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-- Schema Creation
CREATE SCHEMA mbt;

-- Creation of new data types
CREATE TYPE SEX AS ENUM ('male', 'female', 'other');
CREATE TYPE SUB_TYPE AS ENUM ('daily', 'hourly');
CREATE TYPE BIKE_STATUS AS ENUM ('ok', 'in maintenance', 'to be replaced', 'stolen');
CREATE TYPE BIKE_MODEL AS ENUM ('typical', 'electric');
CREATE TYPE DP_STATUS AS ENUM ('enabled', 'in maintenance', 'disabled');

-- Table Creation
-- Customer
CREATE TABLE mbt.Customer (
    customer_id UUID PRIMARY KEY,
    name TEXT NOT NULL,
    surname TEXT NOT NULL,
    street_name TEXT NOT NULL,
    street_number VARCHAR(8) NOT NULL,
    city TEXT NOT NULL,
    zip CHAR(5) NOT NULL,
    date_birth DATE NOT NULL CHECK (date_part('year', age(date_birth)) >= 16),
    place_birth TEXT NOT NULL,
    sex SEX NOT NULL,
    fiscal_code CHAR(16) NOT NULL,
    email TEXT NOT NULL UNIQUE,
    fixed_phone TEXT,
    mobile_phone TEXT,
    fax TEXT,
    password CHAR(32) NOT NULL,
    registration_date TIMESTAMP WITH TIME ZONE NOT NULL DEFAULT CURRENT_TIMESTAMP
);

-- Station Manager
CREATE TABLE mbt.StationManager (
    station_manager_id UUID PRIMARY KEY,
    name TEXT NOT NULL,
    surname TEXT NOT NULL,
    street_name TEXT NOT NULL,
    street_number VARCHAR(8) NOT NULL,
    city TEXT NOT NULL,
    zip CHAR(5) NOT NULL,
    date_birth DATE NOT NULL,
    place_birth TEXT NOT NULL,
    sex SEX NOT NULL,
    fiscal_code CHAR(16) NOT NULL,
    email TEXT NOT NULL UNIQUE,
    fixed_phone TEXT,
    mobile_phone TEXT,
    fax TEXT,
    password CHAR(32) NOT NULL,
    registration_date TIMESTAMP WITH TIME ZONE NOT NULL DEFAULT CURRENT_TIMESTAMP
);

-- Administrator
CREATE TABLE mbt.Administrator (
    administrator_id UUID PRIMARY KEY,
    name TEXT NOT NULL,
    surname TEXT NOT NULL,
    street_name TEXT NOT NULL,
    street_number VARCHAR(8) NOT NULL,
    city TEXT NOT NULL,
    zip CHAR(5) NOT NULL,
    date_birth DATE NOT NULL,
    place_birth TEXT NOT NULL,
    sex SEX NOT NULL,
    fiscal_code CHAR(16) NOT NULL,
    email TEXT NOT NULL UNIQUE,
    fixed_phone TEXT,

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mobile_phone TEXT,
fax TEXT,
password CHAR(32) NOT NULL,
registration_date TIMESTAMP WITH TIME ZONE NOT NULL DEFAULT CURRENT_TIMESTAMP
);

-- Organization
CREATE TABLE mbt.Organization (
    org_code BIGSERIAL PRIMARY KEY,
    org_name TEXT NOT NULL
);

-- Card
CREATE TABLE mbt.Card (
    card_id TEXT NOT NULL,
    organization INTEGER NOT NULL REFERENCES mbt.Organization (org_code) ON UPDATE CASCADE
    ON DELETE RESTRICT,
    current_credit MONEY NOT NULL DEFAULT 0,
    current_points INTEGER NOT NULL DEFAULT 0 CHECK (current_points >= 0),
    enabled BOOLEAN NOT NULL DEFAULT FALSE,
    customer UUID NOT NULL REFERENCES mbt.Customer (customer_id) ON UPDATE CASCADE ON DELETE
    RESTRICT,
    PRIMARY KEY (card_id, organization)
);

-- Subscription
CREATE TABLE mbt.Subscription (
    subscription_code BIGSERIAL PRIMARY KEY,
    name TEXT NOT NULL,
    price MONEY NOT NULL CHECK (price::numeric::float8 >= 0),
    type SUB_TYPE NOT NULL,
    days_duration INTEGER,
    hours_duration INTEGER,
    CONSTRAINT DurationConst CHECK ((days_duration IS NULL AND hours_duration IS NOT NULL)
    OR (days_duration IS NOT NULL AND hours_duration IS NULL))
);

