



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

Competition:

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	Dhanmon di

RegistrationDate	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

- Write sql statement to find the number of students who did register in 15th February 2022.
- Write sql statement to find student name of those students whose age more than the highest age. (using sub query)
- Write sql statement to find the number of students who have done their registration "Mobile app" competition.
- Write sql statement to find the total registration fee collected for each competition.
- Write sql statement to find ID of those students who participated in competition.
- Write sql statement to find the student ID whose name starts with 'N'.
- Write sql statement to find those students information who lives in Mirpur but age should be less than 22.

- 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 appropriate example.