

Assignment 1

Aim

The objectives of this assignment include:

- Interpretation, Analysis and Creation of Conceptual Schema
- Translation of Conceptual Schema into Relational Schemas

Task 1 (5 Marks)

Background

As a development team leader, you have been asked to design the database for a local company with the requirements given as follows.

Business Requirements

Good Lift Private Limited is a company that services lifts in domestic residential and commercial buildings. Good Lift provides lift services (routine servicing, repair etc.) on a contract basis. A contract covers one or more buildings over a period of time. Therefore, each contract has a unique code, start date and end date of the contract period, remarks, the building(s) covered, the employee (Good Lift) and the customer signing the contract. Customer information includes customer code (unique), name, address, phone and email. For each building, the information required includes block number, street name and postal code. For commercial buildings, the operating hours must be recorded so that the services can be performed after office hours. Each building has one or more lifts. The lifts are identified as A, B, C, D etc. in each building. In addition, the lift's manufacturer, model and capacity must be recorded in the database.

Good Lift maintains lift service record for each service performed. A service record has a unique service number, service date, service type (routine, repair or emergency), service detail, the lift (only one) serviced, and the technicians performing the service. A lift can be serviced multiple times within the period of a service contract.

Good Lift employee's data include employee Id, name, gender, date of birth, email (at Good Lift) and office phone number. For the technicians at Good Lift, their certificates and specialty (if any) must also be recorded.

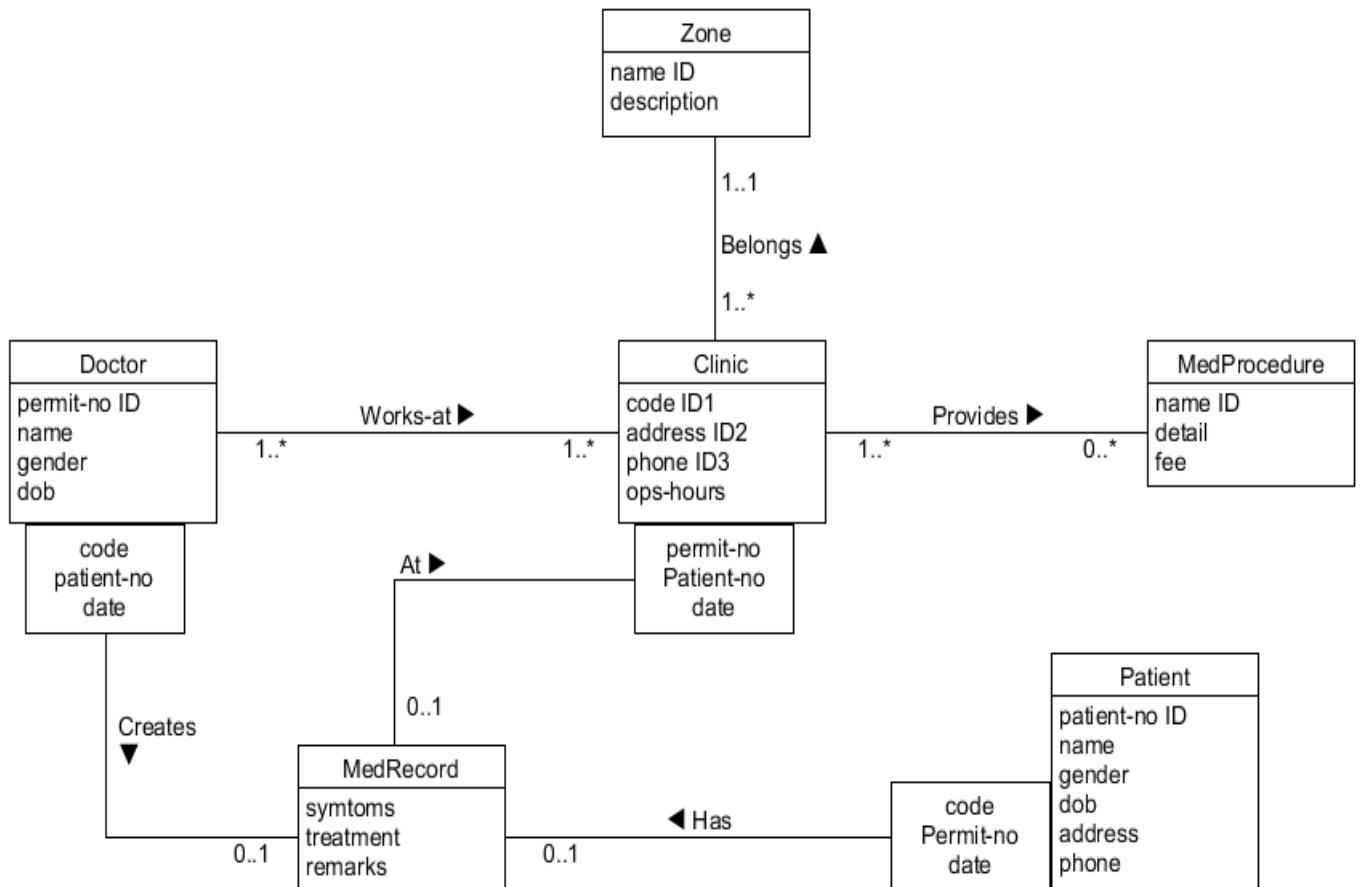
Task 1 Requirements

- A) Based on the business requirements stated in the above scenario, use UMLet tool to create a drawing of a conceptual schema in a notation of UML simplified class diagrams. No other notation will be accepted. Hand-drawn diagram will NOT be accepted.
- B) You are not allowed to modify the requirements or add/change the attributes stated in the scenario.
- C) *If necessary*, you may include assumptions to justify your design decision if you think the requirements do not provide a clear decision. For instance, you may state the assumptions which lead you to decide that the association is one-to-one, one-to-many or many-to-many. If you include assumptions in your design, the assumptions must not re-state or contradict the requirements stated in the scenario.

Task 2 (5 Marks)

Background

You have been tasked by your manager to assist with the analysis, design and implementation of a database system for a local clinic chain. You are to transform the following conceptual schema into a set of relational schemas.



Task 2 Requirements

- A) Transform the above conceptual schema to a set of relational schemas. You are not allowed to add or modify attributes in the conceptual schema.
- B) The relational schemas must be presented in the format described on page 44 of the lecture file: Logical Design.pdf. (Refer to the screenshot below.)

```
CUSTOMER(name, phone, address)
PRIMARY KEY = (phone)

FREQUENT-CUSTOMER(phone, points)
PRIMARY KEY = (phone)
FOREIGN KEY = (phone) REFERENCES CUSTOMER(phone)

ORDERS(order#, odate, phone)
PRIMARY KEY = (order#)
FOREIGN KEY = (phone) REFERENCES CUSTOMER(phone)
```

Submission

- A) Please submit a single PDF file.
- B) Please name your file as: <Your group>_<UOW ID>_<full name>.pdf. For instance, T1_1234567_FooHong.pdf
- C) Submission must be uploaded to Moodle before the due date (set on Moodle). NO email submission is allowed.
- D) The late submission penalty (25% per day) will be applied regardless of the reasons: network delay, disconnection, etc. Therefore, you are advised to avoid peak submission period near the submission deadline.
- E) Re-submission (because of incorrect file included in the original submission) will be treated as late submission if it is submitted after the deadline.