Lab 2.1 Exercise

Answer to the following short questions and submit online:

1. In the traditional (spreadsheet) table below:
   a) Explain briefly with an example how an update anomaly might occur.
   b) How can you avoid the anomaly?

Student number	Student name	Course ID	Course name	Grade	Teacher ID	Teacher name	Teacher phone
s1198121	Nosheen	2814ict	Data management	7	s2982029	Mohammad	373 55032
s2729923	Sachin	2814ict	Data management	6	s2982029	Mohammad	373 55032
s9828313	John	2814ict	Data management	7	s2982029	Mohammad	373 55032
s8837383	Nosheen	7003ict	Database design	7	s7479400	John	555 78544
s8792892	Emon	7003ict	Database design	6	s7479400	John	555 78544
s7892829	Fahimeh	7003ict	Database design	5	s7479400	John	555 78544
s9828980	Robert	2814ict	Data management	7	s2982029	Mohammad	373 55032
s7729922	Daniel	7003ict	Database design	6	s7479400	John	555 78544
s9229923	Maria	7003ict	Database design	5	s7479400	John	555 78544

ANSWER:

a)

Update anomaly: If you wish to change the subject's name, you must do it in several entries.

Consider the following scenario: The table above has eight columns, of which two are designated as course Name and course ID. We would now need to update the database if the Course ID changed. If the table is not normalised, the course ID column will contain many entries, and if we forget to update any of them, a problem will result.

b)

In order to prevent anomalies, the database must be normalised by carefully organising the data.

1. Eliminating all redundant information from the database.

2. Eliminating unnecessary reliance on deletions, updates, and insertions.

3. decreasing the need to completely redesign the database.

2) In the entity relationship diagram (ERD) below, for each entity write:
   a) Its primary key,
   b) Connectivity,
   c) Participation, and
   d) Cardinality.

Your answers (complete the table):

Entities	Primary keys	Connectivity	Participation	Cardinality
COURSE	CRS_CODE	1:M	Mandatory	(1,1)
CLASS	CRS_CODE CLASS_SECTION	1:1	Optional	(0, M)