**Exercise 1**

Diagram

Description automatically generated with low confidence

In this ERD, the entities are doctor and patient. Every entity has a primary key to make sure a relationship is possible. In the entity doctor, the attributes are id, name, address and phone number. The entity patient’s attributes are id, doctor Id (foreign key), name, address, phone number, diseases and treatment.

Here, a patients needs be registered under only one doctor present in the clinic. But all doctors does not need to have a patient under there name as some maybe busy in research activity.

**Exercise 2**

Diagram

Description automatically generated

In this ERD, the entities are class, teachers and room. There is primary key in every entity so to make sure making a relationship is possible. In the entity class, attributes are id, room id (foreign key), number of students and class time. In the entity teacher, the attributes are id, name, address and phone number. In the entity room, the attributes are id and name.

Here, a class can be taught by many teachers and a teacher can teach many classroom, thus a third entity is introduced as class\_teacher to make the relationship possible. The common attributes of both the entities are subject and time. Here, a specific room is used by same class everyday but the same room can be used by many class at different time hours.

**Exercise 3**

Diagram

Description automatically generated

In this ERD, the entities are employee, skill and machine. Making relation due to the presence of primary key and foreign key. In employee entity, the attributes are id, skill id (foreign key), name, address and phone number. In skill entity, the attributes are id, machine-id (foreign key), and name. In the machine entity, the attributes are id, name and description.

Here an employee can possess at most one skill but the same skill may be equipped by none or many. A skill can allow an employee to operate or maintain many machines in their field.