Due Date: On or before Thurs, 24th June 2021 [4 pm afternoon]

University of Engineering & Technology, Peshawar
Dept. of Computer Systems Engineering

Database Management Systems – Spring 2021

Assignment No. 2

PROBLEMS & EXERCISES

1. **DBMS PROJECT: Submit the complete relational schema of your DBMS project including following:**
   a) Relational Schema
   b) Normalized Relational Schema

2. **For Faculty Relation shown in Table 1, perform Normalization and do following:**
   a) Write the relational schema showing primary key, draw its dependency diagram, and identify all dependencies.
   b) Using the answer of part a), remove dependencies, write 2NF & 3NF relational schema, and draw new dependency diagrams. Also identify the normal forms for each table structure you created.
   c) Using the results of part b), develop the ER Diagram.

Faculty ID	Faculty Name	Faculty Hire Date	Course Code	Course Name
389	Dr. NasruMinallah	15-Sept-2013	CSE-208	Object Oriented Programming
389	Dr. NasruMinallah	15-Sept-2013	CSE-210	Data Structures & Algorithms
350	Dr. Laiq Hasan	1-Aug-2004	CSE-202	Digital Logic Design

Table 1 – Faculty Structure

3. In **Lecture 6a - Functional Dependency & Normalization** on **slide number 30**, there are eight changes listed including **PK assignment, naming conventions, attribute atomicity, adding attributes, adding relationships, refining PKs, maintaining**

historical accuracy, an using derived attributes. Write detailed note about how and where these eight changes are made in the **completed database** shown on **slide number 31** and **slide number 32** in contrast to **3NF Relations** shown on **slide number 26**.

4. In **Lecture 6b - Functional Dependency & Normalization** on **slide number 9**, Boyce-Codd Normal Form (**BCNF**) dependency and its solution are shown. Explain this slide in your words. Also, contrast the difference between partial dependency and BCNF dependency in your words.

5. In **Lecture 6b - Functional Dependency & Normalization**, a case study of **Contracting Company** is provided. Discuss this case study and show how **basic relations** shown on **slide number 17** are transformed into **3NF relations** on **slide number 22**. Also, draw the respective ERDs.

Good Luck