UNIVERSITÉ Concordia UNIVERSITY

GINA CODY SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

COURSE

SOEN 353: Databases

PROJECT NAME

RENTRACK

TEAM NAME

KMNJ

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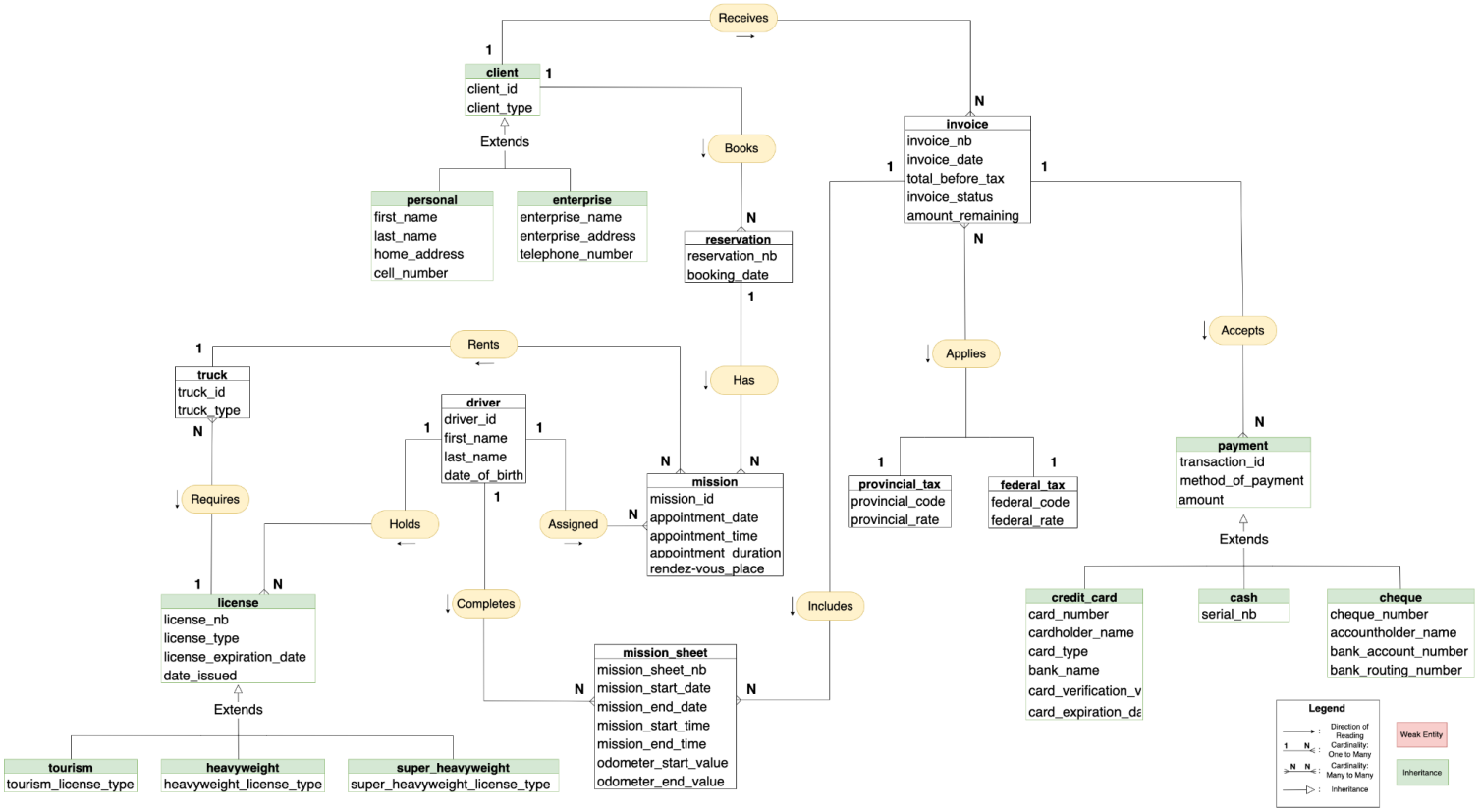
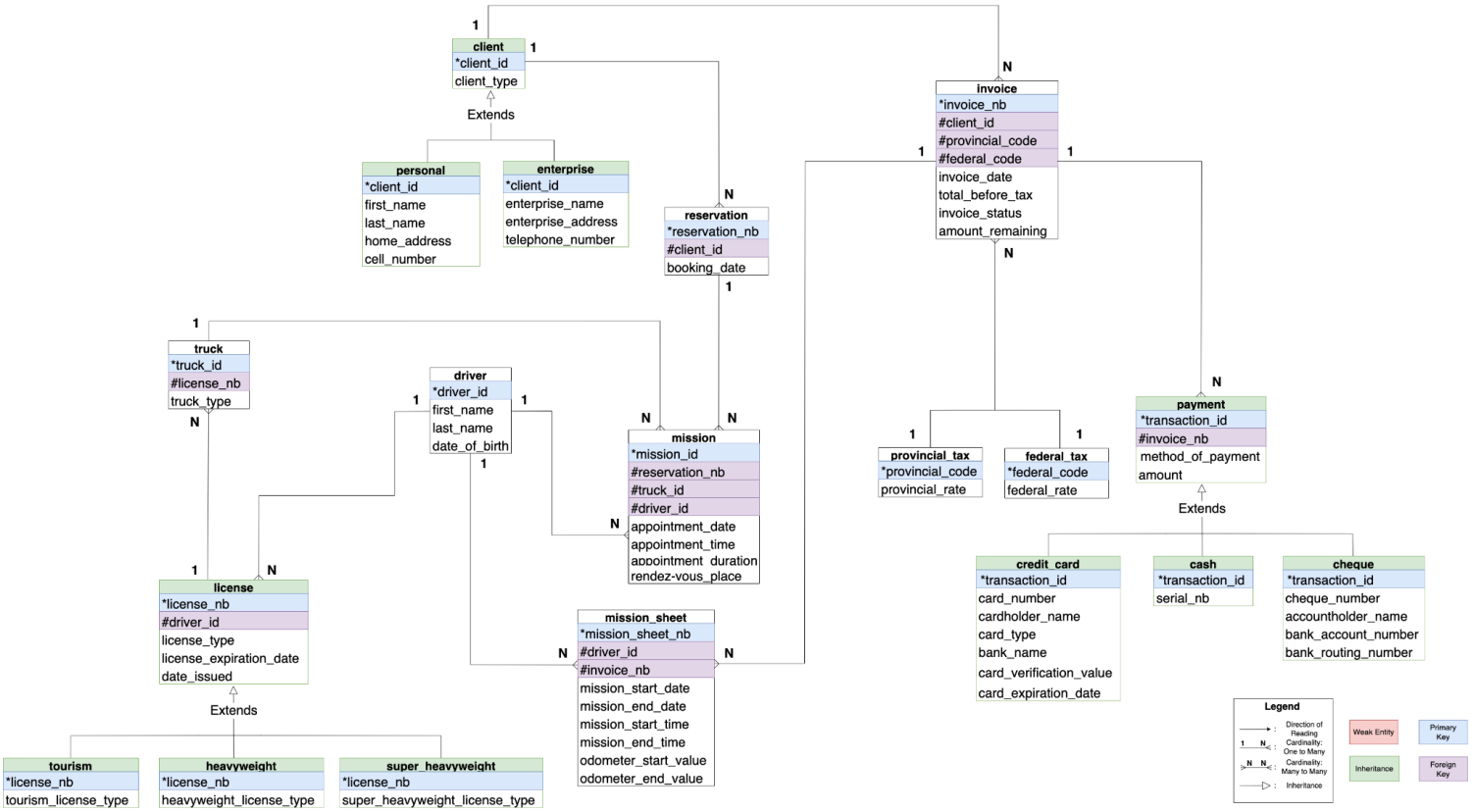
CONCEPTUAL DIAGRAM



