

Q: Normalize the below table up to 3rd normal form.

Read the Instructions (given on the next page) carefully before solving the assignment.

<u>Student-ID</u>	<u>Student-Specialization</u>	<u>Student-Name</u>	<u>Specialization-Semester</u>	<u>Semester Start-Date</u>	<u>Semester End-Date</u>	<u>Specialization Supervisor</u>
Bc00001	SE AI Graphics	Ali	F08 Sp09 F09	15-07-08	21-12-08	Prof Khalid
				15-02-09	25-06-09	Prof Ashraf
				15-07-09	21-12-09	Prof Shaw
Bc00002	AI	Safdar	Sp09	15-02-09	25-06-09	Prof Ashraf
Bc00003	SE Graphics AI	Usman	F08 Sp09 F09	15-07-08	21-12-08	Prof Khalid
				15-02-09	25-06-09	Prof Shaw
				15-07-09	21-12-09	Prof Ashraf
Bc00004	SE AI	Naeem	F09 Sp010	15-07-09	21-12-09	Prof Khalid
				15-02-10	25-07-10	Prof Ashraf
Bc00005	Graphics	Naveed	Sp010	15-02-10	25-07-10	Prof Shaw
Bc00006	AI	Zaman	Sp010	15-02-10	25-07-10	Prof Ashraf
Bc00007	SE	Zeshan	Sp010	15-02-10	25-07-10	Prof Khalid

Ans:

To get the first normal form we will remove the multiple attributes without no loss.

Below is the 1NF

<u>Student-ID</u>	<u>Student-Specialization</u>	Student-Name	Specialization-Semester	Semester Start-Date	Semester End-Date	Specialization Supervisor
BC00001	<u>SE</u>	<u>Ali</u>	<u>F08</u>	15-07-08	21-12-08	Prof Khalid
BC00001	<u>AI</u>	<u>Ali</u>	<u>SP09</u>	15-02-09	25-06-09	Prof Ashraf
BC00001	<u>Graphics</u>	<u>Ali</u>	<u>F09</u>	15-07-09	21-12-09	Prof Shaw
Bc00002	AI	Safdar	Sp09	15-02-09	25-06-09	Prof Ashraf
Bc00003	SE	Usman	F08	15-07-08	21-12-08	Prof Khalid
Bc00003	Graphics	Usman	SP09	15-02-09	25-06-09	Prof Shaw
Bc00003	AI	Usman	F09	15-07-09	21-12-09	Prof Ashraf
Bc00004	SE	Naeem	F09	15-07-09	21-12-09	Prof Khalid
Bc00004	AI	Naeem	Sp010	15-02-10	25-07-10	Prof Ashraf
Bc00005	Graphics	Naveed	Sp010	15-02-10	25-07-10	Prof Shaw
Bc00006	AI	Zaman	Sp010	15-02-10	25-07-10	Prof Ashraf
Bc00007	SE	Zeshan	Sp010	15-02-10	25-07-10	Prof Khalid

2NF

To get the 2NF we will move the redundant to a separate table and also the table should be in 1NF.

<u>Student-ID</u>	<u>Student-Specialization</u>	Student-Name	Specialization Supervisor
BC00001	<u>SE</u>	<u>Ali</u>	Prof Khalid
BC00001	<u>AI</u>	<u>Ali</u>	Prof Ashraf
BC00001	<u>Graphics</u>	<u>Ali</u>	Prof Shaw
Bc00002	AI	Safdar	Prof Ashraf
Bc00003	SE	Usman	Prof Khalid
Bc00003	Graphics	Usman	Prof Shaw
Bc00003	AI	Usman	Prof Ashraf
Bc00004	SE	Naeem	Prof Khalid
Bc00004	AI	Naeem	Prof Ashraf
Bc00005	Graphics	Naveed	Prof Shaw
Bc00006	AI	Zaman	Prof Ashraf
Bc00007	SE	Zeshan	Prof Khalid

Semester table

<u>Student-ID</u>	Specialization-Semester	Semester Start-Date	Semester End-Date
BC00001	<u>F08</u>	15-07-08	21-12-08
BC00001	<u>SP09</u>	15-02-09	25-06-09
BC00001	<u>F09</u>	15-07-09	21-12-09
Bc00002	Sp09	15-02-09	25-06-09
Bc00003	F08	15-07-08	21-12-08
Bc00003	SP09	15-02-09	25-06-09
Bc00003	F09	15-07-09	21-12-09
Bc00004	F09	15-07-09	21-12-09
Bc00004	Sp010	15-02-10	25-07-10
Bc00005	Sp010	15-02-10	25-07-10
Bc00006	Sp010	15-02-10	25-07-10
Bc00007	Sp010	15-02-10	25-07-10

3NF

Now we will eliminate the redundant data and also the tables should be in 2NF

Student Table:

<u>Student-ID</u>	Student-Name
BC00001	Ali
BC00002	Safdar
BC00003	Usman
BC00004	Naeem
BC00005	Naveed
BC00006	Zaman
BC00007	Zeshan

Specialization Table:

<u>Student-ID</u>	Specialization Supervisor	Specialization Supervisor
BC00001	<u>SE</u>	Prof Khalid
BC00001	<u>AI</u>	Prof Ashraf
BC00001	<u>Graphics</u>	Prof Shaw
Bc00002	AI	Prof Ashraf
Bc00003	SE	Prof Khalid
Bc00003	Graphics	Prof Shaw
Bc00003	AI	Prof Ashraf
Bc00004	SE	Prof Khalid
Bc00004	AI	Prof Ashraf
Bc00005	Graphics	Prof Shaw
Bc00006	AI	Prof Ashraf
Bc00007	SE	Prof Khalid

Semester Table:

<u>Student-ID</u>	Specialization-Semester	Semester Start-Date	Semester End-Date
BC00001	<u>F08</u>	15-07-08	21-12-08
BC00001	<u>SP09</u>	15-02-09	25-06-09
BC00001	<u>F09</u>	15-07-09	21-12-09
Bc00002	Sp09	15-02-09	25-06-09
Bc00003	F08	15-07-08	21-12-08
Bc00003	SP09	15-02-09	25-06-09
Bc00003	F09	15-07-09	21-12-09
Bc00004	F09	15-07-09	21-12-09
Bc00004	Sp010	15-02-10	25-07-10
Bc00005	Sp010	15-02-10	25-07-10
Bc00006	Sp010	15-02-10	25-07-10
Bc00007	Sp010	15-02-10	25-07-10

