Assignment 3

Instructions

You have been hired as a database designer to develop a database for an Auto Repair business.
You are given the following requirements:

1. The database should contain several shops each one having a unique ID, a name, an address, and a phone number.
2. The database should contain several mechanics each one having a unique ID, a first name, a last name, an address, an email, a phone number, a birth date, and a specialty.
3. The database should contain several customers each one having a unique ID, a first name, a last name, an address, an email, and a phone number.
4. The database should include several cars each one having a unique VIN, a make, a model, a color, and a manufactured year.
5. A mechanic can work in at least two shops and at most 10 shops and a shop has only one mechanic.
6. Each customer can bring at most 2 cars.
7. A mechanic does one or more services which have a unique ID, a description, parts, a date, a time, and a cost.
8. Services performed by a mechanic will repair the car and a car can be repaired by one or more services.

Tasks:

- (55%) Construct an E-R diagram to capture as much requirements as possible. Model all the constraints which can be expressed in E-R model. (When you construct your E-R diagram, state clearly any assumptions that you made and that do not violate the requirements.)
- (5%) State any constraints which can NOT be captured by the E-R model.
- (40%) Translate your E-R diagram into relational tables. For each relation, identify the primary key, any foreign keys, and the necessary constraints.

Hand-drawn submissions will not be accepted and will receive a 0.

You may use any tool you like to draw the diagram; this is a good one: https://www.draw.io/. You can also use any applications from the Microsoft or Libre Office suites if you are comfortable with those. The school machines have the program Dia, which is very useful for making all sorts of diagrams. **The only restriction is that you must ultimately submit your diagram as a PDF**.