# EICTA First Project Delivery - ER and SQL

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Group Number: **05**

Academic Year: 2025-2026

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# 1 | Introduction

## 1.1. Provided Text

"The Euphoric Events company asked you to design a database for the management of their music festivals. A festival is characterized by a name, a location, a start date, and an end date. Each festival is divided into multiple stages, characterized by an identification code, a name, a maximum capacity, and a description about its location within the festival. At each stage, different musical performances can be held. A performance has a unique identifier, a title, a genre (e.g., rock, jazz, electronic), and start/end times. Performances are given by one or more artists, which may be solo musicians or bands (i.e., at least two musicians). The system should store for each artist their stage name, country, and main musical genre. In addition to this, musicians should provide their full name, nationality and main instrument, whereas bands must register their formation year. Alongside music, festivals can host several stands where people can buy food, drinks and merchandise. Each stand has a name, a sponsor, and can sell either of the three aforementioned products. A product is described by a name and a price; furthermore, food and drinks have an expiration date, and only food items have a type (e.g., vegetarian). To enter a festival, people must buy tickets, which have a type (e.g., regular, day pass, VIP), a price, and a validity period. To buy tickets, a person must state their full name, e-mail address, and phone number. A person can buy multiple tickets, and they can also purchase shop items during the festival. Whenever a purchase happens, the system should store the date and the payment method used."

## 1.2.   Text Analysis

*Entities:*

To start designing the ER model for this project for the "Euphoric Events company", we firstly identified the entities from the provided text. The entities we found are:

- Festival
- Stage
- Musical Performance
- Artist
- Solo
- Band
- Stand

- Ticket
- Person
- Product
- Food
- Drink
- Merchandise

*Attributes:*

Next, we associated attributes to the entities identified through the text and, in some cases, we had to assume unique attributes (such as barcode and QR code):

- Festival: name, start_date, end_date, location
- Stage: ID, name, capacity, location_description
- Musical_Performance: ID, title, genre, start_time, end_time
- Artist: stage_name, genre, country
- Solo: name, nationality, main_instrument
- Band: formation_year
- Stand: name, sponsor
- Product: barcode, name, price
- Food: expiry_date, type
- Drink: expiry_date
- Person: email, phone_number, full_name
- Ticket: QR_code, validity, price, type

*Relationships:*

Once each attribute was assigned to its respective entity, we carried out the same task for the relationships. Relationships were identifiable as being verbs connecting two identified entities.

*Keys:*

Afterwards, we began identifying the primary keys for each entity. For a couple of entities, we chose the previously assumed attributes as primary key, given that there were no attributes that were unique and always not null.

*Cardinalities:*

The text also described specific cardinality requirements:

- Each festival is divided into multiple stages and each stage belongs to only one festival;

- Each stage hosts multiple music performances and each performance is held in only one stage;

- Each performance is given by one or multiple artists and each artist (solo or band) can perform only once;

- Each festival can host multiple stands and each stand belongs to only one festival;

- Each festival sells multiple tickets and each ticket is related to only one festival;

- Each person can buy multiple tickets but a single ticket belongs to only one person;

- Each person can buy none or multiple products from different stands.

From the strict cardinality requirements above, we were able to finalize the remaining details necessary to make logical assumptions about the remaining ones in our ER model.

## 1.3.    Assumptions and other reasonings
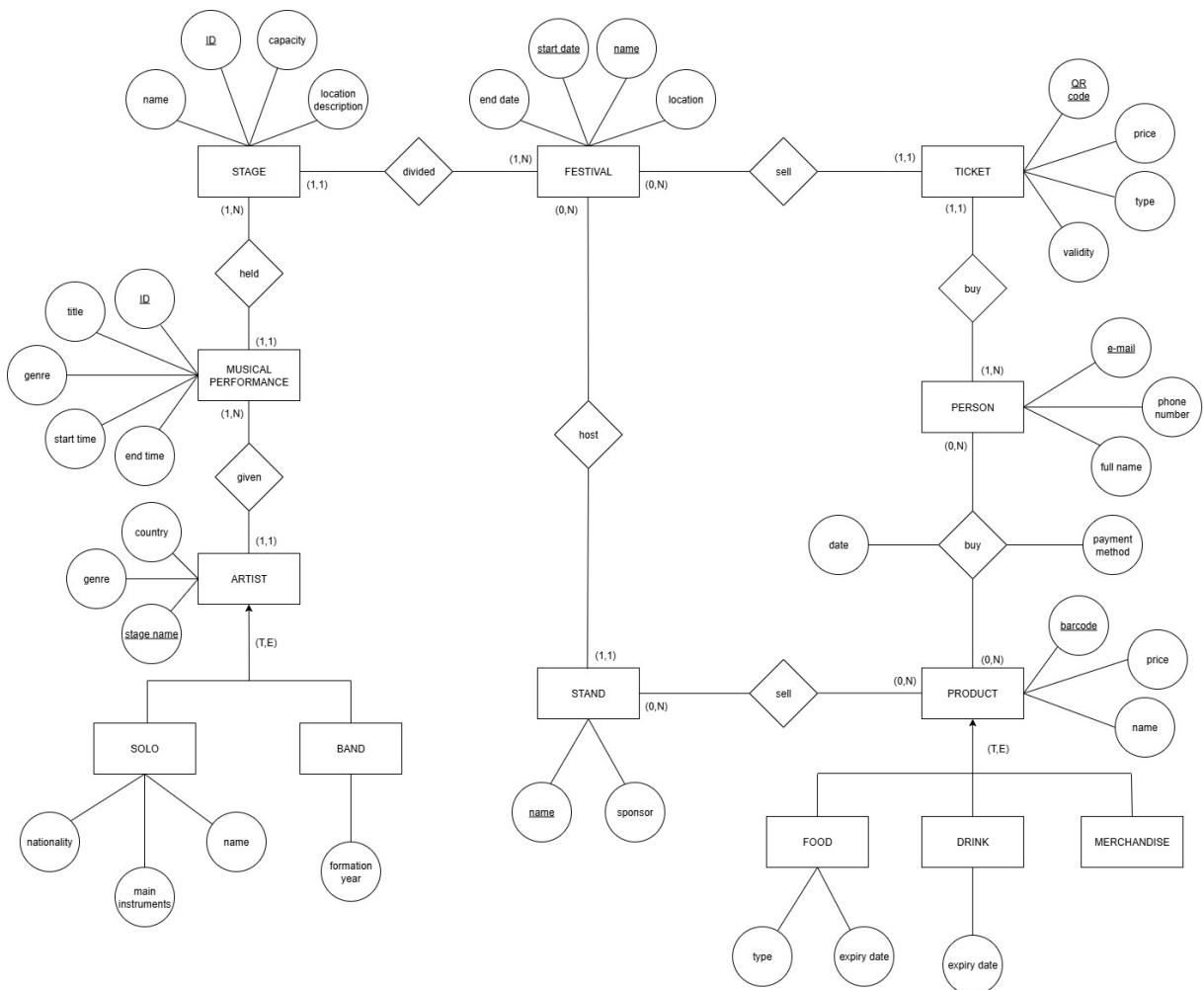
The following assumptions were made after analysing the domain, in order to clear up any ambiguities in the requirements and to define the structure, rules, and links within the logical model.

