Martí Oms 253713 U199324
José Pérez Clar 253212 U198727
Telmo Linacisoro Leyendecker 253251 U198711

DATABASE ANALYSIS AND IMPROVEMENTS

Explanations and justifications

(a) **We cannot know which bars are present at each music festival and which products have been sold to which festivalgoer. Therefore we add two new columns `festival_name` and `festival_edition` as follows:**

```
ALTER TABLE Bar
ADD COLUMN festival_name CHAR(255),
ADD COLUMN festival_edition YEAR;
```

Then we must combine information from multiple tables to retrieve the values for `festival_name` and `festival_edition`. We would do this via multiple joins between `Provider`, `Provides`, `Product`, `Consumption`, `Festivalgoer` and `Buys`, and grouping by `Provider.id_provider`

```
DROP VIEW IF EXISTS Bar_festival;

CREATE VIEW Bar_festival AS
SELECT DISTINCT Provides.bar_id, Buys.festival_name,
Buys.festival_edition
FROM Provider
JOIN Provides ON Provides.provider_id = Provider.id_provider
JOIN Product ON Product.id_product = Provides.product_id
JOIN Consumption ON Consumption.id_product = Product.id_product
JOIN Festivalgoer ON Festivalgoer.id_festivalgoer =
Consumption.id_festivalgoer
JOIN Buys ON Buys.id_festivalgoer = Festivalgoer.id_festivalgoer
GROUP BY Provider.id_provider;

SELECT * FROM Bar_festival;

UPDATE Bar
JOIN Bar_festival BF ON Bar.id = BF.bar_id
SET Bar.festival_name = BF.festival_name, Bar.festival_edition =
BF.festival_edition;
```

(b) **We can also add different types of currencies for the `Provides` table as follows:**

```
ALTER TABLE Provides
CHANGE COLUMN unit_price UnitPriceUSD DECIMAL(10, 2),
ADD COLUMN UnitPriceEUR DECIMAL(10, 2),
ADD COLUMN UnitPriceGBP DECIMAL(10, 2),
ADD COLUMN UnitPriceJPY DECIMAL(10, 2);
```

We also created a table to store currency exchange rates

```
CREATE TABLE IF NOT EXISTS ExchangeRates (
    CurrencyCode VARCHAR(3) PRIMARY KEY,
    ExchangeRate DECIMAL(10, 2) NOT NULL
);
```

Finally, insert initial exchange rates based on some default values

```
INSERT IGNORE INTO ExchangeRates (CurrencyCode, ExchangeRate)
VALUES
    ('EUR', 0.93),
    ('GBP', 0.82),
    ('JPY', 151.51);
```

This approach is much better, as every time a currency exchange rate changes, we can simply update the table ExchangeRates, rather than manually modify each trigger or procedure that uses such information.

(c) **We may also want to introduce some kind of relationship between fesitvalgoer that attended a show without having paid a ticket for that festival, as for the moment the retrieval of this information is quite tedious. We do this by creating a new table `Attended_Show` as follows:**

```
CREATE TABLE IF NOT EXISTS Attended_Show(
      id_festivalgoer INT,
      id_show INT,
      festival_name CHAR(255),
      festival_edition YEAR,
      PRIMARY KEY (id_festivalgoer, id_show, festival_name,
      festival_edition),
      CONSTRAINT FK_Festivalgoer FOREIGN KEY
      (id_festivalgoer) REFERENCES Festivalgoer(id_festivalgoer),
      CONSTRAINT FK_Show FOREIGN KEY (id_show,
      festival_name, festival_edition) REFERENCES Show_(id)
      CONSTRAINT FK_Festival FOREIGN KEY (festival_name,
      festival_edition) REFERENCES Festival(festival_name,
      festival_edition)

);
```

By doing so we can now directly look at the `Attended_Show` table and the `Buys` table in order to check whether or not a festivalgoer attended a music festival without having purchased a ticket.

Martí Oms 253713 U199324
José Pérez Clar 253212 U198727
Telmo Linacisoro Leyendecker 253251 U198711

Relational model scheme