**CSY1026 Topic 10 Activity| Normalisation**

# Activity Objectives

The Aim of this topic activity is to:

1. Apply the steps for normatilsation to develop an ERM

# Topic Activity

Read through the information below and complete the topic requirements.

# University Degree Form

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Degree Code:** BSCBCOMP  **Degree Name:** Business Computing | | | | | |
| **Course Leader**  **Staff Number** | Carole Morrell  1234 | | | | |
| **Module Code** | **Module Name** | **Student no** | **Surname** | **Town** | **Age** |
| CSY1026 | Databases1 | 2001 | AUTUMN | BEDFORD | 18 |
|  |  | 2002 | WINTER | BEDFORD | 18 |
|  |  | 2003 | SPRING | LUTON | 45 |
| CSY1030 | Digital Footprint | 2001 | AUTUMN | BEDFORD | 18 |
|  |  | 2002 | WINTER | BEDFORD | 18 |
|  |  | 2003 | SPRING | LUTON | 45 |

* The University of Northampton delivers degree courses
* Each degree course is identified by a unique code, each has a title
* A course has one course Leader, a tutors who name and number is assigned to it
* The course consists of many modules (module code, module name)
* Modules have many students
* A student is given a unique enrolment number
* The student’s address and age are stored
* A student can only enrol on one degree course at any one time.

# Topic Requirements

* Normalise the form data 0using steps outlined below
* Draw an ER diagram
* Include Cardinality
* Use the following notation:

***\_\_*** *= Primary Key*

***\**** *= Foreign Key*

⚫ = *Repeat*

⚫⚫ = *Repeat in repeat*

**Steps for Normalisation**

**Unnormalised Form – remember the oath**

* List data items
* Put non-repeating data at the top
* Put repeating data at the bottom
* Use ⚫ to determine repeats
* Use ⚫⚫ to determine repeats in repeats
* Identify primary key for the whole form

**First Normal Form -** No Repeating Data

* List non repeating data
* Separate repeating and non repeating data items
* Bring down primary key from non-repeating data
* Make compound key
* Identify foreign key

**Second Normal Form -** Attributes must depend on the key, The whole key

* Look at relations with more than one item in the primary key
* Copy compound key across first
* Check that all non-key items depend on all of the key

*ie Customer name may only be dependent on Customer ID*

* If attributes dependent on part of the key:
* Copy down the part of the key that has sole dependants

*eg customer id*

* Leave a copy in the original relation and mark as a foreign key
* Pull out attributes that only depend on that part of the key

*eg customer name*

* Repeat as necessary

**Third Normal Form -** And nothing but the key

* Look at all relations with more than one non key item
* Ensure there are no mutually dependent non-key items
* ie do attributes not part of the key dependent on other attributes
* If attributes dependent on a non key attribute:
* Copy down the attribute that others depend on
* Leave a copy in the original relation and mark as a foreign key
* Pull out attributes that are dependent on that attribute
* Repeat as necessary

So help me Codd