Database Logical Schema

AREA (<u>geoname_id</u>, name, ascii_name, country_code, country_name, latitude, longitude);

CENTER (<u>center_id</u>, city^{AREA}, street, house_number, postal_code, district);

MONITORS (<u>center_id</u>^{CENTER}, <u>geoname_id</u>^{AREA});

OPERATOR (<u>user_id</u>, ssid, surname, name, email, password, center_id^{CENTER});

CATEGORY (<u>category_id</u>, explanation);

PARAMETER (<u>geoname_id</u>^{MONITORS}, <u>center_id</u>^{MONITORS}, <u>user_id</u>^{OPERATOR}, <u>category_id</u>^{CATEGORY}, <u>rec_date</u>, <u>rec_time</u>, score, notes);

SQL code

1. Area

CREATE TABLE Area(

      Geoname_id INT PRIMARY KEY,

      Name VARCHAR(100) NOT NULL,

      Ascii_name VARCHAR(100) NOT NULL,

      Country_code CHAR(2) NOT NULL,

      Country_name VARCHAR(100) NOT NULL,

      Latitude DECIMAL(9, 5) NOT NULL,

      Longitude DECIMAL(9, 5) NOT NULL

);

2. Center

```
CREATE TABLE Center(

        Center_id VARCHAR(100)  PRIMARY KEY,

        City INT REFERENCES Area(Geoname_id)

                ON UPDATE CASCADE

                ON DELETE NO ACTION,

        Street VARCHAR(100) NOT NULL,

        House_number SMALLINT NOT NULL,

        Postal_code INT NOT NULL,

        District VARCHAR(100) NOT NULL,

        CONSTRAINT Address UNIQUE(City, Street, House_number)

);
```

3. Monitors

```
CREATE TABLE Monitors(

        Center_id VARCHAR(100) REFERENCES Center

                ON UPDATE CASCADE

                ON DELETE NO ACTION,

        Geoname_id INT REFERENCES Area

                ON UPDATE CASCADE

                ON DELETE NO ACTION,

        PRIMARY KEY(Center_id, Geoname_id)

);
```

4. Operator

```
CREATE TABLE Operator(

        User_id VARCHAR(50) PRIMARY KEY,

        SSID CHAR(16) NOT NULL,

        Surname VARCHAR(100) NOT NULL,

        Name VARCHAR(100) NOT NULL,

        Email VARCHAR(50) NOT NULL,

        Password VARCHAR(50) NOT NULL,

        Center_id VARCHAR(100) REFERENCES Center
                ON UPDATE CASCADE
                ON DELETE NO ACTION,

        UNIQUE(SSID, Email),

        CONSTRAINT SSID_length_16 CHECK(LENGTH(SSID) = 16)
);
```

5. Category

```
CREATE TABLE Category(

        Category_id VARCHAR(20) PRIMARY KEY,

        Explanation VARCHAR(256) NOT NULL,

        CONSTRAINT Explanation_less_than_256 CHECK(LENGTH(Explanation) <= 256)
);
```

6. Parameter

```sql
CREATE TABLE Parameter(

        Geoname_id IN,

        Center_id VARCHAR(100),

        User_id VARCHAR(20) REFERENCES Operator

                ON UPDATE CASCADE

                ON DELETE NO ACTION,

        Category_id VARCHAR(20) REFERENCES Category

                ON UPDATE CASCADE

                ON DELETE NO ACTION,

        Rec_date DATE DEFAULT CURRENT_DATE,

        Rec_time TIME DEFAULT CURRENT_TIME,

        Score INT NOT NULL,

        Notes VARCHAR(256) DEFAULT '',

        FOREIGN KEY(Center_id, Geoname_id) REFERENCES Monitors

                ON UPDATE CASCADE ON DELETE NO ACTION,

        PRIMARY KEY(Geoname_id, Center_id, User_id, Category_id, Rec_date, Rec_time),

        CONSTRAINT Score_between_one_and_five CHECK(Score BETWEEN 1 AND 5),

        CONSTRAINT Notes_less_than_256 CHECK(LENGTH(Notes) <= 256)
);
```