

Daffodil International University

Department of Computer Science and Engineering

Faculty of Science & Information Technology

Midterm Exam Examination, Spring 2021 @ DIU Blended Learning Center

Course Code: CSE311 (Day), Course Title: Database Management System

Level: 3 Term: 1 Section: PC-C,PC-D,PC-G

Instructor: FA Modality: Open Book Exam

Date: Wednesday, 10 March, 2020 Time: 01:30am-04:0pm

Two and half hours (2:30) to support online open/case study based assessment Marks: 25

Directions:

- Students need to go through the CASE STUDY shown in this exam paper.
- Analyze and answer specific section based on your own thinking and work.
- Do not share as this will be treated as plagiarism by Blended Learning Center.

Q1 The COVID-19 pandemic in Bangladesh is part of the worldwide pandemic of coronavirus disease 4+6 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus was confirmed to have spread to Bangladesh in March 2020. Now suppose, Bangladesh's nationwide vaccination programme will begin very soon. And as a member of a renowned database company, you are asked to build a website to keep track of registration as well as vaccine-related information.

This website will contain forms; a registration form for the applicants and another form for reporting any adverse event to the healthcare system. The reporting form will have options to fill in the information about the applicant, reporter (person who has reported this event to the healthcare system and also completed this form), vaccination center as well as vaccine detail.

At first, applicants have to choose the relevant category from all given categories of professions. After that, the user has to input their NID number and date of birth. The system will then automatically fill in other details (name, age, gender), collecting information from the NID database. The applicant has to give details of their medical history (i.e., whether they have diabetes, cancer, hypertension, or other diseases). The user also has to input their present address and mobile phone number. After entering all these, a vaccine card will be generated, which will mention where and when the person will be vaccinated with the first and second doses.

For each vaccine, vaccine as well as supplier's name, date of vaccination, time of vaccination, dose (i.e., first or second) will be recorded. The system must record which vaccine is given to whom (applicant). Reporter's will have.....

- a. Now, you may have already noticed that this scenario is incomplete. At first, you have to complete the remaining portion of this scenario including all possible information that you would like to maintain.
- b. After completing the scenario, propose an Entity-Relationship diagram that captures all the information. Be certain to indicate primary keys, relationships, participation constraints, and

	cardinality constraints.	
Q2	Convert the ER diagram ((you have already proposed in Q1) into a relational database schema.	4
Q3	Consider the following schema.	6
	Person (FirstName:String, LastName:String, Age, Email: varchar)	
	FacebookUser (<u>FbUserID</u> : Integer, FbUserName:String, Email:varchar, Num_of_friend: integer, Num_of_pic: integer)	
	Whatsapp(<u>WhatsappUserID</u> : Integer, FBUserID: Integer, Cell_num: varchar, WhatsappUserName:String, No_Of_Groups: Integer)	
	Now, Give an expression in SQL for each of the queries.	
	 a. Find the full names of people who do not have any facebook or whatsapp account. b. Find the facebook user who shares the least number of pictures. c. Find the whatsapp users who are ShohorPhone users (ShohorPhone numbers start with 012) d. Show the number of facebook users who are over 40 years old. e. List the full names of facebook users having gmail addresses in dictionary order based upon their names. f. Show all the details of those facebook users whose number of friends is more than or equal to 500 but less than or equal to1000. 	
Q4	a. Suppose you want to develop a video website. At first, you thought about the file processing system but found some disadvantages. Write 3 main limitations of keeping data in a file-processing system. Justify your answer by discussing the relevance of each of these limitations to the storage of actual video data, and to metadata about the video, such as title, the user who uploaded it, tags, and which users viewed it.	3
	b. Now, if you want to develop a database, apart from using a relational database, what other type of database can be used in this scenario?	2