[Link to Conceptual Diagram]

LOGICAL DIAGRAM



[Link to Logical Diagram]

NORMALIZATION OF RELATION INTO LOGICAL DIAGRAM (3NF)

Entity	Primary Key	Relationship(s)	Cardinality
Client	client_id	client—reservation	1—N
		client—invoice	1—N
Driver	driver_id	driver—license	1—N
		driver—mission	1—N
		driver—mission_sheet	1—N
Truck	truck_id	truck—mission	1—N
		truck—license	1—1
License	license_nb	license—truck	1—N
		license—driver	1—1
Reservation	reservation_nb	reservation—client	1—1
		reservation—mission	1—N
Mission	mission_id	mission—reservation	1—1
		mission—truck	1—1
		mission—driver	1—1
Mission_sheet	mission_sheet_nb	mission_sheet—driver	1—1
		mission_sheet—invoice	1—1
Invoice	invoice_nb	invoice—client	1—1
		invoice—mission_sheet	1—N
		invoice—payment	1—N
		invoice—provincial_tax	1—1
		invoice—provincial_tax	1—1
Provincial_tax	provincial_code	provincial_tax—invoice	1—N
Federal_tax	federal_code	federal_tax—invoice	1—N
Payment	transaction_id	payment—invoice	1—1

ALL relations that make up the logical diagram for RENTRACK are divided into separate, independent logical entities that are linked to each other via Foreign Keys.

RENTRACK is in	**(1NF)**

As EVERY relation:

- Has columns that contain atomic values only
- Has columns that store values of the same type only
- Has columns that have unique names
- Is composed of rows and columns with no particular ordering

RENTRACK is in	**(2NF)**

As EVERY relation:

- Is in 1NF
- Is free of Partial Dependencies:
  (Partial Attribute → Non-Partial Attribute)
  → Since all relations have simple, “single-attribute” Primary Keys, there will be NO PRIME ATTRIBUTES therefore, we will NEVER have a Partial Dependency

RENTRACK is in	(3NF)

As EVERY relation:

- Is in 2NF
-
- Is free of Transitive Dependencies:
  (Non-Partial Attribute → Non-Partial Attribute)
  → Since all relations have simple, “single-attribute” Primary Keys, there will be NO PRIME ATTRIBUTES therefore, we will NEVER have a Partial Dependency

  → The Determinant (LHS of a Functional Dependency) of every Functional Dependency of that relation is the Primary Key (minimal Superkey) of that relation as it is the only attribute that determines all of the other non-key attributes

RENTRACK is in	(BCNF)

As EVERY relation:

- Is in 3NF

- The Determinant (LHS of a Functional Dependency) of every Non-Trivial Functional Dependency of that relation is the Primary Key (minimal Superkey) of that relation as it is the only attribute that determines all of the other non-key attributes

CONSTRAINTS

Relation	Attribute(s)	Constraint(s)
Client	client_id	Primary Key
		NOT NULL
	client_type	NOT NULL
• Client has client-id as a (Primary Key) which cannot be null. • Cient's client_type is an important attribute therefore cannot be null.		

Relation	Attribute(s)	Constraint(s)
Personal	*INHERITED* client_id	Primary Key
		NOT NULL
	first_name	NOT NULL
	last_name	NOT NULL
	home_address	
	cell_number	NOT NULL
• Personal INHERITS client_id as a (Primary Key) which cannot be null. • Client's original attributes: first_name, last_name and cell_number are important pieces of information therefore cannot be null.		

Relation	Attribute(s)	Constraint(s)
Enterprise	*INHERITED* client_id	Primary Key
		NOT NULL
	enterprise_name	NOT NULL
	enterprise_address	
	telephone_number	NOT NULL

- Enterprise INHERITS client_id as a (Primary Key) which cannot be null.
- Enterprise's original attributes: enterprise_name and telephone_number are important attributes in case we wanted to contact the enterprise therefore cannot be null.

Relation	Attribute(s)	Constraint(s)
Driver	driver_id	Primary Key
		NOT NULL
	first_name	NOT NULL
	last_name	NOT NULL
	date_of_birth	

- Driver has driver_id as a (Primary Key) which cannot be null.
- Driver's first_name and last_name attributes are important pieces of information which cannot be null.

Relation	Attribute(s)	Constraint(s)
Truck	truck_id	Primary Key
		NOT NULL
	license_nb	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	truck_type	

- Truck has truck_id as a (Primary Key) which cannot be null.
- Truck has license_nb as a (Foreign Key) as it is important for us to know who drove this truck. This FK cannot be null and MUST ONLY REFERENCE a license that already exists in the License table to maintain Referential Integrity. We've also added the constraints "ON DELETE SET NULL" which sets the foreign key fields in the corresponding child table records to NULL if a record in the parent table is deleted and "ON UPDATE CASCADE" which ensures data integrity.

Relation	Attribute(s)	Constraint(s)
License	license_nb	Primary Key
		NOT NULL
	driver_id	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	license_type	
	license_expiration_date	NOT NULL
	date_issued	

- License has license_nb as a (Primary Key) which cannot be null.
- License has driver_id as a (Foreign Key) as it is important for us to know what type of license(s) does each Driver have. This FK cannot be null and

MUST ONLY REFERENCE a driver that already exists in the Driver table to maintain Referential Integrity. We've also added the constraints "ON DELETE SET NULL" which sets the foreign key fields in the corresponding child table records to NULL if a record in the parent table is deleted and "ON UPDATE CASCADE" which ensures data integrity.

- License's license_expiration_date is an important attribute which cannot be null.

Relation	Attribute(s)	Constraint(s)
Tourism	*INHERITED* license_nb	Primary Key
		NOT NULL
	tourism_license_type	

- Tourism INHERITS license_nb as a (Primary Key) which cannot be null.

