**CSC-351/621 – Database Management Systems (DBMS)**

**Assignment 3 – SQL/CASE**

***Due in class on Monday, March 27th, 2019***

1. Design an Entity Relationship Diagram for the following Schema (use Workbench):  
   ***student****(student\_id, name, score)****phone\_number****(number, type, student\_id)*A student can have 0 or multiple phone numbers. Each phone number must be assigned to one student only **or none.**
2. Write SQL queries to return the followings:

|  |  |  |  |
| --- | --- | --- | --- |
| **student\_id** | **name** | **score** | **Grade** |
| 9891 | Mark | 97 | A |
| 9877 | John | 34 | F |

* 1. Retrieve all student I.Ds., names, scores, and assign a grade to each score. Use the grading criteria that is included on this [course’s site](http://ameenabdelhai.net/courses/csc351_621.html)
  2. Retrieve all student IDs, names, score, and a message that says whether the student’s score is above or below average as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **student\_id** | **name** | **score** | **result** |
| 9891 | Mark | 97 | Above average |
| 9877 | John | 34 | Below Average |

* 1. Repeat query a such that, it retrieves the same thing, but if the student has achieved the highest or lowest grade, add that as a message next to the score:

|  |  |  |  |
| --- | --- | --- | --- |
| **student\_id** | **name** | **score** | **Grade** |
| 9891 | Mark | 97 highest | A |
| 9877 | John | 34 lowest | F |
| 9856 | Michael | 85 | B+ |

* 1. Retrieve all available phone numbers (available phone number must not be assigned to a student | Null)
  2. Retrieve all students’ details including their phone numbers. Display student with assigned number only *(do not retrieve students who don’t have numbers or numbers without owners)*
  3. Retrieve all students’ details, and all phone numbers stored in the database. If a phone number is assigned to a student, print all student’s details including their phone numbers, and if a phone number has no owner or student has no number, records should be displayed as well with NULL values.
  4. Retrieve all phone numbers including their owners. If a number has no owner, still display it as well, but **do not** display students’ details who have no phone number assigned to them.

**Deliverables:**

**Print** your solutions and hand it in class. Your document should include the followings:

* ERD
* SQL Queries
* Screenshot that shows the query and the displayed/retrieved value