

Full Project in C# - DVLD Project

Driving & Vehicle License Department (DVLD)

System 1: Driver's License Issuance and Management System

The tasks of the Driver's License Department vary from country to country, but generally, these departments include a set of common and essential tasks to regulate and manage the process of issuing driver's licenses and ensuring safe drivers on the roads.

This is a simplified list of requirements for the services that the system will provide:

Main Services Provided:

1. First-time license issuance service. Application fee: \$5.
2. Re-examination service. Application fee: \$5.
3. Driver's license renewal service. Application fee: \$5.
4. Issuance of a replacement for a lost license. Application fee: \$5.
5. Issuance of a replacement for a damaged license. Application fee: \$5.
6. Release of a held license. Application fee: \$5.
7. Issuance of an international license. Application fee: \$5.

To obtain the service, the applicant must submit a request for the required service and pay the fee.

Application Information:

- Application number
- Application date
- Applicant's ID number (national number). If it does not exist in the system, the user must add this person to the system first.

- Type of application according to the requested service from the list above.
- Application status (new, pending, completed).
- Application fee paid.
- If the application is for a new driver's license:
 - The required license class is determined.
 - It is confirmed that the applicant does not already hold a license of the same class.
 - It is confirmed that the applicant does not have a previous application of the same type (incomplete).

Each application is linked to a person in the system, and each person can have more than one application.

Applicant Information:

The applicant's information must be stored in the system and should not be duplicated. The applicant's information includes:

- National number
- Full name
- Date of birth
- Address
- Phone number
- Email
- Nationality
- Personal photo

Details of Services Provided:

1. First-time License Issuance Service:

The applicant can apply for a specific license class. The details of the license classes are as follows:

1. Class 1: Small Motorcycle License

- Allows the driver to operate small motorcycles.
- Suitable for motorcycles with small capacity and limited power.
- Minimum age: 18 years.

- License fee: \$15 in addition to the application fee.
- License validity: 3 years.

2. Class 2: Large Motorcycle License

- Allows the driver to operate large and powerful motorcycles.
- Minimum age: 21 years.
- License fee: \$30 in addition to the application fee.
- License validity: 5 years.

3. Class 3: Regular Car License

- Allows the driver to operate light vehicles and personal cars.
- Minimum age: 18 years.
- License fee: \$20 in addition to the application fee.
- License validity: 10 years.

4. Class 4: Commercial Driving License (Taxi/Limousine)

- Allows the driver to operate taxis or limousines.
- Minimum age: 21 years.
- License fee: \$200 in addition to the application fee.
- License validity: 10 years.

5. Class 5: Agricultural Vehicle License (Tractors/Plowing Vehicles)

- Allows the driver to operate all agricultural vehicles.
- Minimum age: 21 years.
- License fee: \$50 in addition to the application fee.
- License validity: 10 years.

6. Class 6: Small and Medium Bus License

- Allows the driver to operate small and medium buses.
- Minimum age: 21 years.
- License fee: \$250 in addition to the application fee.
- License validity: 10 years.

7. Class 7: Trucks and Heavy Vehicles License

- Allows the driver to operate trucks and heavy vehicles such as large buses and trucks.
- Minimum age: 21 years.
- License fee: \$300 in addition to the application fee.
- License validity: 10 years.

License Class Parameters in the System:

- LicenseClassID
- ClassName
- ClassDescription
- MinimumAllowedAge: Minimum allowed age for this license.
- ValidityLength: How many years this license will be valid.
- ClassFees: Fees for this license class.

Conditions for Applying for a License:

- The applicant's age must match the minimum age required for the requested license class. The system must reject the application if this condition is not met.
- The system must reject the application if the applicant already holds a license of the same class.
- The applicant can obtain more than one license from different classes, e.g., a small vehicle license and a motorcycle license.
- The applicant must provide valid personal identification documents, such as a passport or national ID card.
- The applicant must have a certificate of completion from a vehicle driving training course before being eligible to take the tests.

