

1. Entities in the Specification

Here are the key entities:

Entity	Description
Person	Represents the individual applying for and holding a license.
Motor Vehicle Branch	Represents branches where exams are taken and licenses are issued.
Learner Exam	Represents the learner's exam that a person must take at any branch.
License	Represents the license issued after passing an exam. There are two types: Learner's License and Driver's License.
Driver Exam	Represents the driver's exam for upgrading from learner to full driver's license.

2. Relationships Among Entities

Relationship	Description
Person takes Learner Exam at Motor Vehicle Branch	One-to-Many — A person can take multiple learner exams, at different branches.
Person holds a License	One-to-One — A person can have at most one active license (either learner or driver's).
Learner Exam results in License issuance	One-to-One — Passing a learner exam results in a learner license.
Person takes Driver Exam at Motor Vehicle Branch	One-to-Many — A person can take multiple driver exams at different branches.
Driver Exam results in License upgrade	One-to-One — Passing a driver exam results in a driver's license.

3. Attributes of Entities and Relationships

Person

Attribute	Description
PersonID (PK)	Unique identifier for the person
FirstName	Person's first name
LastName	Person's last name
DateOfBirth	Date of birth

Motor Vehicle Branch

Attribute	Description
BranchID (PK)	Unique identifier for the branch
BranchName	Name of the branch
Location	Address/City/Province of branch

Learner Exam

Attribute	Description
ExamID (PK)	Unique identifier for the exam
ExamDate	Date of the exam
Result	PASS/FAIL
PersonID (FK)	Reference to Person
BranchID (FK)	Reference to Motor Vehicle Branch

Driver Exam

Attribute	Description
ExamID (PK)	Unique identifier for the exam
ExamDate	Date of the exam
Result	PASS/FAIL
PersonID (FK)	Reference to Person

BranchID (FK)	Reference to Motor Vehicle Branch
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License

Attribute	Description
LicenseNumber (PK)	Unique license number
PersonID (FK)	Reference to Person
IssueDate	Date license was issued
ExpiryDate	Date license expires
LicenseType	LEARNER/DRIVER
Restriction	Optional restriction (only for learner's license)
CompletedDriverEducation	Boolean (only relevant for driver's license)

4. Constraints Between Entities and Relationships

- Person can take multiple Learner Exams, but only once per week after a failure.
- Person can only have one active license at a time.
- A learner license has a maximum validity of 6 months.
- A learner license can only have one restriction (optional).
- A driver's license must record whether driver's education was completed (for insurance).
- Driver Exam can be taken only before learner license expires.

ERD Diagram Structure

Person (PersonID, FirstName, LastName, DateOfBirth)

MotorVehicleBranch (BranchID, BranchName, Location)

LearnerExam (ExamID, ExamDate, Result, PersonID [FK], BranchID [FK])

DriverExam (ExamID, ExamDate, Result, PersonID [FK], BranchID [FK])

License (LicenseNumber, PersonID [FK], IssueDate, ExpiryDate, LicenseType, Restriction, CompletedDriverEducation)

Relationships:

- Person takes LearnerExam at MotorVehicleBranch
- Person takes DriverExam at MotorVehicleBranch
- Passing LearnerExam creates a Learner License
- Passing DriverExam creates a Driver License (replaces learner license)

Use this site to create ERD diagrams

Website: <https://www.lucidchart.com>

