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Daffodil International University

Department of Software Engineering

Faculty of Science & Information Technology

Final Examination, Spring 2022

Course Code: SE223 (CC+DSC) Course Title: Database Systems

Level: 2 Term: 2 Section: A, PC-B Course Teacher: NJ

Date: Monday, 18 April, 2022 Time: 11:45 AM – 01:45 PM

Time: 2 Hours **Marks: 40**

Answer All the Questions

Question 01 *[CLO-3, Level-3] [Marks-15]*

Student

StudentId	*Name*	*Age*	*Address*
181-35-2222	*Raihan*	*18*	*Mirpur*
181-35-2224	*Rakhi*	*17*	*Ashulia*
181-35-2225	*Alif*	*22*	*Mirpur*
181-35-2226	*Aman*	*20*	*Ashulia*
181-35-2228	*Niloy*	*23*	*Dhanmondi*

Competition:

Registration Date	StudentId	Registration Fee	Competition Type
2022-02-12	*181-35-2222*	200	Business Idea
2022-02-12	*181-35-2222*	300	Mobile App
2022-02-14	*181-35-2224*	200	Business Idea
2022-02-15	*181-35-2225*	300	Mobile App
2022-02-15	*181-35-2226*	300	Mobile app
2022-02-15	*181-35-2226*	250	Robotics Competition
2022-02-15	*181-35-2228*	200	Business Idea
2022-02-15	*181-35-2228*	300	Mobile App
2022-02-15	*181-35-2226*	250	Robotics Competition

a. Write sql statement to find the number of students who did register in 15th February 2022.

b. Write sql statement to find student name of those students whose age more than the highest age. (using sub query)

c. Write sql statement to find the number of students who have done their registration "Mobile app" competition.

d. Write sql statement to find the total registration fee collected for each competition.

e. Write sql statement to find ID of those students who participated in competition.

f. Write sql statement to find the student ID whose name starts with 'N'.

g. Write sql statement to find those students information who lives in Mirpur but age should be less than 22.

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i. Write sql statement to find those student name whose age is greater than any age of the student who lives in Mirpur. (using subquery)

j. Write sql statement to delete information of those students who lives in Ashulia.

Write output of the following SQL command

k. Select * from student where age>23
l. Select Distinct(StudentID) from competition
m. Select student.StudentID from student inner join competition on student.studentID=competition.studentID
n. Alter table student add column Phone int.
o. Select * from student order by age

Question 02 *[CLO2, Level 4] [Marks 25]*

a. Consider the Billing Receipt for Project Development Form given below:

Billing Receipt

Project No: *1001* **Bill No:** *405*

Project Name: Class Monitoring System **Bill Date:** *12/01/22*

Dept No: 35 **Dept Name:** **Marketing**

Dept Location: **Ashulia, Dhaka**

EmployeeNo	Name	Responsibility	Rate/Hour	Chargeable Hour	Total
800	*Arif* Rahman	Analyst	$100	20	$2000
801	Rani	Developer	$80	40	$3200
805	Afjal	Developer	$70	40	$2800
Grand Total					$8000

a. ***Normalize*** the table up to Third Normal Form (3NF); explaining every steps of the process.
b. ***Describe composite key based*** on the question given in a.
c. **List** the rules of normalization and explain why we need normalization to design database.
d. **Explain** anomalies for the question b.
e. **Online Retail Application:**

A customer can register to purchase an item. The customer will provide the bank account number and bank name (can have multiple account numbers). After registration, each customer will have a unique customer, user id, and password. A customer can purchase one or more items in different quantities. The items can have different classes based on their prices.

Based on the quantity, the price of the item, and discount (if any) on the purchased items, the bill will be generated. A bank account is required to settle the bill. The items can be ordered from one or more suppliers.

Draw an Entity relationship diagram based on the project you get from the above link (minimum 4-6 entity) with appropriate attribute type, cardinality, and relationship.

f. **Differentiate** between multi valued attribute and derived attribute with appropiate example.