**Lab3a**

**A screenshot of a social media post

Description automatically generated**

**Lab3b**

**A screenshot of a social media post

Description automatically generated**

**Lab3c**

**A screenshot of a social media post

Description automatically generated**

**Comp1168-Lab3 -Conceptual Data Modeling (Draw.io or MS Visio®)**

Data Modeling is done usually at **three varying levels of abstraction** (detail).

**Conceptual Data Model:** is a “high level description of business needs”. It contains only two components **ENTITIES** (a real life object about which we need to store data) and **RELATIONSHIPS** between/among these entities. Entities are implemented as **tables** in the database. We don’t add any attributes (abstraction for **columns**) information in the conceptual data model as it is a high level data model without a lot of details. We will add more details as we move to next levels of abstraction (Logical and Physical data models).

The Relationship (based on multiplicity/cardinality) between two entities-in a conceptual data model- could be one of the following:

* **One to One (rare)**
* **One to Many**
* **Many to Many**

**The Modeling process:** Read the business case (problem description) and identify all the objects for which we need to store data in the database **(ENTITIES)** and then identify the **RELATIONSHIPS** between entities along with the relationship multiplicities (or cardinalities)

**Examples:**

**Customer to Order (One to Many)**



**Order to product (Many to Many)**



**Create Conceptual Models using MS Visio for the following case descriptions:**

1. You have been asked to design a data base that would store data for ABC Company, which is a small online retailer. ABC would like to store data about its **customers**, **orders**, **items**, **couriers**. Each customer may place multiple orders. An item may be part of many orders and an order typically contains multiple items. Each order is shipped via one of the couriers (parcel companies) and ABC Inc. has contracts with several couriers for shipping its customer orders.
2. ABC College has many departments and each department offer courses. Some popular courses have many course sections. Each Faculty member belongs to a particular department and **may** teach more than one course sections of a course, but in some semesters a faculty member may not teach any. Each course section must have at least one faculty number teaching it, but sometimes multiple faculty members teach a course section. Furthermore, to make sure that all course sections are similar, one faculty member is assigned as course coordinator to oversee the course, and each faculty member may coordinate many courses. Students may enroll in many course sections and receive a grade at the end of the term for every course that they have enrolled in.
3. An Attorney is retained by one or more clients for each case and each case can also be filed by many clients collectively (class action?).Sometimes a team of attorneys is assigned to a case by the Managing partner in the firm. Each client, case and attorney is identified by a unique id and you can assume other attributes to represent these entities. Each case is heard by one and only one court but a single court can hear many cases from this law firm. Each court has one or many judges assigned to it but one judge works only in one court. Normally one judge hears a particular case but sometimes for bigger cases a bench of judges are assigned to the case by the presiding judge for that court. The cases remain active until the court passes the final judgement on it.