

## DATABASE DESIGN & DEVELOPMENT

Fall 2023\_2024

LAB #: 4 (Normalization)

Student ID: \_\_\_\_\_

Student Name: \_\_\_\_\_

1- Given the following Employee table answer the following question:

<u>Employee ID</u>	Employee_Name	Address	<u>Skill ID</u>	Skill_Name	Skill_Dept	Skill_Level
101	John Smith	123 Main St	1	Programming	CS	Expert
101	John Smith	123 Main St	2	Database	DS	Intermediate
102	Sarah Jaber	456 Elm St	4	Software Engineering	CS	Intermediate
103	Robert Revano	789 Oak St	2	Database	DS	Expert
103	Robert Revano	789 Oak St	3	Networking	CY	Beginner

A. The current schema is in which Normal Form (NF) and why?

B. Normalize the above schema into 3<sup>rd</sup> NF; please show detailed steps.

**2- Consider the following relational schema for a registration system:**

Students (Student\_ID, Student\_Fname, Student\_Lname)

Courses (Course\_ID, Course\_Name, Course\_Description, Instructor\_ID)

Students\_Courses(Student\_ID, Course\_ID)

**Intentionally violate 2<sup>nd</sup>NF.**

**3- Consider the following relational schema for a bookstore system:**

Books (ISBN, Title, Author\_ID, Genre, Publication\_Year)

Authors (Author\_ID, Author\_Name, Nationality, Birth\_Year)

**Intentionally violate 3rd Normal Form (3NF).**