

DATABASE SYSTEMS SS2021 - ASSIGNMENT 2

Notes

- ❑ Students should read *everything* presented below carefully.
 - ❑ This assignment is worth **15%** of the overall grade.
 - ❑ Appropriate softwares can be used to support your implementation
 - ❑ Assignment 2 is team work.
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Submission

You should submit your coursework to BKeL with one zip file (all source code) **by 11pm** on or before the dates below:

Assignment 2: Saturday 12th December 2020

Requirements

In the assignment 2, you are expected to implement and query the database as shown in Part 1A in the following page, **using a DBMS of your choice**:

- (i) Designing the database at the physical level.
- (ii) Implementing the above physical database.
- (iii) Performing database operations, such as SELECT, INSERT, UPDATE, DELETE...
- (iv) Building a desktop or web application to connect to the database.

Assignment 2

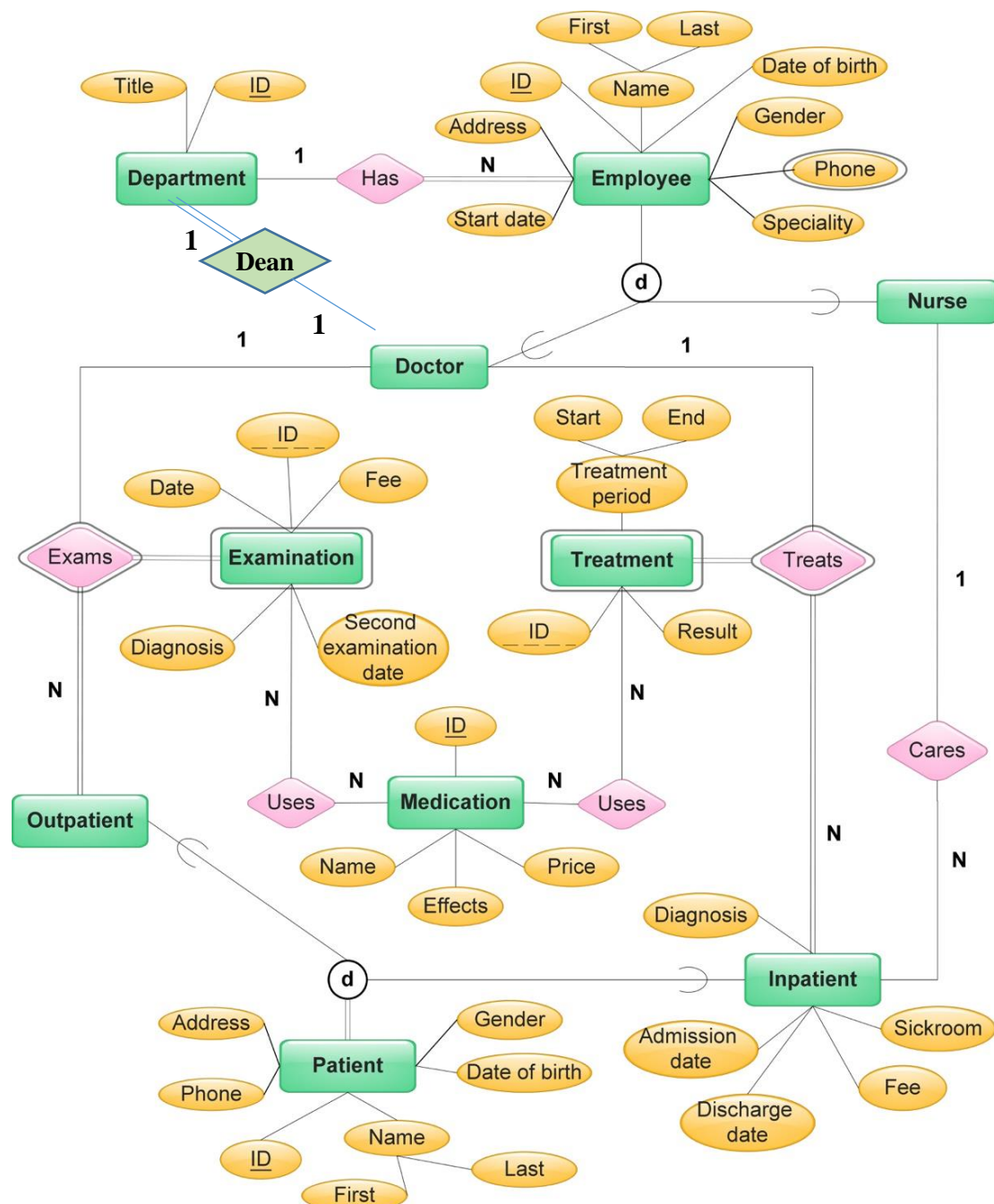
Part 1: Physical Database Design (4 marks)

