


CS614 Assignment 1 Solution Fall 2021  
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	<p style="text-align: center;"><b>Assignment No. 1</b></p> <p style="text-align: center;">Semester Fall 2021 Data Warehousing– CS614</p>	<p style="text-align: right;">Total Marks: 20</p> <p style="text-align: right;"><b>Due Date: 10-12-2021</b></p>
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**Objective:**

This assignment has been designed to develop your ability to apply De-Normalization Techniques and principles to De-Normalize data/tables.

**Instructions:**

Please read the following instructions carefully before solving & submitting the assignment:

1. The assignment will not be accepted after due date.
2. Zero marks will be awarded to the assignment that does not open or the file is corrupt.
3. The assignment file must be an MS Word (.doc) file format; Assignment will not be accepted in any other format.
4. Zero marks will be awarded to the assignment if copied (from other students, internet or any source).
5. Zero marks will be awarded to the assignment if the Student ID is not mentioned in the assignment file.

For any query about the assignment, contact only at [CS614@vu.edu.pk](mailto:CS614@vu.edu.pk)

Please do not post queries related to assignment on MDB.

**Note: The assignment covers lectures 1-9.**

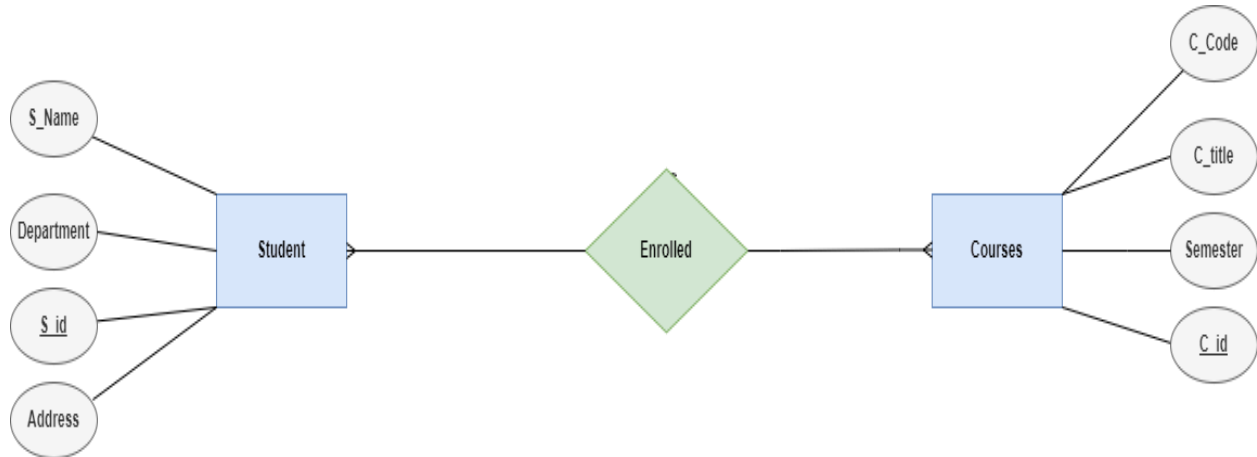
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## Question 1 (Marks 10)

Consider the following part of an ERD of Learning Management System.



For the given Entity Relationship Diagram (ERD) which de-normalization technique will be used? You are required to mention the name of the technique and also write one advantage of it, apply this technique on the given ERD and provide the resultant de-normalized table.

**Note:** As you already have a clear understanding of ERD and Normalization concepts. So, you can perform normalization at your own. Use these concepts to answer the first question.

**ANSWER:**

S_ID	S_NAME	DEPARTMENT	ADDRESS
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S_ID	C_ID
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C-ID	C_CODE	SEMESTER	C_TITLE
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**Question 2 (Marks 10)**

Consider the following information about Student and Course tables.

**Table1 (Student):**

Header size of student table: = 40 Bytes  
Number of records stored in student table: = 30000

**Table2 (Course):**

Header size course table: = 70 Bytes  
Number of records stored in course table: = 2000000

Suppose you have applied the pre-joining De-normalization technique on given tables. You are now required to calculate the size of resultant table in Megabytes (MB), Gigabytes (GB) and Terabytes (TB). The reference column in these two tables is of 9 bytes.

**Hint:** The number of records in De-normalize table will 2000000.

**ANSWER:**

Header size of resultant de-normalized table =  $40 + 70 - 9$   
=101 bytes

The number of records in De-normalized table = 2000000

Size of the De-normalized table =  $101 * 2000000$   
= 202,000,000 Bytes  
= 202 MB  
= 0.202 GB  
= 0.000202 TB

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