Relation	Attribute(s)	Constraint(s)
Heavyweight	*INHERITED* license_nb	Primary Key
		NOT NULL
	heavyweight_license_type	

- Heavyweight INHERITS license_nb as a (Primary Key) which cannot be null.

Relation	Attribute(s)	Constraint(s)
Super_heavyweight	*INHERITED* license_nb	Primary Key
		NOT NULL
	super_heavyweight_license_type	

- Super_heavyweight INHERITS license_nb as a (Primary Key) which cannot be null.

Relation	Attribute(s)	Constraint(s)
Reservation	reservation_nb	Primary Key
		NOT NULL
	client_id	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	booking_date	NOT NULL

- Reservation has reservation_nb as a (Primary Key) which cannot be null.
- Reservation has client_id as a (Foreign Key) as it is important for us to know who made the reservation. This FK cannot be null and MUST ONLY REFERENCE a client that already exists in the Client table to maintain Referential Integrity. We've also added the constraints "ON DELETE SET NULL" which sets the foreign key fields in the corresponding child table records to NULL if a record in the parent table is deleted and "ON UPDATE CASCADE" which ensures data integrity.
- Reservation's booking_date attribute is an important piece of information therefore, cannot be null.

Relation	Attribute(s)	Constraint(s)
Mission	mission_id	Primary Key
		NOT NULL
	reservation_nb	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE

	truck_id	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	driver_id	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	appointment_date	NOT NULL
		CHECK SELECT WEEKDAY(appointment_date) < 5
		CHECK SELECT DATEDIFF(day, booking_date, appointment_date)>=14
		CHECK SELECT DATEDIFF(day, booking_date, appointment_date)<=355
	appointment_time	NOT NULL
		CHECK appointment_time>=’06:00’
		CHECK appointment_time<=’19:00’

	appointment_duration	CHECK (appointment_duration) <=5
	rendez-vous_place	NOT NULL

- Mission has mission_nb as a (Primary Key) which cannot be null.
- Mission has reservation_nb, truck_id, and driver_id all as (Foreign Keys) as they are important pieces of information to have about each mission. All three FKs cannot be null and MUST ONLY REFERENCE ids that already exist in the Reservation/Truck/Driver tables to maintain Referential Integrity. We've also added the constraints "ON DELETE SET NULL" which sets the foreign key fields in the corresponding child table records to NULL if a record in the parent table is deleted and "ON UPDATE CASCADE" which ensures data integrity.
- Mission's appointment_date attribute cannot be null and must satisfy the following constraints:
    - Cannot be on a weekend. The WEEKDAY() function returns an integer between 0-4 for the days Monday-Friday and the integers 5 & 6 for Saturday and Sunday relatively. We use CHECK to make sure that the value returned is less than 5.
    - Can be booked 2 weeks to a year in advance:
        - We use CHECK to make sure that the appointment date is a minimum 2 weeks from the booking date by using the DATEDIFF function, which returns the difference in days between the 2 dates. We check that the date is >= 14.
        - We use CHECK to make sure that the appointment date is a maximum of 1 year (365 days or 366 days if it's a leap year) from the booking date by using the DATEDIFF function, which returns the difference in days between the 2 dates. We check that the date is =< 366.
- Mission's appointment_time attribute cannot be null and must satisfy the following constraints:
    - Cannot be earlier than 6AM.
    - Cannot be later than 9PM.
- The appointment_duration attribute cannot be null and cannot exceed 5 days.
- Mission's rendez-vous_place attribute is important therefore, cannot be null.

Relation	Attribute(s)	Constraint(s)
Mission_sheet	mission_sheet_nb	Primary Key
		NOT NULL
	driver_id	Foreign Key
		NOT NULL
	invoice_nb	Foreign Key
		NOT NULL
	mission_start_date	
	mission_end_date	
	mission_start_time	
	mission_end_time	
	odometer_start_value	NOT NULL
	odometer_end_value	NOT NULL

- Mission_sheet has mission_sheet_nb as a (Primary Key) which cannot be null.
- Mission_sheet has driver_id and Invoice_nb as a (Foreign Key) because it is important for us to know which driver completed each mission sheet and for which invoice the mission sheet was billed. This FK cannot be null and MUST ONLY REFERENCE a driver that already exists in the Driver table to maintain Referential Integrity. We've also added the constraints "ON DELETE SET NULL" which sets the foreign key fields in the corresponding child table records to NULL if a record in the parent table is deleted and "ON UPDATE CASCADE" which ensures data integrity.
- Mission_sheet's odometer_start_value and odometer_end_value attributes are important values therefore, cannot be null.

Relation	Attribute(s)	Constraint(s)
Invoice	invoice_nb	Primary Key
		NOT NULL
	client_id	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	provincial_code	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	federal_code	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	invoice_date	
	total_before_tax	
	invoice_status	
	amount_remaining	

- Invoice has invoice_nb as a (Primary Key) which cannot be null.
- Invoice has client_id, provincial_code and federal_code all as (Foreign Keys) because it is important for us to know who the invoice was sent to and the tax rate that was applied to the bill. These FKs cannot be null and MUST ONLY REFERENCE a client that already exists in the Client table to maintain Referential Integrity. We've also added the constraints "ON DELETE SET NULL" which sets the foreign key fields in the corresponding

child table records to NULL if a record in the parent table is deleted and “ON UPDATE CASCADE” which ensures data integrity.

Relation	Attribute(s)	Constraint(s)
Provincial_tax	provincial_code	Primary Key
		NOT NULL
	provincial_rate	NOT NULL
• Provincial_tax has provincial_code as a (Primary Key) and provincial_rate which both cannot be null.		

Relation	Attribute(s)	Constraint(s)
Federal_tax	federal_code	Primary Key
		NOT NULL
	federal_rate	NOT NULL
• Federal_tax has federal_code as a (Primary Key) and federal_rate which both cannot be null.		

Relation	Attribute(s)	Constraint(s)
Payment	transaction_id	Primary Key
		NOT NULL
	invoice_nb	Foreign Key
		NOT NULL
		ON DELETE SET NULL
		ON UPDATE CASCADE
	method_of_payment	NOT NULL
	amount	NOT NULL

- Payment has transaction_id as a (Primary Key) which cannot be null.
- Invoice_nb is a (Foreign Key) as it is important for us to know the amount associated with each invoice. This FK cannot be null and MUST ONLY REFERENCE an invoice that already exists in the Invoice table to maintain Referential Integrity. We've also added the constraints "ON DELETE SET NULL" which sets the foreign key fields in the corresponding child table records to NULL if a record in the parent table is deleted and "ON UPDATE CASCADE" which ensures data integrity.
- Payment's original attributes: method_of_payment and amount are important attributes therefore, cannot be null.