Tests Required:

The applicant must pass the following tests in order:

1. Vision Test:

- A medical test to verify the applicant's health and visual ability to drive.
- The test fee is \$10.
- The system must record the test date and result (pass/fail).
- If the applicant fails, they must correct their vision (e.g., with glasses or surgery) and schedule another test.

2. Theoretical Test:

- A test on traffic laws and driving safety.
- The test fee is \$20.

- The system must record the test date and result (pass/fail).
- If the applicant fails, they must schedule another test and pay the fee again.

3. Practical Driving Test:

- A test to assess the applicant's ability to control the vehicle and comply with traffic rules.
- The test fee varies depending on the license class.
- The system must record the test date and result (pass/fail).
- If the applicant fails, they must schedule another test and pay the fee again.

License Issuance:

After passing all the tests and meeting the conditions, a driver's license is issued with the following information:

- License number
- License holder's photo
- License holder's national number
- License holder's name
- License holder's date of birth
- License class
- Issue date
- Expiry date
- License conditions in the form of notes
- License status (new, replacement for lost, replacement for damaged, renewal)

Additional Services:

- **License Inquiry Service:**
 - The system allows inquiring about the licenses held by a person using their national number or license number.
- **Re-examination Service:**
 - This service allows scheduling a new appointment and re-taking the test based on the previous test result.

- The applicant must have failed the test to be eligible for a re-examination.
- The service fee is \$5 in addition to the test fee.
- The appointment is manually scheduled by the user.
- This service has a new application number and is linked to the original application.
- Two appointments for the same test cannot be scheduled.
- **License Renewal Service:**
 - This service allows renewing a driver's license.
 - The service fee is \$10.
 - The applicant must pass a vision test after paying the fee.
 - The applicant must submit the expired license to renew it.
- **Issuance of a Replacement for a Lost License:**
 - This service allows issuing a replacement for a lost license.
 - The system must verify that the license is not held before allowing the issuance of a replacement.
 - The service fee is \$20.
 - The applicant must submit the expired license to renew it.
- **Issuance of a Replacement for a Damaged License:**
 - This service allows issuing a replacement for a damaged license.
 - The applicant must submit the damaged license to allow the issuance of a replacement.
 - The service fee is \$20.
 - The applicant must submit the damaged license to renew it.
 - The system must keep a record of the replacement issuance history.
- **Release of a Held License:**
 - This service allows releasing a held license after paying the fine and returning the license to its owner.
 - The system must record the release date.
- **Issuance of an International License:**
 - This service allows issuing an international driver's license with a validity period defined in the system.
 - This service is only available to holders of Class 3 licenses (regular car license) and the license must not be expired or held.
 - The service fee is \$20.

- An international license cannot be issued if there is an active international license. If an active license exists, it is canceled, and a new license is issued.
- The system must keep a record of all previously issued licenses.

System Management:

1. User Management:

The system must allow managing system users as follows:

- Add a user by linking them to a person in the system.
- View user information.
- Modify user information.
- Delete a user.
- Suspend a user account.
- Assign permissions to users.

User Information:

- National number
- Full name
- Date of birth
- Address
- Phone number
- Email
- Nationality
- Personal photo
- Username
- Password

2. Person Management:

The system must allow managing persons as follows:

- Search for a person by their national number.
- View person information.
- Add a new person.
- Modify person information.
- Delete a person.
- A person cannot be duplicated with the same national number.

Person Parameters:

- National number
- Full name
- Date of birth
- Address
- Phone number
- Email
- Nationality
- Personal photo

3. Application Management:

The system must allow managing applications as follows:

- Search for an application by application number.
- Search for applications by the person's national number.
- View a list of applications.
- View application information, including related applications.
- Modify application information.
- Filter applications by status.

4. Test Management:

The tests are fixed in the system. The system must allow modifying their fees only.

5. License Class Management:

The license classes are fixed in the system. The system must allow modifying the age, license validity, and fees.

6. License Hold:

This feature allows holding licenses, specifying the license number, the fine, the reason for the hold, and the hold date.

7. Logging:

All actions on the system must be logged with the user who performed the action and the action date.