Department of Computer Science and Engineering
University of Dhaka
2nd Year 2nd Semester 2020, Lab Assignment
Course Code: CSE-2201, Database Management Systems - I

Consider a relational database model of your own and go for the following tasks.

1. Consider the database of at least 5/6 schemas/tables
2. Plan for attributes that cover all general datatypes
3. Plan for constraints of different types (primary keys, foreign keys, unique keys, check, not null etc)
4. Create appropriate data for the above schemas
5. Implement the database in Oracle creating a user
6. Plan queries and find the answer (at least 15)
7. Plan for non-trivial (canonical cover type) functional dependencies applicable for the schema design.
8. Formulate everything in a report which includes:
    a. Brief description of the database system that you are going to implement in the database
    b. Mention schemas with attributes
    c. Show **Schema diagram** of the database
    d. Show **E-R diagram** of the database
    e. Snapshots of **SQL DDL** of all the schemas/tables
    f. Snapshots of the **instances** (data of the populated tables)
    g. **Query statement, Relational Algebra Expression, SQL statement** and snapshots of the **outputs**. SQL statements **should** contain the following :
        i. **natural join**, cross product, **outer join**, **join** with **using**, **on**
        ii. nested-subquery with clauses (**some, all, any, exists, unique** etc.)
        iii. **order by**, **group by**, **having** clauses
        iv. Use of **with** clause
        v. String, set operation
        vi. Update, delete operations
        vii. Use of built-in aggregate function and other functions
    h. Create views and use those views in answering queries.
    i. Find the list of non-trivial FDs and proof that the schemas are in desired normal forms
    j. Conclusion of the work