Relation	Attribute(s)	Constraint(s)
Credit_card	*INHERITED* transaction_id	Primary Key
		NOT NULL
	card_number	NOT NULL
	cardholder_name	NOT NULL
	card_type	
	bank_name	
	card_verification_value	NOT NULL
	card_expiration_date	NOT NULL

- Credit_card INHERITS transaction_id as a (Primary Key) which cannot be null.
- Credit_card INHERITS invoice_nb as a (Foreign Key) which cannot be null.
- Credit_card INHERITS method_of_payment and amount which cannot be null.
- Credit_card's original attributes: card_number, cardholder_name, card_verification_value and card_expiration_date are important values to have for each credit card therefore, cannot be null.

Relation	Attribute(s)	Constraint(s)
Cash	*INHERITED* transaction_id	Primary Key
		NOT NULL
	serial_nb	NOT NULL

- Cash INHERITS transaction_id as a (Primary Key) which cannot be null.
- CashINHERITS invoice_nb as a (Foreign Key) which cannot be null.
- Cash INHERITS method_of_payment and amount which cannot be null.
- Cash's original attribute serial_nb is an important value to have for each cash bill therefore, cannot be null.

Relation	Attribute(s)	Constraint(s)
Cheque	*INHERITED* transaction_id	Primary Key
		NOT NULL
	cheque_number	NOT NULL
	accountholder_name	NOT NULL
	bank_account_number	NOT NULL
	bank_routing_number	NOT NULL

- Cheque INHERITS transaction_id as a (Primary Key) which cannot be null.
- Cheque INHERITS invoice_nb as a (Foreign Key) which cannot be null.
- Cheque INHERITS method_of_payment and amount which cannot be null.
- Cheque's original attributes: cheque_number, accountholder_name, bank_account_number and bank_routing_number are important values to have for each cheque therefore, cannot be null.

SQL SCRIPT OF THE CREATION OF TABLES

```
CREATE TABLE Client(
   client_id INT NOT NULL PRIMARY KEY,
   client_type VARCHAR(50) NOT NULL);
```

```
CREATE TABLE Personal(
   first_name VARCHAR(50) NOT NULL,
   last_name VARCHAR(50) NOT NULL,
   home_address VARCHAR(100),
   cell_number VARCHAR(30) NOT NULL
) INHERITS(Client);
```

```
CREATE TABLE Enterprise(
   enterprise_name VARCHAR(50) NOT NULL,
   enterprise_address VARCHAR(50),
   telephone_number VARCHAR(30)NOT NULL
) INHERITS(Client);
```

```
CREATE TABLE License(
   license_nb INT NOT NULL PRIMARY KEY
   driver_id REFERENCES Driver(driver_id) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   license_type Varchar(50),
   license_expiration_date DATE NOT NULL,
   date_issued DATE);
```

```
CREATE TABLE Tourism(
   tourism_license_type VARCHAR(50)
) INHERITS(License);
```

```
CREATE TABLE Heavyweight(
   heavyweight_license_type VARCHAR(50)
) INHERITS(License);
```

```
CREATE TABLE Super_heavyweight(
  super_heavyweight_license_type VARCHAR(50)
) INHERITS(License);
```

```
CREATE TABLE Payment(
   transaction_id INT NOT NULL PRIMARY KEY,
   invoice_nb INT REFERENCES Invoice(invoice_nb) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   method_of_payment VARCHAR(20),
   amount DECIMAL);
```

```
CREATE TABLE Credit_card(
   card_number INT NOT NULL,
   cardholder_name VARCHAR(50)NOT NULL,
   card_type VARCHAR(20),
   bank_name VARCHAR(50),
   Card_verification_value INT NOT NULL,
   card_expiration_date DATE NOT NULL
) INHERITS(Payment);
```

```
CREATE TABLE Cash(
   serial_nb VARCHAR(50) NOT NULL
) INHERITS(Payment);
```

```
CREATE TABLE Cheque(
   cheque_number VARCHAR(4) NOT NULL,
   account_holder_name VARCHAR(50) NOT NULL,
   bank_account_number VARCHAR(10) NOT NULL,
   bank_routing_number VARCHAR(9) NOT NULL
) INHERITS(Payment);
```

```
CREATE TABLE Invoice(
   invoice_nb INT NOT NULL PRIMARY KEY,
   client_id REFERENCES Client(client_id) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   provincial_code REFERENCES Provincial_tax(provincial_code)
NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   federaL_code REFERENCES Federal_tax(federal_code) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   invoice_date DATE,
   total_before_tax DECIMAL,
   invoice_status VARCHAR(30),
   amount_remaining DECIMAL);
```

```
CREATE TABLE Provincial_tax(
   provincial_code VARCHAR(10) NOT NULL PRIMARY KEY,
   provincial_rate DECIMAL NOT NULL);
```

```
CREATE TABLE Federal_tax(
   federal_code VARCHAR(10) NOT NULL PRIMARY KEY,
   federal_rate DECIMAL NOT NULL);
```

```
CREATE TABLE Reservation(
   reservation_nb INT NOT NULL PRIMARY KEY,
   client_id REFERENCES Client(client_id) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   booking_date DATE NOT NULL);
```

```
CREATE TABLE Truck(
   truck_id INT NOT NULL PRIMARY KEY,
   license_nb REFERENCES License(license_nb) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   truck_type VARCHAR(50));
```

```sql
CREATE TABLE Driver(
   driver_id INT NOT NULL PRIMARY KEY,
   first_name VARCHAR(50) NOT NULL,
   last_name VARCHAR(50) NOT NULL,
   date_of_birth DATE);
```

```sql
CREATE TABLE Mission_sheet(
   mission_sheet_nb INT NOT NULL PRIMARY KEY,
   driver_id REFERENCES Driver(driver_id) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   invoice_nb REFERENCES Invoice(invoice_nb) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   mission_start_date DATE,
   mission_end_date DATE,
   mission_start_time DATE,
   mission_end_time DATE,
   odometer_start_value DECIMAL NOT NULL,
   odometer_end_value DECIMAL NOT NULL);
```

```
CREATE TABLE Mission(
   mission_id INT NOT NULL PRIMARY KEY,
   reservation_nb REFERENCES Reservation(reservation_nb) NOT
NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   truck_id REFERENCES Truck(truck_id) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   driver_id REFERENCES Driver(driver_id) NOT NULL
   ON DELETE SET NULL
   ON UPDATE CASCADE,
   appointment_date DATE NOT NULL,
   appointment_time DATE NOT NULL,
   appointment_duration DECIMAL NOT NULL,
   rendez_vous_place VARCHAR(50) NOT NULL),
   CONSTRAINT check_appointment_date_day
          CHECK (WEEKDAY(appointment_date))<5
   CONSTRAINT check_appointment_start_time
          CHECK (appointment_time>=”06:00”)
   CONSTRAINT check_appointment_end_time
          CHECK (appointment_time <= “19:00”)
   CONSTRAINT check_appointment_duration
          CHECK (appointment_duration <=5);
```

