

**Name: Hassan Mudassir**

**ID: 13003**

**Course Title: Database Systems**

**Q1)**

**Ans) 1<sup>st</sup> Normal Form:**

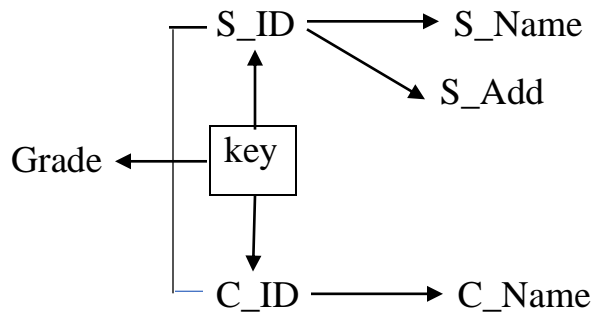
<b>Student_id</b>	<b>Student name</b>	<b>Student Address</b>	<b>Course_id</b>	<b>Course_Name</b>	<b>Grade</b>
01	Fawad	Karachi	SE-01	AI	A
01	Fawad	Karachi	SE-05	SQE	B
02	Waleed	Lahore	SE-02	DIP	C
03	Saira	Peshawar	SE-03	DB	A
03	Saira	Peshawar	SE-04	SRE	B
04	Aiman	Karachi	SE-03	DB	C
05	Daniyal	Lahore	SE-01	AI	A
06	Emaan	Peshawar	SE-01	AI	B

**2<sup>nd</sup> Normal Form:**

Student\_ID => Student Name, Student Address

Course\_ID => Course\_Name

Student\_ID => Course\_ID, Grade



Student_id	Student name	Student Address
01	Fawad	Karachi
02	Waleed	Lahore
03	Saira	Peshawar
04	Aiman	Karachi
05	Daniyal	Lahore
06	Emaan	Peshawar

**Student Relation**

Course_id	Course_Name
SE-01	AI
SE-05	SQE
SE-02	DIP
SE-03	DB
SE-04	SRE
SE-03	DB
SE-01	AI
SE-01	AI

**Course Relation**

Student_id	Course_id	Grade
01	SE-01	A
01	SE-05	B
02	SE-02	C
03	SE-03	A
03	SE-04	B
04	SE-03	C
05	SE-01	A
06	SE-01	B

### Registration Relation

#### 3<sup>rd</sup> Normal Form:

Student\_ID => Student\_Name, Student

As we find the 2<sup>nd</sup> Normal Form, now from that we can find the 3<sup>rd</sup> Normal Form

Course\_ID => Course\_Name, Student\_ID

Student\_ID => Course\_ID,

[ Composite key (Student\_ID, Course\_ID) ]

Student_id	Student name	Student Address
01	Fawad	Karachi
02	Waleed	Lahore
03	Saira	Peshawar
04	Aiman	Karachi
05	Daniyal	Lahore
06	Emaan	Peshawar

**3NF**

Student_id	Course_id	Grade
01	SE-01	A
01	SE-05	B
02	SE-02	C
03	SE-03	A
03	SE-04	B
04	SE-03	C
05	SE-01	A
06	SE-01	B

**3NF**

Course_id	Course_Name	Student_id
SE-01	AI	01
SE-05	SQE	01
SE-02	DIP	02
SE-03	DB	03
SE-04	SRE	03
SE-03	DB	04
SE-01	AI	05
SE-01	AI	06

=>Here is the optional

**Note:**

The table in 2<sup>nd</sup> form Course\_ID and Course\_Name has the Data Redundancy so that was 2NF



**Q2)**

**1)**

**Ans)** CREATE DATABASE Gallery;

**2)**

**Ans)**

```
CREATE TABLE Movies (  
ID int NOT NULL,  
Movie_Name varchar(255) NOT NULL,  
Genre varchar(255)  
Year int MAX '2020'  
Rating int MAX '5'  
PRIMARY KEY(ID)  
);
```

.....  
**Q3)**

**1)**

**Ans)**

```
INSERT INTO Student_Table (Student_Id, Student_name, Age, CGPA)  
VALUES ('123456', 'John Doe', '18', '3')
```

```
INSERT INTO Student_Table (Student_Id, Student_name, Age, CGPA)  
VALUES ('654321', 'Jane Doe', '18', '4')
```

**2)**

**Ans)** DELETE FROM Student\_Table

```
WHERE CGPA > 3;
```

.....

**Q4)**

**1)**

**Ans)** SELECT Product\_Name, Product\_ID FROM CANTEEN\_TABLE  
WHERE Unit\_Price < 50;

**2)**

**Ans)** SELECT Product\_Name AS Product\_List\_Sorted  
FROM Canteen\_Table  
ORDER BY Product\_Name;

**3)**

**Ans)**

CATGEORY	COUNT
Junk	4
Not Junk	2

**4)**

**Ans)**

SELECT \* FROM Canteen\_Table t1  
INNER JOIN Order\_Details t2  
ON t1.Product\_ID = t2.Product\_ID

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