A- Implementing the database (3 marks)

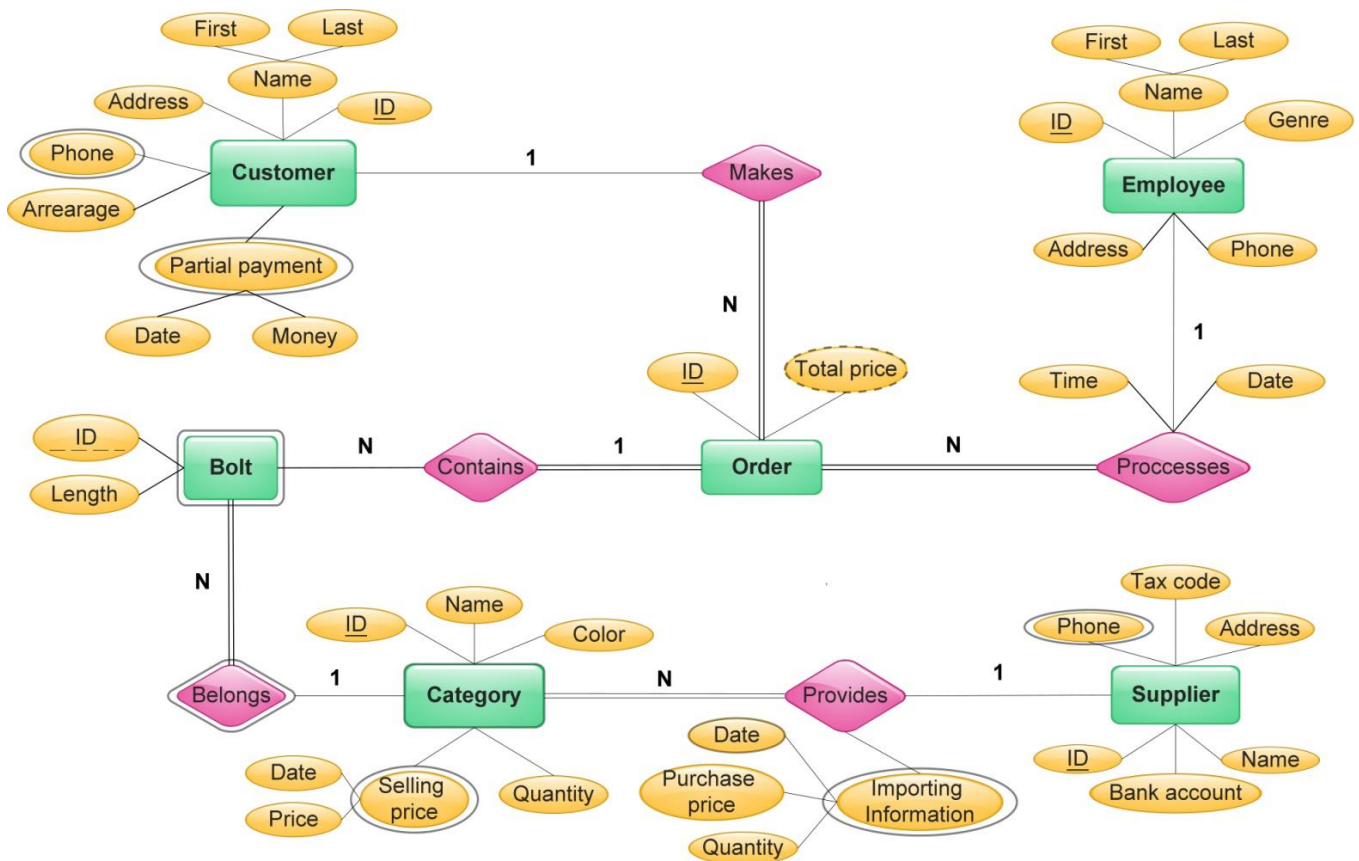
You have to implement your database, based on your assigned topic, into the physical database.