INSERTION OF DATA INTO TABLES

```
INSERT INTO Client (client_id, client_type) values (1,
"Client");
INSERT INTO Client (client_id, client_type) values (2,
"Client");
INSERT INTO Client (client_id, client_type) values (3,
"Client");
INSERT INTO Client (client_id, client_type) values (4,
"Client");
INSERT INTO Client (client_id, client_type) values (5,
"Client");
INSERT INTO Client (client_id, client_type) values (6,
"Client");
INSERT INTO Client (client_id, client_type) values (7,
"Client");
INSERT INTO Client (client_id, client_type) values (8,
"Client");
INSERT INTO Client (client_id, client_type) values (9,
"Client");
INSERT INTO Client (client_id, client_type) values (10,
"Client");
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (1,
"personal",
"Rick",
"Astley",
"1216 Peel Street, Montreal, Quebec H3B 2T6 Canada",
"514-321-0000”);
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (6,
"personal",
"Ashey",
"Ketchum",
"2222 Pallet Town",
"514-321-0007”);
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (2,
"personal",
"Bob",
"Marley",
"1216 Electric Avenue",
"514-321-0001”);
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (3,
"personal",
"George",
"Bush",
"5123 Eastern Drive",
"514-321-0002”);
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (4,
"personal",
"James",
"Jameson",
"1216 James Street",
"514-321-0003”);
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (5,
"personal",
"Bob",
"Ross",
"400 Woodlawn Cemetery Rd., Gotha, FL 34734",
"514-321-0006”);
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (7,
"personal",
"Barack",
"Obama",
"1216 White House",
"514-321-0008”);
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (8,
"personal",
"Britney",
"Spears",
"9214 SomeStreet",
"514-321-0009”);
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (9,
"personal",
"Snoop",
"Dogg",
"420 Blaze Avenue",
"514-321-0099”);
```

```
INSERT INTO Personal (client_id, client_type, first_name,
last_name, home_address, cell_number)
values (10,
"personal",
"Leonardo",
"Da Vinci",
"1216 Mona Lisa Street",
"514-321-0999”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(11,
"enterprise",
"Costco",
"9401 Bd des Sciences",
"514-321-1111”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(22,
"enterprise",
"Desjardins",
"9402 Garden Av.",
"514-321-1112”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(33,
"enterprise",
"Target",
"9403 Bullseye Street",
"514-321-1113”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(44,
"enterprise",
"Amazon",
"9404 Rainforest Street",
"514-321-1114”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(55,
"enterprise",
"Apple",
"9405 Overpriced Av.",
"514-321-1115”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(66,
"enterprise",
"Kraf",
"9406 Cratsman Av.",
"514-321-1116”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(77,
"enterprise",
"Nestle",
"9407 Chocolate River Av.",
"514-321-1117");
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(88,
"enterprise",
"Kelloggs",
"9408 Corn Street",
"514-321-1118”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(99,
"enterprise",
"711",
"9409 Corner Street",
"514-321-1119”);
```

```
INSERT INTO Enterprise(client_id, client_type,
enterprise_name, enterprise_address, telephone_number)
values(101,
"enterprise",
"Tim Hortons",
"Igloo Street",
"514-321-1110”);
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   55551411,
   1,
   "Class 2",
   '2023-03-14',
   '2017-03-14');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   555514112,
   2,
   "Class 3",
   '2023-03-15',
   '2017-03-15');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   555514113,
   3,
   "Class 4",
   '2023-03-16',
   '2017-03-16');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   555514114,
   4,
   "Class 5",
   '2023-03-17',
   '2017-03-17');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   555514115,
   5,
   "Class 99",
   '2023-04-16',
   '2017-04-16');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   555514116,
   6,
   "Class 21",
   '2023-02-17',
   '2017-02-17');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   555514117,
   7,
   "Class 2",
   '2023-01-14',
   '2017-01-14');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   555514118,
   8,
   "Class 2",
   '2023-07-14',
   '2017-07-14');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   555514119,
   9,
   "Class 3",
   '2023-07-112',
   '2017-07-12');
```

```
INSERT INTO License (license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued)
values (
   5555141110,
   10,
   "Class 5",
   '2023-03-14',
   '2017-03-14');
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   4125120,
   11,
   "Class 4",
   '2023-03-15',
   '2017-03-15'
   "Tourism 1"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   4125121,
   22,
   "Class 7",
   '2023-03-15',
   '2017-03-15'
   "Tourism 2"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   4125122,
   33,
   "Class 4",
   '2024-03-15',
   '2017-03-15'
   "Tourism 1"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   4125123,
   444,
   "Class 2",
   '2023-03-16',
   '2018-03-16'
   "Tourism 1"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   5125124,
   555,
   "Class 3",
   '2023-03-04',
   '2017-03-04'
   "Tourism 2"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   61251256,
   66,
   "Class 4",
   '2023-03-15',
   '2017-03-15'
   "Tourism 7"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   7125126,
   77,
   "Class 4",
   '2026-03-15',
   '2020-03-15'
   "Tourism 8"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   81251207,
   88,
   "Class 7",
   '2027-03-15',
   '2022-03-16'
   "Tourism 1"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   9125128,
   99,
   "Class 4",
   '2024-03-15',
   '2017-03-15'
   "Tourism 3"
);
```

```
INSERT INTO Tourism(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   tourism_license_type)
values (
   1125129,
   1010,
   "Class 1",
   '2023-03-20',
   '2017-03-20'
   "Tourism 1"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125120,
   111,
   "Class 4",
   '2023-03-15',
   '2017-03-15'
   "Heavyweight 1"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125121,
   222,
   "Class 7",
   '2023-03-15',
   '2017-03-15'
   "Heavyweight 2"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125122,
   333,
   "Class 4",
   '2024-03-15',
   '2017-03-15'
   "Heavyweight 1"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125123,
   444,
   "Class 2",
   '2023-03-16',
   '2018-03-16'
   "Heavyweight 1"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125124,
   555,
   "Class 3",
   '2023-03-04',
   '2017-03-04'
   "Heavyweight 2"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125125,
   666,
   "Class 4",
   '2023-03-15',
   '2017-03-15'
   "Heavyweight 7"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125126,
   777,
   "Class 4",
   '2026-03-15',
   '2020-03-15'
   "Heavyweight 8"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   61251207,
   888,
   "Class 7",
   '2027-03-15',
   '2022-03-16'
   "Heavyweight 1"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125128,
   999,
   "Class 4",
   '2024-03-15',
   '2017-03-15'
   "Heavyweight 3"
);
```

```
INSERT INTO Heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   Date_issued,
   heavyweight_license_type)
values (
   6125129,
   1010,
   "Class 1",
   '2023-03-20',
   '2017-03-20'
   "Heavyweight 1"
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   9125120,
   1111,
   "Class 4",
   '2023-03-15',
   '2017-03-15'
   "Super_heavyweight 1"
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   9125121,
   2222,
   "Class 7",
   '2023-03-15',
   '2017-03-15'
   "Super_heavyweight 2"
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   9125122,
   3333,
   "Class 4",
   '2024-03-15',
   '2017-03-15'
   "Super_heavyweight 1"
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   9125123,
   4444,
   "Class 2",
   '2023-03-16',
   '2018-03-16'
   “Super_heavyweight 1”
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   9125124,
   5555,
   "Class 3",
   '2023-03-04',
   '2017-03-04'
   “Super_heavyweight 2”
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   91251256,
   6666,
   "Class 4",
   '2023-03-15',
   '2017-03-15'
   “Super_heavyweight 7”
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   9125126,
   7777,
   "Class 4",
   '2026-03-15',
   '2020-03-15'
   “Super_heavyweight 8”
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   91251207,
   8888,
   "Class 7",
   '2027-03-15',
   '2022-03-16'
   “Super_heavyweight 1”
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   8125128,
   9999,
   "Class 4",
   '2024-03-15',
   '2017-03-15'
   “Super_heavyweight 3”
);
```

```
INSERT INTO Super_heavyweight(license_nb,
   driver_id,
   license_type,
   license_expiration_date,
