**Group Project**

**IT 440/540**

**100 points Total**

**Due Date: April 15, 2018, 11 pm**

Design a database for a car rental company. The company has multiple locations, and each location offers different car types (such as compact cars, midsize cars, SUVs, etc.) at different rental charge per day. The database should be able to keep track of customers, vehicle rented, and the rental payments. It should also keep track of vehicles, their make, and mileage. Make assumptions about business rules as necessary. Provide your assumptions.

* Create an ERD (Crow’s Foot notation) for the database. Save the file as a PDF. You can use LucidChart or Visio to create the ERD. (10 points)
* Create 3NF tables and relationships in SQL Server. (10 points)
* Perform reverse engineering if necessary.
* Enter sufficient test data in your tables using DDL statements. Using an INNER JOIN statement, show the rental revenue collected by each location or branch (10 points)
* Create the following queries: a Subquery, a CTE, and a PIVOT using the data and tables in your tables. Explain the business purpose of your queries. (10 points)
* Create a clustered index of your database on SQL Server. (10 points)
* Replicate your database in MySQL. (10 points)
* Create a web form using PHP (or JavaScript) to query the MySQL database show the rental revenue collected by each location or branch. Provide the screenshots of your results along with your PHP (or JS) code and MySQL database. (20 points)
* Group presentation (20 points)

**Submission:** Submit a word document (which should explain your assumptions, business rules, and normalization steps, SQL queries and their outputs, and screenshots of the MySQL/PHP output), .mdf file (for SQL Server database), PHP files, and a PDF file (for ERD). Add all files to a zipped folder. Name your folder as *Group\_Project\_YourGroupName.zip*. Upload the zipped folder in the Group Project dropbox in D2L. Only one member from each group needs to submit the files.

Note: If you do not follow the naming convention and/or submission instructions, five points will be deducted from your total score. The grading rubric posted on D2L will be used to grade the SQL queries.

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***IT 540 only:***

* In addition, write an OUTER JOIN statement with two tables of your choice. Explain your statement. (five points will be deducted if not provided)