- Giving the full explanation of your choices of *data types*, *data length*, and *constraints* in your database.
- It is worth noting that those diagrams below are for your reference.

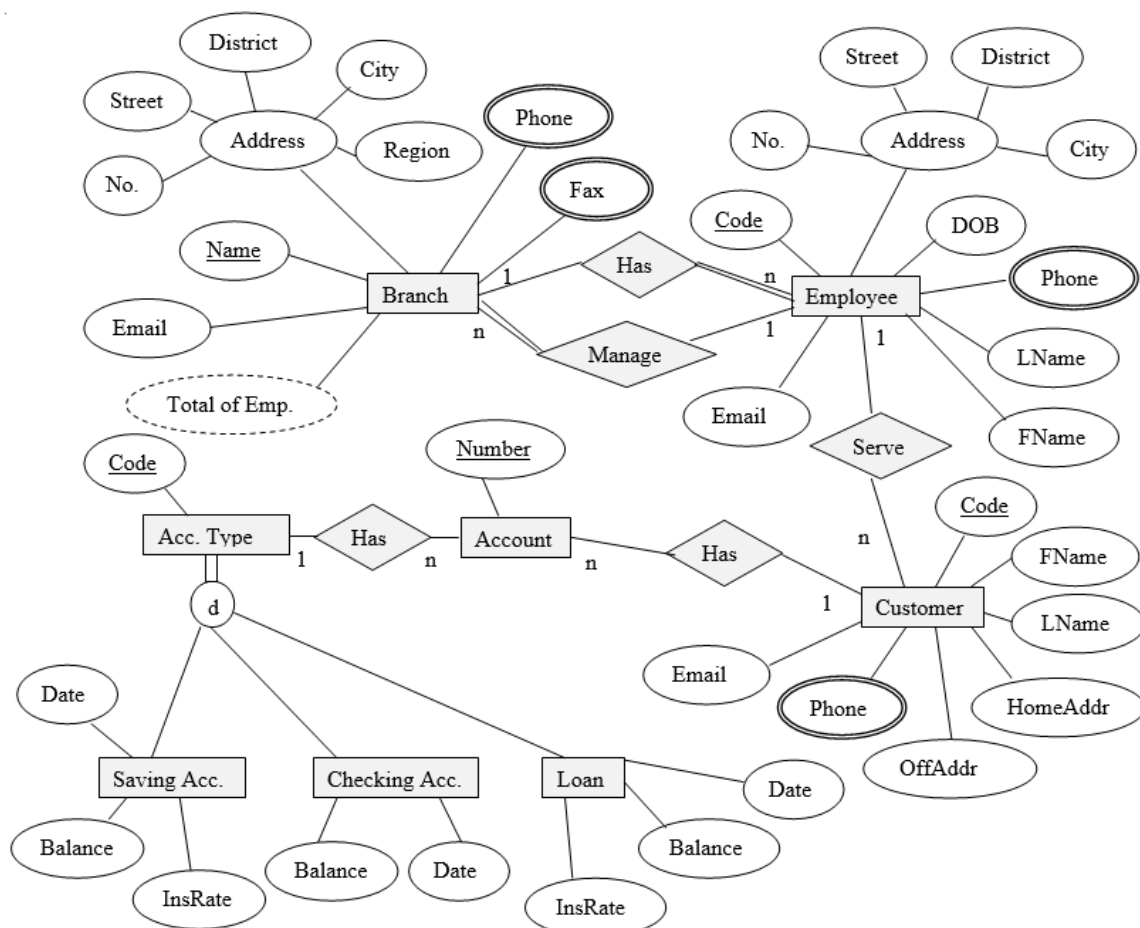
1. HOSPITAL DATABASE



2. FABRIC AGENCY DATABASE



3. BANK DATABASE



B- Insert data (1 mark)

- Insert data for all tables in the database.
- Requirements: The data in the tables must be meaningful, and each table has at least 4 rows.

