DATABASE SYSTEMS WS2122
ASSIGNMENT 1

NOTES

→ *Students should read underline everything presented below carefully.*
→ *Your team will be randomly assigned with one topic in the "business description" section.*
→ *This assignment 1 is worth 15% of the overall grade.*
→ *This assignment is on relational data modelling.*
→ *Appropriate softwares can be used to support your design.* → *Plagiarism must be avoided. Otherwise, zero mark is given.*

I. BUSINESS DESCRIPTION

FABRIC AGENCY DATABASE

The agency Y supplies the wholesale fabric by bolts for their customers. Each bolt belongs to a specific category such as: silk, khaki, crewel, jacquard, faux silk, and damask. A bolt has a code that is unique within a category, and a length. Each category of fabric has a unique code, name, color, current price(s) (including the price, and the date when that price was made), and quantity (the number of bolts of this category in the warehouse).

The agency takes fabric sources from many suppliers. Each supplier provides many different categories of fabric for the company. However, each category is stemmed from only one supplier. The database needs to store some information about suppliers such as: a unique code, name, address, bank account, tax code, phone number(s). Whenever fabric sources are imported into the warehouse, the quantity of each category, the date, the purchase price must be stored in the database.

A customer has a unique code, name (first and last), address, phone number(s), arrearage (unpaid debt), and partial payments (including the date and amount of money). For example, a customer has $1000 in arrears, he or she is allowed to partially pay for the agency (e.g., he or she pays $200 at the first time, and then $300 for the next, and so on till he or she gets out of debt).

A customer makes an order. Each order contains one or more bolts, and processed by an employee at a specific date and time. An order has a unique code, and a total price. Information about employee consists of a unique code, name (first and last), gender, address, and phone. When a customer makes an order, the system needs to track the order status by time, including "new", "ordered", "partial paid", "full paid", or "cancelled". If the order is cancelled, the agency staffs need to input the reason for that cancellation.

Moreover, the agency wants to track the history payment of a customer for each order he or she successfully made. In case the arrearage is over $2000, the system has to put that customer in "warning" mode and alert the agency. If that case stays for more than 6 months, the arrearage is marked as "bad debt".

The agency has different types of employees: managers, partner staffs, operational staffs, and office staffs. One partner staff will take care of one or more suppliers while one office staff will be in charge of one or more customers. One supplier is taken care by only one partner staff whereas one customer is cared by only one office staff. The operational staff will be in charge of customer order.

Note: **'Bolt'** is a unit of measurement used as an industry standard for a variety of materials from wood to canvas, typically materials stored in a roll.

II.   REQUIREMENTS

1. Design a fully labelled (E)ERD according to your business description. The diagram has to show appropriate entities (with key attributes underlined), relationships, cardinality ratios, and optional & mandatory membership classes.
2. Mapping your (E)ER diagram above to a relational database schema.
3. Identify all constraints not shown in your (E)ER diagram.

III.   SUBMISSION DEADLINE

11pm, October 10th, 2021

IV. HOW TO SUBMIT

The group leader submits your team work on BKeL with only one single zip file. The file name will be <class code>_<team number>_<submiter name>.zip (e.g., CC02_1_NguyenVanA.zip). The zip file may contain resources as follows:

- Team member list
- A single word file containing your (E)ER diagram, relational database schema, and constraints
- Other supporting files (if any)

Note: Do not forget to press "Submit" button on BkeL

V. EVALUATION

Assignment 1 (10%)

Mark: 8-10
  ↦ Correctly identify all entities and their relationships
  ↦ Identify all appropriate attributes including primary keys of each entity
  ↦ Correctly state the membership class of each entity
  ↦ (E)ER diagram is correctly drawn with appropriate labels
  ↦ Mapping (E)ER diagram to a relational database schema correctly ↦ All constraints are correctly identified

Mark: 6-7.5
  ↦ Correctly identify all entities and their relationships
  ↦ Identify all appropriate attributes including primary keys of each entity
  ↦ Correctly state the membership class of each entity
  ↦ (E)ER diagram is clearly drawn (may contain small mistakes)
  ↦ Mapping (E)ER diagram to a relational database schema may have a few mistakes ↦ All constraints are identified but slightly incorrect

Mark: 5-5.5
  ↦ Correctly identify most of the entities and their relationships
  ↦ Identify most of the appropriate attributes including primary keys of each entity
  ↦ State most of the membership class correctly
  ↦ (E)ER diagram is drawn (may contain mistakes)
  ↦ Mapping (E)ER diagram to a relational database schema may have several mistakes ↦ All constraints are identified but incorrect

Mark: 4-4.5
- ✈ Correctly identify most of the entities and their relationships
- ✈ Identify most of the appropriate attributes including primary keys of each entity
- ✈ State most of the membership class correctly
- ✈ (E)ER diagram contains mistakes
- ✈ Mapping (E)ER diagram to a relational database schema may have significant mistakes
- ✈ All constraints are slightly neglected

Mark: 0-3.5
- ✈ Entities and their relationships are not identified correctly
- ✈ Attributes or primary keys of each entity are not identified
- ✈ Membership class are not correctly stated
- ✈ (E)ER diagram is not completed
- ✈ Mapping (E)ER diagram to a relational database schema is not done ✈ All constraints are totally neglected

-- **GOOD LUCK!** --