-- Subscription Action
CREATE TABLE mbt.SubscriptionAction (
    action_id BIGSERIAL PRIMARY KEY,
    expire_date TIMESTAMP WITH TIME ZONE NOT NULL,
    insurance BOOLEAN NOT NULL DEFAULT FALSE,
    subscription INTEGER NOT NULL REFERENCES mbt.Subscription (subscription_code) ON UPDATE
    RESTRICT ON DELETE RESTRICT,
    card TEXT NOT NULL,
    organization INTEGER NOT NULL,
    FOREIGN KEY (card, organization) REFERENCES mbt.Card (card_id, organization) ON UPDATE
    CASCADE ON DELETE RESTRICT
);

-- Shop
CREATE TABLE mbt.Shop (
    VAT_number VARCHAR(15) PRIMARY KEY,
    name TEXT NOT NULL,
    street_name TEXT NOT NULL,
    street_number VARCHAR(8) NOT NULL,
    city TEXT NOT NULL,
    zip CHAR(5) NOT NULL,
    description TEXT NOT NULL
);

-- Payment Method
CREATE TABLE mbt.PaymentMethod (
    method_code BIGSERIAL PRIMARY KEY,
    method_name TEXT NOT NULL
);

-- Charge

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CREATE TABLE mbt.Charge (
    transaction_id UUID PRIMARY KEY,
    date TIMESTAMP WITH TIME ZONE NOT NULL,
    payment_method INTEGER NOT NULL REFERENCES mbt.PaymentMethod (method_code) ON UPDATE
    RESTRICT ON DELETE RESTRICT
);

-- Offer
CREATE TABLE mbt.Offer (
    offer_id BIGSERIAL PRIMARY KEY,
    reward_cost INTEGER NOT NULL,
    description TEXT NOT NULL,
    shop TEXT NOT NULL REFERENCES mbt.Shop (VAT_number) ON UPDATE CASCADE ON DELETE SET NULL
);

-- Bike
CREATE TABLE mbt.Bike (
    bike_id BIGSERIAL PRIMARY KEY,
    last_service date,
    status BIKE_STATUS NOT NULL,
    model BIKE_MODEL NOT NULL
);

-- Docking Station
CREATE TABLE mbt.DockingStation (
    docking_station_id BIGSERIAL PRIMARY KEY,
    station_name TEXT NOT NULL,
    latitude FLOAT NOT NULL,
    longitude FLOAT NOT NULL,
    columns_number INTEGER NOT NULL
);

-- Docking Point
CREATE TABLE mbt.DockingPoint (
    docking_point_id BIGSERIAL PRIMARY KEY,
    status DP_STATUS NOT NULL,
    docking_station INTEGER NOT NULL REFERENCES mbt.DockingStation (docking_station_id) ON
    UPDATE CASCADE ON DELETE CASCADE
);

-- Hire
CREATE TABLE mbt.Hire (
    hire_id BIGSERIAL PRIMARY KEY,
    KM_ride FLOAT,
    card TEXT NOT NULL,
    organization INTEGER NOT NULL,
    FOREIGN KEY (card, organization) REFERENCES mbt.Card (card_id, organization) ON UPDATE
    CASCADE ON DELETE RESTRICT,
    bike INTEGER NOT NULL REFERENCES mbt.Bike (bike_id) ON UPDATE RESTRICT ON DELETE RESTRICT,
    docking_point_unlock INTEGER NOT NULL REFERENCES mbt.DockingPoint (docking_point_id) ON
    UPDATE RESTRICT ON DELETE RESTRICT,
    date_unlock TIMESTAMP WITH TIME ZONE NOT NULL,
    docking_point_lock INTEGER REFERENCES mbt.DockingPoint (docking_point_id) ON UPDATE
    RESTRICT ON DELETE RESTRICT,
    date_lock TIMESTAMP WITH TIME ZONE
);

