee id and their name who work in warehouse with more than 3000 storage

relational algebra: $\pi_{\text{Employee\_id,First\_name,Last\_name}}(\text{PERSON} \bowtie_{\text{Address=Address AND is\_Emp=TRUE}} (\sigma_{\text{Storage\_capacity} > 3000}(\text{WAREHOUSE})))$

	Employee_id	First_name	Last_name
1	45	Carly	Philbrick
2	8	Lisbeth	Ratledge
3	30	Salomi	Garber
4	80	Catha	Kinchlea
5	35	Giselbert	Dunston
6	50	Guillemette	Derrick

3.Find the average amount of payment based on payment types, and payment should be received by warehouse

relational algebra: Type $\mathcal{F}_{\text{AVERAGE Amount}}(\text{PAYMENT} \bowtie_{\text{Rental\_num=Rental\_number}} (\sigma_{\text{Payment\_received= TRUE}}(\text{RENTAL}))$

	Type	avg(Amount)
1	china-unionpay	944
2	jcb	552.8
3	solo	881
4	switch	506
5	visa	233

5. For your database, propose **at least two** interesting views that can be built from your relations. These views must involve joining at least two tables together each and must include some kind of aggregation in the view. Each view must also be able to be described by a one or two sentence description in plain English. Provide the code for constructing your views along with the English language description of what the view is supposed to be providing. Name the txt file "Views.txt".

   UNPAID RENTALS - Expected Output:

	Rental_nu	Phone	First_nam	Last_name	email	Due_date
1	7	672-290-8553	Geoffry	Santoro	gsantoro3@jigsy.com	2023-01-11 23:06:59
2	8	938-128-5024	Riki	Weatherhogg	rweatherhogg8@infoseek.co.jp	2023-03-09 21:48:50
3	12	188-975-9849	Crysta	Cometto	ccometto9@webs.com	2023-02-04 16:20:31
4	13	188-975-9849	Crysta	Cometto	ccometto9@webs.com	2023-03-01 03:02:56
5	14	736-886-7733	Marsh	Padgham	mpadghamd@gnu.org	2023-01-20 14:31:35
6	15	736-886-7733	Marsh	Padgham	mpadghamd@gnu.org	2023-02-15 03:01:59
7	16	736-886-7733	Marsh	Padgham	mpadghamd@gnu.org	2023-02-01 17:41:22
8	17	470-505-2698	Caria	Ladds	claddsb@feedburner.com	2023-02-20 05:58:08
9	18	418-321-8785	Zabrina	Bramble	zbramblec@issuu.com	2023-02-01 00:23:46

   DRONE_TRIPS - Expected Output:

	Serial_num	Name	Address	Trips	Maintenance
1	rUW1HmROe7E3sjWVqeCg	Small Drone	4374 Pennsylvania Court	3	NO
2	zvKlEq9IsY3C92j429O1	Large Drone	4374 Pennsylvania Court	4	NO
3	loo8dZ3aSiBYm7hLJETD	Large Drone	73392 Redwing Hill	6	YES
4	F3Z693Dym7ZRc7AlQvqR	Small Drone	98409 Artisan Terrace	3	NO
5	Me5mWYX7x3dUJ2aFR66z	Large Drone	98409 Artisan Terrace	4	NO

   Once you have completed all of the questions, create a ZIP archive containing the binary SQLite file and the three text files and submit this to the Carmen Dropbox. **Make sure your queries work against your database and provide your expected output before you submit them!**

   No syntax error should exist in the submission. If the grader cannot construct and populate the database with your code, then he will be unable to give you feedback.

6. Each team member, individually, needs to fill out the Peer-evaluation form provided and submit it to Carmen.

Please DO NOT zip the report file when you submit so that the grader can give you detailed feedback in Carmen.