



Final Exam Summer

Course Name: Introduction To Database Systems

Submitted By:

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BS (SE-8) Section: A

Submitted To:

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Q1

Answer:

Student(Student_id, Student Name, Student Address, Course_ID, Course_Name, Grade)

1NF (First Normal Form) : Each record needs to be unique.

O1 fawad Karachi SE-01 AI A, O2 Waleed Lahore SE-02 DIP C, O3 Saira Peshawar SE-03 DB A, O3 Saira Peshawar SE-04 SRE B, O4 Aiman Karachi SE-03 DB C, O5 Daniyal Lahore SE-01 AI A, O6 Emaan Peshawar SE-01 AI B

2NF (Second Normal Form) :

In the Student table Student_id is unique and it is the primary key for the table.

The Student Name, Student Address are fully functionally dependent on the primary key. Where as Course ID, Course name and grade are not so.

Student((Student_id[PK][FK], Student Name, Student Address)

Course(Course_ID[PK][FK], Course_Name)

Student_Course(Student_id, Course_ID[PK], Grade)

In the Student table, Student_id is the primary key and foreign key to the Student_Course table. In the Course table, Course_ID is the primary key and foreign key to the Student_Course table.

3NF (Third Normal Form):

If $A \rightarrow B$ and $B \rightarrow C$ are two FDs then $A \rightarrow C$ is called transitive dependency. The

above tables are in 3NF, since there are no transitive dependency

Q2

Part (1);

```
CREATE TABLE Students (  
    ID int NOT NULL PRIMARY KEY,  
    Student_Name varchar NOT NULL,
```

```
DOB DATE,  
Age int ,  
CGPA float,  
    check (Year between 1 and 30),  
);
```

Part (2);

```
INSERT INTO Students (ID,  
Student_Name,  
DOB,  
Age,  
CGPA)  
  
(13033, 'Muhammad Safeer, '08-03-1996', 24, 2.2);
```

```
INSERT INTO Students  
(ID,  
Student_Name  
,DOB,  
Age,  
CGPA)  
VALUES  
(12280, 'Yahya Riaz, '06-03-1997', 23, 2.7 );
```

Part (3);

Age is the derived attribute of the given attributes and it can be derived from DOB attribute.

Age int AS (year(CURRENT_TIMESTAMP) - year(DOB))

Q3

Part (1);

Select Product_name, Product_id from Canteen_Table where
Cast (rtrim (Unit_Price,'Rs') as int) < 50;

Since we have unit price like 160 Rs, we need to get the price separately to find the products which are below the unit price 50 rs.

We used rtrim(Unit_Price, 'Rs') which we get as the price value.

Part (2);

Select Product_Name as Product_List_Sorted from Canteen_Table order by Product_Name
asc;

Part (3);

DELETE FROM Order_Details WHERE Quantity<1;

Part (4);

Lets find the Product name Mfg Date Exp Date and sold quantity for the products which are sold.

select Product_Name, Mfg_Date, Exp_Date , Quantity from Canteen_Table C inner join
Order_Details O on O.Product_ID = C.Product_ID;