   date_issued,
   super_heavyweight_license_type)
values (
   9125129,
   101010,
   "Class 1",
   '2023-03-20',
   '2017-03-20'
   “Super_heavyweight 1”
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   101,
   1,
   "Credit_card",
   2003.3
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   102,
   2,
   "Cash",
   1111.33
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   103,
   3,
   "Credit_card",
   4444.43
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   104,
   4,
   "Cheque",
   12312.36
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   105,
   5,
   "Credit_card",
   6346.37
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   106,
   6,
   "Credit_card",
   123.35
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   107,
   7,
   "Cheque",
   20033.38
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   108,
   8,
   "Credit_card",
   8888.3
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   109,
   9,
   "Cash",
   66666.3
);
```

```
INSERT INTO Payment (transaction_id, invoice_nb,
method_of_payment, amount)
values(
   110,
   10,
   "Credit_card",
   23121.44
);
```

```
Credit_card
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   201,
   1001,
   "Credit_card",
   45733.3,
   4024007141834191,
   “Ryan Rock”,
   “Visa”,
   “Desjardins”,
   666,
   '2024-02-28'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   202,
   1002,
   "Credit_card",
   75474.3,
   125412534621,
   “Micheal Yak”,
   "American Express",
   "Citibank",
   777,
   '2021-02-22'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   203,
   1003,
   "Credit_card",
   74545.3,
   4024007141834191,
   “Matheus Charles”,
   "Cirrus",
   "ING",
   878,
   '2021-02-27'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   204,
   1004,
   "Credit_card",
   7345.3,
   41245564311123,
   “Patel Sandwich",
   “Maestro”,
   “SunTrust”,
   212,
   '2021-12-28'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   205,
   1005,
   "Credit_card",
   6354.3,
   5234523452345,
   “Alexand The Great”,
   "MasterCard",
   "FSB",
   323,
   '900-02-28'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   206,
   1006,
   "Credit_card",
   1231.3,
   7564746574567,
   “Rocky Ryan”,
   “Visa”,
   "NiB",
   424,
   '2021-02-28'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   207,
   1007,
   "Credit_card",
   124123.3,
   75647654764567,
   “Nathaniel Nuguri”,
   “Visa”,
   “Desjardins”,
   123,
   '2029-02-28'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   208,
   1008,
   "Credit_card",
   4214.3,
   45674567223,
   “Spurgy Spam”,
   “Visa”,
   "citibank",
   666,
   '2032-02-28'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   209,
   1009,
   "Credit_card",
   12512.3,
   12312312312,
   “Not Joe”,
   "Cirrus",
   "FSB",
   321,
   '2044-02-28'
);
```

```
INSERT INTO Credit_card(
   transaction_id,
   invoice_nb,
   method_of_payment,
   amount,
   card_number,
   cardholder_name,
   card_type,
   bank_name,
   card_verification_value,
   card_expiration_date,)
values(
   210,
   1010,
   "Credit_card",
   6677.37,
   4214124124424,
   “Jeremias Jupiter”,
   "American Express",
   "RBC",
   111,
   '2056-02-28'
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1000,
   200,
   "Cash",
   7777.17,
   "AF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1001,
   201,
   "Cash",
   7457.75,
   "AF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1002,
   202,
   "Cash",
   421466.17,
   "BF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1003,
   203,
   "Cash",
   4124.42,
   "CF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1004,
   204,
   "Cash",
   1234.43,
   "DF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1005,
   205,
   "Cash",
   755.67,
   "EF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1006,
   206,
   "Cash",
   74567.56,
   "FF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1007,
   207,
   "Cash",
   7654.75,
   "GF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1008,
   208,
   "Cash",
   44444.14,
   "HF55011086"
);
```

```
INSERT INTO Cash(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   serial_nb)
values(
   1009,
   209,
   "Cash",
   3212.17,
   "IF55011086"
);
```

```
INSERT INTO Cheque(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   cheque_number,
   account_holder_name,
   bank_account_number,
   bank_routing_number)
values(
   6001,
   5001,
   "Cheque",
   9999.99,
   "0001",
   "Willy World",
   "1234567899",
   "00001 001"
);
```

```
  INSERT INTO Cheque(
    transaction_id,
    invoice_nb,
    method_of_payment
    amount,
    cheque_number,
    account_holder_name,
    bank_account_number,
    bank_routing_number)
values(
    6002,
    5002,
    "Cheque",
    5235.99,
    "0002",
    "Margina Margette",
    "2234567899",
    "20001 002"
);
```

```
INSERT INTO Cheque(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   cheque_number,
   account_holder_name,
   bank_account_number,
   bank_routing_number)
values(
   6003,
   5003,
   "Cheque",
   5435.99,
   "0003",
   "Shakespear Samual",
   "3234567899",
   "30001 001"
);
```

```
INSERT INTO Cheque(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   cheque_number,
   account_holder_name,
   bank_account_number,
   bank_routing_number)
values(
   6004,
   5004,
   "Cheque",
   9999.87,
   "0004",
   "Billy Mays",
   "4234567899",
   "40001 001"
);
```

```
 INSERT INTO Cheque(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   cheque_number,
   account_holder_name,
   bank_account_number,
   bank_routing_number)
values(
   6005,
   5005,
   "Cheque",
   8675.99,
   "0005",
   "Ricky Rudderberg",
   "1234567899",
   "60001 001"
);
```

```
   INSERT INTO Cheque(
    transaction_id,
    invoice_nb,
    method_of_payment
    amount,
    cheque_number,
    account_holder_name,
    bank_account_number,
    bank_routing_number)
values(
    6006,
    5006,
    "Cheque",
    77765.66,
    "0006",
    "Shane Dawson",
    "6234567899",
    "60001 001"
);
```

```
    INSERT INTO Cheque(
    transaction_id,
    invoice_nb,
    method_of_payment
    amount,
    cheque_number,
    account_holder_name,
    bank_account_number,
    bank_routing_number)
values(
    6007,
    5007,
    "Cheque",
    654.99,
    "0007",
    "Charllote Good",
    "7234567899",
    "70001 001"
);
```

```
   INSERT INTO Cheque(
   transaction_id,
   invoice_nb,
   method_of_payment
   amount,
   cheque_number,
   account_holder_name,
   bank_account_number,
   bank_routing_number)
values(
   6008,
   5008,
   "Cheque",
   7567.67,
   "0008",
   "Maria Martinis",
   "1234567899",
   "80001 001"
);
```

```
    INSERT INTO Cheque(
    transaction_id,
    invoice_nb,
    method_of_payment
    amount,
    cheque_number,
    account_holder_name,
    bank_account_number,
    bank_routing_number)
values(
    6009,
    5009,
    "Cheque",
    7865.66,
    "0009",
    "Penelope Poggers",
    "1234567899",
    "90001 001"
);
```

```
    INSERT INTO Cheque(
    transaction_id,
    invoice_nb,
    method_of_payment
    amount,
    cheque_number,
    account_holder_name,
    bank_account_number,
    bank_routing_number)
values(
    6010,
    5010,
    "Cheque",
    76575.55,
    "0010",
    "Mill Tim",
    "1234567890",
    "10001 001");
```

```
INSERT INTO Invoice(
   invoice_nb,
   client_id,
   provincial_code,
   federaL_code,
   invoice_date,
   total_before_tax,
   invoice_status,
   amount_remaining
)values(
   1,
   11,
   "QC",
   "ADEL",
   '2022-02-18,
   3333.33,
   "Partially Paid",
   2222.22);
```

```
INSERT INTO Invoice(
   invoice_nb,
   client_id,
   provincial_code,
   federaL_code,
   invoice_date,
   total_before_tax,
   status,
   amount_remaining
)values(
   2,
   22,
   "SK",
   "AGRH",
   '2022-02-15,
   3333.33,
   "Unpaid",
   3333.33
);
```

```
   INSERT INTO Invoice(
   invoice_nb,
   client_id,
   provincial_code,
   federaL_code,
   invoice_date,
   total_before_tax,
   invoice_status,
   amount_remaining
)values(
   3,
   33,
   "BC",
   "ALA",
   '2023-04-12,
   3333.33,
   "Partially Paid",
   1111.55
);
```

```
   INSERT INTO Invoice(
   invoice_nb,
   client_id,
   provincial_code,
   federaL_code,
   invoice_date,
   total_before_tax,
   invoice_status,
   amount_remaining
)values(
   4,
   44,
   "NL",
   "ALMO",
   '2019-02-28,
   3333.33,
   "Paid",
   0);
```

```
   INSERT INTO Invoice(
   invoice_nb,
   client_id,
   provincial_code,
   federaL_code,
   invoice_date,
   total_before_tax,
   invoice_status,
   amount_remaining
)values(
   5,
   55,
   "NB",
   "ALB",
   '2022-01-20,
   7564.33,
   "Partially Paid",
   4124.44);
```

```
  INSERT INTO Invoice(
   invoice_nb,
   client_id,
   provincial_code,
   federaL_code,
   invoice_date,
   total_before_tax,
   invoice_status,
