CMPE2400 – ICA12 - Having fun ?

This ica will utilize an sql file for answer submission. See the template and explanation document.

This ica will exercise filtering aggregates.

The DB used in this ica is the globally shared **ClassTrak** database. While you may include a "use" statement for your testing, Do not leave it in your submission. If you are prone to forget, leave it out and set the query DB in the selector in the IDE.

For all queries, you shall Alias columns as shown in the expected results.
For all queries that have constraints with **, declare variables to hold the specified values prior to the query - use these variables with various values to test your query - reset to specified values prior to submission.

Q1. - 3 Table Join - Warm up - Class summary
Write the select to retrieve the assignment type description, the average raw score and average calculated score (score by max_score as percent) and number of scores summarized. Restrict your results to class id of 88** (Notice that raw avg is different from calculated average when max is not 100). Sort your results by assignment type description.

```
Type                    Raw Avg               Avg                   Num
----------------------- --------------------- --------------------- -----------
Assignment              24.3111111111111      50.5460978835979      180
Final                   NULL                  NULL                  0
Instructor Eval.        16.8888888888889      42.2222222222222      9
Lab                     30.546511627907       55.3322259136213      43
Lab Exam                47.6333333333333      47.6333333333333      45
Midterm                 28.5833333333333      49.2816091954023      12
Warning: Null value is eliminated by an aggregate or other SET operation.

(6 row(s) affected)
```

Q2. - 3 Table join - Assignment summary with filter
Write the select to retrieve the assignment type description, the assignment description, the calculated average and number of records per assignment. Restrict your results to a class id of 88**. Restrict your aggregates to only include records with the calculated average greater than 57. Sort your results by description within type description..Use round() to 2 places.

```
Desc(Type)                          Avg                                     Num Score
----------------------------------- --------------------------------------- -----------
02 - Layout(Assignment)             64.33                                   15
04 - Speedomatic(Assignment)        57.07                                   15
08 - Color box(Assignment)          60.17                                   15
1 - Web Browser(Lab)                58.67                                   15
3 - Net Draw(Lab)                   58.67                                   15
Warning: Null value is eliminated by an aggregate or other SET operation.

(5 row(s) affected)
** Results show have cast 1st column to nvarchar(36) to fit available width, yours may be wider.
```

Q3. 4 Table Join - filtered student summary in class
Write the select to retrieve the student last name, assignment type description, the minimum, maximum and average calculated grade. Restrict your result set to only include class id of 123**. Restrict your aggregates to only include results which have an average greater than 70. Sort your results by the average withing the assignment type description.

```
Last                 ass_type_desc        Low                  High                 Avg
-------------------- -------------------- -------------------- -------------------- --
--------------------
Shahid               Final                81.8                 81.8                 81.8
Canniff              Final                89                   89                   89
Meszaros             Lab                  77.5                 77.5                 77.5
Wittig               Lab                  77.5                 77.5                 77.5
Marchyshyn           Lab                  85.8                 85.8                 85.8
Lee                  Lab                  94.2                 94.2                 94.2
Dhillon              Lab                  98.3                 98.3                 98.3
Budak                Lab Exam             45                   94                   70.6
Osbourne             Lab Exam             31                   99                   78.4
Warning: Null value is eliminated by an aggregate or other SET operation.

Note : Use round() to 1 decimal place for the aggregates.
```

Q4. 3 Table Join - Calculated aggregate restriction
Write the select to retrieve the instructor last name, their respective class start date (formatted), the number of students in those classes and number of active students in that class. Here, if a class_to_student joining record exists a student was registered BUT the active field being zero means they dropped out. Restrict your aggregate to ensure only records which had more than 3 students drop out are shown. Sort your results by start date within instructor.

```
Instructor           Start        Num Registered Num Active
-------------------- ------------ -------------- -----------
Banks                03 Jan 2011  24             20
Case                 01 Jan 2008  15             11
McBoatface           28 Aug 2000  48             42
McBoatface           27 Aug 2007  32             28
McBoatface           29 Aug 2011  20             16
Plunder              01 Sep 2005  13             8
Still                01 Sep 2008  22             18
Zaster               07 Jan 2002  20             16

(8 row(s) affected)
```

Notice that when the Num Registered shows more than 24 (max class size), there was obviously more than 1 class for that start date - you can verify this and test your query if you temporarily include the class_desc - then you will see this data roll up with class granularity.

Q5. 5 Table join - Student and Class summary
Write the select to retrieve the formatted student last and first name, their respective class description, assignment type description, and the number and calculated average of the respective score entries for those classes. ie. By Student, class and assignment type retrieve the score entry counts and the proper calculated average of those scores. Round the average to 1 decimal place.

As this join doesn't necessarily follow a single chain, your join order will vary.

Restrict the results to only include classes with a start_date in the year 2011** and the score isn't null.
Restrict the results to only include rows where the number of scores is greater than 10 and the calculated average of those scores is less than 40**

Sort your results by the average within the submitted count.

Essentially this weeds out assignment types like Labs, Exams where there are only a few entries per student and also removes students that have done well.

```
Student                  Class                           Type                    Submitted   Avg
------------------------ ------------------------------- ----------------------- -----------
---------------------
Bobis, Charmagne         CNT456 - CNTCD1 - Jan 2011      Assignment              11          37.4
Capo-Chichi, Axel        CNT357 - CNT3C - Sep2011        Assignment              11          39.2
Bursey, Russell          CNT357 - CNT25 - Jan 2011       Assignment              17          37.2
Lafuente, Jeffrey        CNT357 - CNT3C - Sep2011        Assignment              18          35.1
Brunsch, Daniel          CNT357 - CNT3C - Sep2011        Assignment              19          39
Bobis, Benedict          CNT357 - CNT25 - Jan 2011       Assignment              20          39.4

(6 row(s) affected)
```

The Student column as been cast to a length of 24 for formatting.

Done