Part 2: Store Procedure / Function / SQL (3 marks)**2.1 Hospital Database**

- a. Increase Inpatient Fee to 10% for all the inpatients who are admitted to hospital from 01/09/2020. (0.5 mark)
- b. Select all the patients (outpatient & inpatient) of the doctor named 'Nguyen Van A'. (0.5 mark)
- c. Write a function to calculate the total medication price a patient has to pay for each treatment or examination (1 mark).
Input: Patient ID
Output: A list of payment of each treatment or examination
- d. Write a procedure to sort the doctor in increasing number of patients he/she takes care in a period of time (1 mark).
Input: Start date, End date
Output: A list of sorting doctors.

2.2 Fabric Agency Database

- a. Increase Silk selling price to 10% of those provided by all suppliers from 01/09/2020. (0.5 mark)
- b. Select all orders containing bolt from the supplier named 'Silk Agency'. (0.5 mark)
- c. Write a function to calculate the total purchase price the agency has to pay for each supplier (1 mark).
Input: Supplier ID
Output: A list of payment
- d. Write a procedure to sort the suppliers in increasing number of categories they provide in a period of time (1 mark).
Input: Start date, End date
Output: A list of sorting suppliers.

2.1 Bank Database

- a. Decrease interest rate to 10% for all saving accounts whose opening date is from 01/09/2020. (0.5 mark)
- b. Select all the account information of the customer named 'Nguyen Van A'. (0.5 mark)
- c. Write a function to calculate the total balance for each account type of a customer (1 mark).
Input: Customer ID
Output: A list of balance per account type
- d. Write a procedure to sort the employee in decreasing number of customers he/she takes care in a period of time (1 mark).
Input: Start date, End date
Output: A list of sorting customers.

PART 3: BUILDING APPLICATIONS (3 marks)

Build an application with the following requirements:

- Programming environment: optional (desktop application or web application).
- Programming language: optional.
- The application connects to the database created in Part 1 and Part 2.
- Display the data on the form and perform the requirement below.
- Students need to prepare data, scripts to demo the application when reporting.

I. Create user (0.5 mark)

Log in to the database with DBA privileges such as SYS / SYSTEM, create a user named Manager and assign all access rights to this user.

II. Requirement function (2.5 marks)

- Log in, log out (enter the user name/password for Manager account to log in/out). (0.5 mark)
- Log in to the user manager and do the following (2 marks):
 - **Hospital Database**
 1. Search patient information: Search results include the name, phone number and information about the treatment and visit of the patient. (0.5 mark)
 2. Add information for a new patient. (0.5 mark)
 3. List details of all patients which are treated by a doctor. (0.5 mark)
 4. Make a report that provides full information about the payment for each treatment or examination of a patient. v
 - **Fabric Agency Database**
 1. Search material purchasing information: Search results include the name, phone number of the suppliers and information about the supply. (0.5 mark)
 2. Add information for a new supplier. (0.5 mark)
 3. List details of all categories which are provided by a supplier. (0.5 mark)
 4. Make a report that provides full information about the order for each category of a customer. (0.5 mark)
 - **Bank Database**
 1. Search customer information: Search results include the name, phone number and information about his/her account. (0.5 mark)
 2. Add information for a new account. (0.5 mark)
 3. List details of all accounts which belong to a customer. (0.5 mark)
 4. Make a report that provides full information about the service who serves which customer. (0.5 mark)

----- **HAPPY IMPLEMENTATION!** -----