

**Database Management  
2020-2021**

**Final Project: Database Implementation and Application Development**

**(Do the homework with your 4-members team. Team members will be determined by instructor.)**

**PART-II DATABASE IMPLEMENTATION (40/100 points)**

**(Due date is 5 February 2021, Demo dates are 6-7 & 13-14 February 2021. Database Implementation Report and demo.)**

1. Write down the appropriate SQL scripts (DDL statements) for creating the database and its relational model. You can select any of the DBMS you wish.
2. Populate the database you just created again using SQL script file loaded with sample tuples. (The tables should have enough number of tuples for the SELECT statements, asked in the 5th step, to be run accordingly.)
3. Write down 5 triggers. Triggers should be meaningful.
4. Write down 5 check constraints. Check constraints should be meaningful.
5. Write down the following SQL statements:
  - a. Write sample INSERT, DELETE and UPDATE statements for 5 of the tables you choose.
  - b. Write 10 SELECT statements for the database you have implemented.
    - i. 3 of them should use minimum 2 tables.
    - ii. 4 of them should use minimum 3 tables.
    - iii. 3 of them should use minimum 4 tables.
  - c. Write 4 SELECT statements to exemplify nested and/or correlated nested queries.
  - d. Write 2 SELECT statements to exemplify EXISTS and NOT EXISTS statements.
  - e. Write 3 SELECT statements to exemplify LEFT, RIGHT and FULL OUTER JOIN statements.
6. Create 5 views that are reasonable.

**PART-III APPLICATION DEVELOPMENT (20/100 points)**

**(Due date is 5 February 2021, Demo dates are 6-7 & 13-14 February 2021. Application Development Report and demo.)**

1. Propose a customer segmentation model using FFC entity to promote customers with the appropriate rewards defined for each segment. Research about the term “customer segmentation” and extend your design if possible. If not, explain your solution.
2. Develop a web application for customer segmentation model. Your application should compose of the following components: REST API component and web application UI. REST API component will only do the computations and your web application UI will present a demo.

Good luck.