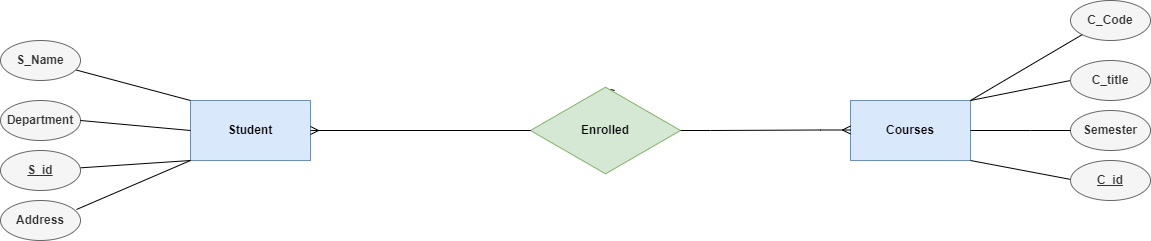
Assignment No1 Solution

**CS 614**

For Any Solution Just Comment on Website

**Question no 1**

**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**

**Solution :**

As there is many to many relationship between Student and Courses entities, so Collapsing Table De-normalization technique will be applied.

The given part of the ERD map to the following three tables.

|  |  |  |  |
| --- | --- | --- | --- |
| S\_id | S\_Name | Department | Address |
|  |  |  |  |

|  |  |
| --- | --- |
| S\_id | C\_id |

|  |  |  |  |
| --- | --- | --- | --- |
| C\_id | C\_Code | C\_title | Semester |

After collapsing the three tables corresponding to the given many to many relationship, the resultant De normalized table as follow:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S\_id | S\_Name | Department | Address | C\_id | C\_Code | C\_title | Semester |
|  |  |  |  |  |  |  |  |

collapsing tables in One-to-One relationship has fewer drawbacks than others. There are several advantages of this technique, some of the obvious ones being **reduced storage space**, reduced amount of time for data update, some of the other not so apparent advantages are reduced number of foreign keys on tables, reduced number of indexes (since most indexes are created based on primary/foreign keys). Furthermore, combining the columns does not change the business view, but does decrease access time by having fewer physical objects and reducing overhead

**Question no 2**

Consider the following information about Student and Course tables.

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.

**Solution**

The header 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