1. (32 pts) Write SQL statements to create tables to implement the data model of the E/R diagram given below. Be sure to include appropriate keys and integrity constraints.

![E/R diagram](image)

2. (33 pts) Consider a relational table with data about automobile accidents:

   accident(license_plate, accident_date, driver_ssn, damage_amount)

   a) (10 pts) Write an HTML form for entering an accident damage report. For example, the form might look like the sample below.

   b) (23 pts) Write a Java servlet to process the form by adding a row to the accident table, and then display a message in the user’s browser indicating that the report data was successfully entered.
3. (35 pts) Consider the following relational schema for an airline flight information system:

```
Flight(flno integer, from string, to string, distance integer, departs time, arrives time, price real)
Aircraft(aid integer, aname string, cruising_range real)
Employee(eid integer, ename string, salary real)
Certification(eid integer, aid integer)
```

Attributes belonging to primary keys are underlined. Note that the Employee relation describes pilots and other kinds of employees as well. Every pilot is certified for some aircraft, and only pilots are certified to fly.

a) Write an SQL statement to create the Aircraft table with the constraint that cruising range must be between 500 and 5000.

b) Write an SQL statement to create a constraint that all pilots (but not other employees) must have a salary of at least 50,000.

c) Write an SQL query to find the names of pilots who are certified on some aircraft with a cruising range over 3000 miles, but are not certified on a Boeing747.

d) Write an SQL query to find the eid of employees who earn at least as much as any other employee, i.e. find the highest paid employee(s).

e) Write an SQL query to find for each aircraft, the average salary of pilots who are certified on that aircraft.