-- Points Action
CREATE TABLE mbt.PointsAction (
    action_id BIGSERIAL PRIMARY KEY,
    value INTEGER NOT NULL,
    card TEXT NOT NULL,
    organization INTEGER NOT NULL,
    FOREIGN KEY (card, organization) REFERENCES mbt.Card (card_id, organization) ON UPDATE
    CASCADE ON DELETE RESTRICT,
    offer INTEGER REFERENCES mbt.Offer (offer_id) ON UPDATE RESTRICT ON DELETE RESTRICT,
    hire INTEGER REFERENCES mbt.Hire (hire_id) ON UPDATE RESTRICT ON DELETE RESTRICT,
    CONSTRAINT PointsConst CHECK ((offer IS NULL AND hire IS NOT NULL) OR (offer IS NOT NULL

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    AND hire IS NULL))
);

-- Credit Action
CREATE TABLE mbt.CreditAction (
    action_id BIGSERIAL PRIMARY KEY,
    value MONEY NOT NULL,
    card TEXT NOT NULL,
    organization INTEGER NOT NULL,
    FOREIGN KEY (card, organization) REFERENCES mbt.Card (card_id, organization),
    charge UUID UNIQUE REFERENCES mbt.Charge (transaction_id) ON UPDATE RESTRICT ON DELETE
    RESTRICT,
    hire INTEGER REFERENCES mbt.Hire (hire_id) ON UPDATE RESTRICT ON DELETE RESTRICT,
    CONSTRAINT CrediConst CHECK ((charge IS NULL AND hire IS NOT NULL) OR (charge IS NOT
    NULL AND hire IS NULL))
);

-- Booking Action
CREATE TABLE mbt.BookingAction (
    action_id BIGSERIAL PRIMARY KEY,
    date TIMESTAMP WITH TIME ZONE NOT NULL,
    card TEXT NOT NULL,
    organization INTEGER NOT NULL,
    FOREIGN KEY (card, organization) REFERENCES mbt.Card (card_id, organization) ON UPDATE
    CASCADE ON DELETE RESTRICT,
    bike INTEGER REFERENCES mbt.Bike (bike_id) ON UPDATE RESTRICT ON DELETE RESTRICT,
    docking_point INTEGER REFERENCES mbt.DockingPoint (docking_point_id) ON UPDATE RESTRICT
    ON DELETE RESTRICT,
    CONSTRAINT AtLeastSomethingBooked CHECK (NOT(bike IS NULL AND docking_point IS NULL))
);

-- Instruction
CREATE TABLE mbt.Instruction (
    instruction_id BIGSERIAL PRIMARY KEY,
    date TIMESTAMP WITH TIME ZONE NOT NULL,
    notes TEXT,
    completed BOOLEAN NOT NULL DEFAULT FALSE,
    docking_station INTEGER NOT NULL REFERENCES mbt.DockingStation (docking_station_id) ON
    UPDATE CASCADE ON DELETE CASCADE,
    station_manager UUID NOT NULL REFERENCES mbt.StationManager (station_manager_id) ON
    UPDATE CASCADE ON DELETE CASCADE,
    administrator UUID NOT NULL REFERENCES mbt.Administrator (administrator_id) ON UPDATE
    CASCADE ON DELETE CASCADE
);

-- Service Action
CREATE TABLE mbt.ServiceAction (
    action_id BIGSERIAL PRIMARY KEY,
    date DATE NOT NULL,
    notes TEXT,
    bike INTEGER NOT NULL REFERENCES mbt.Bike (bike_id) ON UPDATE RESTRICT ON DELETE RESTRICT,
    administrator UUID NOT NULL REFERENCES mbt.Administrator (administrator_id) ON UPDATE
    CASCADE ON DELETE RESTRICT
);

-- Scoring Action
CREATE TABLE mbt.ScoringAction (
    action_id BIGSERIAL PRIMARY KEY,
    date TIMESTAMP WITH TIME ZONE NOT NULL,
    score INTEGER NOT NULL CHECK (score >= 1 AND score <= 5),
    docking_station INTEGER NOT NULL REFERENCES mbt.DockingStation (docking_station_id) ON
    UPDATE CASCADE ON DELETE CASCADE,
    customer UUID NOT NULL REFERENCES mbt.Customer (customer_id) ON UPDATE CASCADE ON DELETE
    CASCADE
);

-- Favourites
CREATE TABLE mbt.Favourites (

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customer UUID REFERENCES mbt.Customer (customer_id) ON UPDATE CASCADE ON DELETE CASCADE,  
docking_station INTEGER NOT NULL REFERENCES mbt.DockingStation (docking_station_id) ON  
UPDATE CASCADE ON DELETE CASCADE,  
PRIMARY KEY (customer, docking_station)
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);
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