National University

of Computer & Emerging Sciences Peshawar Campus

Course: Database Systems
Section: A and B
Semester: Fall-2020

Assignment:01
Due Date: *1Week*
Instructor: Ms. Safia Fatima

NOTE: Attempt all questions.

1. **Consider the following set of requirements for a University database. Design an ER diagram for this application:**
   - The university keeps track of each student's name, student number, social security number, current address and phone number, permanent address and phone number, birthdate, sex, class (freshman, graduate), major department, minor department (if any), degree program (B.A., B.S., ... Ph.D.). Some user applications need to refer to the city, state, and zip code of the student's permanent address and to the student's last name. Both social security number and student number are unique for each student. All students will have at least a major department.
   - Each department is described by a name, department code, office number, office phone, and college. Both the name and code have unique values for each department.
   - Each course has a course name, description, course number, number of credits, level and offering department. The course number is unique for each course.
   - Each section has an instructor, semester, year, course, and section number. The section number distinguishes sections of the same course that are taught during the same semester/year; its value is an integer (1, 2, 3, ... up to the number of sections taught during each semester).
   - A grade report must be generated for each student that lists the section, letter grade, and numeric grade (0,1,2,3, or 4) for each student and calculates his or her average GPA.
2. Considering the ERD of the above task, define the conceptual schema (define entities and their attributes with appropriate constraints**. Do mention the reason for applying those constraints**.)