National University of Computer and Emerging Sciences, Lahore Campus

Course:	**Fundamentals of Database Systems**	**Course Code:**	**CS2011**
Program:	**BS (EE)**	**Semester:**	**Spring 2023**
Due Date 1:	**23-Feb-2023**	**Total Marks:**	
Due Date 2:	8-March-2023 (full assignment)	**Weight:**	
Section	**BEE-8A**	**Page(s):**	**2**
Assignment:	**1 (SQL)**		

Instruction/Notes:

- You are required to provide the (hard copy + softcopy) of your assignment consisting of the DDL and DML scripts that you will use to do all the tasks mentioned below.
- Question 1 part(i), (ii) and (iii) till part h, the deadline is **Thursday 23rd Feb 2023 till 2pm**. Please upload a Microsoft Word file consisting of your answers on slate. The rest of the questions can be submitted on slate till Wednesday 8-March-2023, hand me the hardcopy of your assignment during our class on the same day. Please note the hardcopy would only be marked if the softcopy is there on slate.

TOPIC: SQL (CLO-2)

Consider the following database schema for an outdoor patient management system of a public hospital that holds outdoor on Saturday and Wednesday:

Patient

Patient_id	name	Date_of_birth	ailment

Doctor

Doc_id	Doc_name	qualification	fee	dep	supervisor

Department

dep_id	dname

Consult_room

room_id	rname

Doctor_Consult

Doc_id	Room_id	Day_of_week	Start_time	End_time

Patient_appointment

Doc_id	Pat_id	apdate	Start_time

Please note :

- doc_id and room_id in Doctor_consult table are foreign keys that refer to Doc_id in Doctor table and room_id in consult_room table respectively.
- doc_id and pat_id in patient_appointment tables are foreign keys that refer to Doc_id in Doctor table and patient_id in patient table respectively.
- Dep and supervisor in Doctor table are foreign keys that refers to dep_id in Department table and doctor_id in Doctor table respectively.

Question1 [CLO-2] :

i. Give SQL(DDL) statements to create the above schema in the database (in order). Please ensure that for "day_of_week" column of "Doctor_consult" table there should only be the two possible values of Saturday and Wednesday.

ii. Mention the order in which data is loaded in the tables. The data is provided in the in the accompanying **Sp2023data_for_assignment1.xls** file. Note that you are free to use any data import tool for loading the data provided, in the tables you created in part i. Please ensure that all the data is correctly loaded before proceeding with part iii.

iii. Write an SQL statement to answer each of the following queries. **Please note you also have to include the screenshot of the answers you get. Also your query should be generic, DO NOT use the TOP function available in MS SQL Server.**

a) Give a unique list of the doctors' names, along side the names of patients they have treated so far, the patient's age in years should also be printed. Your report should be sorted on the basis of doctor name and then patient name.

b) Give a list of doctor name alongwith the name of their immediate supervisor. If a doctor doesn't have a supervisor nothing should be printed in the supervisor column. Your report should be sorted on the basis of doctor name.

c) Find the name of patient alongwith the appointment date who has been given a wrong date, i.e. that date doesn't fall on either Saturday or Wednesday.

d) For every ailment, find the average patient age.

e) Find the name of the doctor (alongwith the appointment date) who has been assigned a patient appointment which does not fall on the day that doctor consults patients.

f) Give the names of patients who have consulted both with Dr. Jamshed Khan and Dr. Fatima Saif.

g) Find the doctor(s) who haven't seen any patients.

h) Give the names of patients who have consulted with Dr. Jamshed Khan but not with Dr. Fatima Saif.

i) Give the name(s) of the oldest patient(s) alongwith the total fees that patient has paid so far.

j) Give the names of doctors who have no supervisor or have seen more than 3 different patients.

k) Give the name of the highest earning doctor for the month of December-2022

l) Find the doctor who has been consulted by the maximum number of patients, alongwith the number of patients who have shown to him/her.

m) Find names of patients with an appointment clash (i.e. they would have an appointment on same date and time with two different doctors).

n) Find the patient(s) who has consulted with all doctors in Gastroentology department. (Please note you are not allowed to use aggregate functions for this query)

o) Find the patient who has **only** ever consulted with Dr. Saqib Saeed.

p) We want to have a complete list of supervisors of all doctors (from the top supervisor to the supervisee only doctor) for each department? Would a procedural programming solution be more appropriate here? Why?