   amount_remaining
)values(
   6,
   66,
   "NU",
   "ALH",
   '2022-02-29,
   8866.33,
   "Partially Paid",
   4214.11
);
```

```
   INSERT INTO Invoice(
   invoice_nb,
   client_id,
   provincial_code,
   federaL_code,
   invoice_date,
   total_before_tax,
   invoice_status,
   amount_remaining
)values(
   7,
   77,
   "QC",
   "ANDP",
   '2029-02-28,
   6785.55,
   "Partially Paid",
   4124.55
);
```

```
   INSERT INTO Invoice(
   invoice_nb,
   client_id,
   provincial_code,
   federaL_code,
   invoice_date,
   total_before_tax,
   invoice_status,
   amount_remaining
)values(
   8,
   88,
   "BC",
   "ANDP",
   '2022-02-20,
   9999.33,
   "Partially Paid",
   5555.22
);
```

```
    INSERT INTO Invoice(
    invoice_nb,
    client_id,
    provincial_code,
    federaL_code,
    invoice_date,
    total_before_tax,
    invoice_status,
    amount_remaining
)values(
    9,
    99,
    "MB",
    "ALTA",
    '2022-02-28,
    3333.33,
    "Paid",
    0
);
```

```
    INSERT INTO Invoice(
    invoice_nb,
    client_id,
    provincial_code,
    federaL_code,
    invoice_date,
    total_before_tax,
    invoice_status,
    amount_remaining
)values(
    10,
    110,
    "PE",
    "AMA",
    '2022-01-20,
    4444.44,
    "Unpaid",
    4444.44
);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("NL", 0.11);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("PE", 0.02);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("NS", 0.03);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("ON", 0.01);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("QC", 0.08);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("MB", 0.13);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("SK", 0.14);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("AB", 0.12);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("BC", 0.03);
```

```
INSERT INTO Provincial_tax(provincial_code, provincial_rate)
values("YT", 0.01);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("ADEL", 0.04);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("AGRH", 0.05);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("ALA", 0.03);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("ALMO", 0.02);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("ALB", 0.01);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("ALH", 0.10);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("ANDP", 0.11);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("ALTA", 0.15);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("ALT", 0.04);
```

```
INSERT INTO Federal_tax(federal_code, provincial_rate)
values("AMA", 0.03);
```

```
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(1, 11, '2023-10-10');
```

```
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(2, 22, '2024-12-11');
```

```
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(3, 11, '2026-06-10');
```

```sql
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(4, 33, '2025-11-11');
```

```sql
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(5, 22, '2020-10-10');
```

```sql
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(6, 44, '2027-07-06');
```

```sql
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(7, 55, '2024-01-02');
```

```sql
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(8, 12, '2021-02-03');
```

```sql
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(9, 32, '2023-10-10');
```

```
INSERT INTO Reservation(reservation_nb, client_id,
booking_date)
values(10, 44, '2024-06-12');
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(1, "A1531-171274-08", "Pickup");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(2, "B1531-171274-08", "Tow Truck");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(3, "C1531-171274-08", "Semi-trailer Truck");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(4, "D1531-171274-08", "Box Truck");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(5, "E1531-171274-08", "Flatbed Truck");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(6, "F1531-171274-08", "Pickup");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(7, "G1531-171274-08", "Pickup");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(8, "H1531-171274-08", "Flatbed Truck");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(9, "I1531-171274-08", "Pickup");
```

```
INSERT INTO Truck(truck_id, license_nb, truck_type)
values(10, "J1531-171274-08", "Semi-trailer Truck");
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   11,
   "Micheal",
   "Jackson",
   '1958-03-15');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   22,
   "Bill",
   "Burley",
   '2000-04-15');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   33,
   "Charles",
   "Carson",
   '1994-03-20');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   44,
   "Marc",
   "Mayer",
   '1990-03-15');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   55,
   "Patrick",
   "Star",
   '2001-03-15');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   66,
   "Shaneya",
   "Wakita",
   '2002-06-15');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   77,
   "Will",
   "Wilson",
   '2004-10-15');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   88,
   "Margeret",
   "Mayers",
   '2002-12-12');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   99,
   "Shaniya",
   "Shoo",
   '2004-04-16');
```

```
INSERT INTO Driver(
   driver_id,
   first_name,
   last_name,
   date_of_birth
)values(
   10,
   "Paul",
   "Peterson",
   '2001-01-02');
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   111,
   222,
   333,
   444,
   '2020-12-12'
   '06:00',
   5
   "3214 The Gardens Street");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   555,
   666,
   777,
   888,
   '2021-01-01'
   '19:00',
   5
   "12 Park Darawin");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   999,
   11,
   22,
   444,
   '2022-10-09'
   '18:00',
   5
   "32131 Shane Street");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   33,
   44,
   55,
   66,
   '2023-01-01’
   '12:00',
   5
   "2141 Parkway Drive");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   77,
   88,
   99,
   1,
   '2023-12-12'
   '17:00',
   5
   "World Trate Center");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   2,
   3,
   4,
   5,
   '2024-11-11'
   '14:00',
   5
   "Bell Center");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   6,
   7,
   8,
   9,
   '2024-02-03'
   '13:00',
   5
   "5135 Map Street");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   234,
   423,
   123,
   311,
   '2024-05-06'
   '11:00',
   5
   "63463 First Av.");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   311,
   655,
   454,
   74,
   '2025-08-06'
   '10:00',
   5
   "3 Third Av.");
```

```
INSERT INTO Mission(
   mission_id,
   reservation_nb,
   truck_id,
   driver_id,
   appointment_date,
   appointment_time,
   appointment_duration,
   rendez_vous_place
) values (
   454,
   24,
   761,
   175,
   '2023-09-10'
   '09:00',
   5
   "4512 Sunwell-Tower Street");
```

```
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   1,
   2,
   3,
   '2017-03-15',
   '2017-03-18'
   '6:00',
   '7:00',
   100000.3,
  100055.2);
```

```
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   44,
   55,
   66,
   '2017-04-15',
   '2017-05-16'
   '19:00',
   '19:00',
   99999.3,
   100055.2);
```

```
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   77,
   88,
   99,
   '2020-03-15',
   '2020-04-18'
   '08:00',
   '09:00',
   0.3,
   44.2);
```

```
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   100,
   200,
   300,
   '2021-03-15',
   '2021-04-18'
   '10:00',
   '11:00',
   22.3,
   200.7);
```

```
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   400,
   500,
   600,
   '2015-9-16',
   '2015-10-17'
   '06:00',
   '07:00',
   100000.3,
   100055.2);
```

```
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   700,
   800,
   900,
   '2018-02-15',
   '2018-01-18'
   '13:00',
   '11:00',
   8888.3,
   8890.2);
```

```sql
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   11,
   22,
   33,
   '2021-10-09',
   '2021-10-12'
   '16:00',
   '18:00',
   123.3,
   200.2);
```

```
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   14,
   25,
   36,
   '2013-04-15',
   '2013-04-18'
   '10:00',
   '19:00',
   400.3,
   500.2);
```

```
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   17,
   27,
   37,
   '2023-06-06',
   '2023-06-07'
   '11:00',
   '19:00',
   45000.3,
   45500.2);
```

```sql
INSERT INTO Mission_sheet(
   mission_sheet_nb,
   driver_id,
   invoice_nb,
   mission_start_date,
   mission_end_date,
   mission_start_time,
   mission_end_time,
   odometer_start_value,
   odometer_end_value
) values(
   18,
   28,
   38,
   '2022-10-15',
   '2022-10-18'
   '08:34',
   '10:22',
   66000.33,
   67000.22);
```

IMPLEMENTATION OF QUERIES

a. List of customers that are businesses (Enterprises or Companies).

```
SELECT enterprise_client_id, client_id, enterprise_name
FROM Enterprise;
```

b. List of reservations whose reservation number is greater than 1.

```
SELECT reservation_nb, client_id
FROM Reservation
WHERE reservation_nb > 1;
```

c. List of drivers and vehicles having participated in at least one mission.

```
SELECT distinct M.driver_id, D.first_name, D.last_name,
                M.truck_id
FROM Mission M, Driver D
WHERE M.driver_id = D.driver_id;
```

d. List of missions between March 11, 2022 and March 18, 2022 as well as the drivers and vehicles participating in these missions.

```
SELECT M.mission_id, M.driver_id, D.first_name, D.last_name,
       M.truck_id
FROM Mission M, Driver D, Mission_Sheet MS
WHERE M.driver_id = D.driver_id AND
      D.driver_id = MS.driver_id AND
      MS.mission_start_date >= 2022-03-11 AND
      MS.mission_end_date <= 2022-03-18;
```

e. The list of customers who have not paid their invoices.

```
SELECT client_id, invoice_nb
FROM Invoice
WHERE amount_remaining = total_before_tax +
      (total_before_tax*provincial_rate) +
      (total_before_tax*federal_rate);
```

f. List of drivers who have driven 'GMC' brand vehicles.

```
SELECT distinct D.driver_id, D.first_name, D.last_name,
                T.truck_id, T.truck_type
FROM Driver D, License L, Truck T
WHERE D.driver_id = L.driver_id AND
      L.license_nb = T.license_nb AND
      T.truck_type = '%GMC%';
```

g. Which customers have invoices greater than $1000?

```
SELECT client_id, invoice_nb,
       (total_before_tax + (total_before_tax*provincial_rate)
                         + (total_before_tax*federal_rate))
       AS total_after_tax
FROM Invoice
WHERE total_after_tax > 1000;
```

h. List of customers with their number of associated invoices.

```
SELECT client_id, COUNT(invoice_nb)
FROM Invoice
GROUP BY client_id;
```

i. What are the last names and first names of the drivers who have a mission between the following dates: February 1, 2022 and March 31, 2022 whose mileage (number of kilometers traveled) is more than 7000 km?

```
SELECT D.driver_id, D.first_name, D.last_name
FROM Driver D
WHERE D.driver_id IN
   (SELECT distinct MS.driver_id
    FROM Mission_Sheet MS
    WHERE MS.mission_start_date >= 2022-02-01 AND
          MS.mission_end_date <= 2022-03-31 AND
          odometer_end_value - odometer_start_value > 7000);
```