- Each artist has a unique stage name, and no artist can be both a solo performer and a member of a band at the same time.

- Every artist gives exactly one musical performance (featuring included), and each performance takes place once on a single stage.

- Every festival must include at least one stage, and each stage must host at least one performance. The names of the stands are unique within each festival.

- Tickets are identified by a unique QR code, and products are identified by a unique barcode.

- It is possible for a stand to not sell any product.

These assumptions help maintain data accuracy, prevent duplication, and ensure that important rules, such as having required stages and performances, are followed.

# 2 | ER Model

## 2.1.   ER Model

# 3 | Logical Model

The Logical Model depicting entities and associated attributes and keys is defined below. Attributes underlined have been chosen as primary keys for the entity, and attributes in blue are foreign keys. Composite primary keys have been underlined as one.

- **Festival** (name, start_date, end_date, location)

- **Stage** (ID, name, capacity, location_description, festival_name, festival_start_date)

- **Musical_Performance** (ID, title, genre, start_time, end_time, stage_ID)

- **Artist_Solo** (stage_name, country, genre, name, nationality, main_instrument, musical_performance_ID)

- **Artist_Band** (stage_name, country, genre, formation_year, musical_performance_ID)

- **Stand** (name, sponsor, festival_name, festival_start_date)

- **Product_Food** (barcode, name, price, expiry_date, type)

- **Product_Drink** (barcode, name, price, expiry_date)

- **Product_Merchandise** (barcode, name, price)

- **Person** (email, phone_number, full_name)

- **Ticket** (QR_code, validity, price, type, person_email, festival_name, festival_start_date)

- **Stand_Product_Food** (stand_name, barcode)

- **Stand_Product_Drink** (stand_name, barcode)

- **Stand_Product_Merchandise** (stand_name, barcode)

- **Product_Food_Person** (barcode, person_email, date, payment_method)

- **Product_Drink_Person** (barcode, person_email, date, payment_method)

- **Product_Merchandise_Person** (barcode, person_email, date, payment_method)

# 4 | SQL

## 4.1. Tables Creation

Here's how we implemented the tables on SQLite:

CREATE TABLE Festival (
    name VARCHAR(50) NOT NULL,
    start_date DATE NOT NULL,
    end_date DATE NOT NULL,
    location VARCHAR(50) NOT NULL,
    PRIMARY KEY (name, start_date)
);

| Festival |
| --- |
| name (PK) : VARCHAR(50) |
| start_date : DATE NOT NULL |
| end_date : DATE NOT NULL |
| location : VARCHAR(50) NOT NULL |

CREATE TABLE Stage (
    id INT PRIMARY KEY NOT NULL,
    name VARCHAR(50) NOT NULL,
    capacity INT NOT NULL,
    location_description VARCHAR(50) NOT NULL,
    festival_name VARCHAR(50) NOT NULL,
    festival_start_date DATE NOT NULL,
    FOREIGN KEY (festival_name, festival_start_date) REFERENCES Festival (name, start_date)
);

| Stage |
| --- |
| id (PK) : INT |
| name : VARCHAR(50) NOT NULL |
| capacity : INT NOT NULL |
| location_description : VARCHAR(50) NOT NULL |
| festival_name : VARCHAR(50) NOT NULL |
| festival_start_date : DATE NOT NULL |

```sql
CREATE TABLE Musical_Performance (
    id INT PRIMARY KEY,
    title VARCHAR(50) NOT NULL,
    genre VARCHAR(50) NOT NULL,
    start_time TIME NOT NULL,
    end_time TIME NOT NULL,
    stage_id INT NOT NULL,
    FOREIGN KEY (stage_id) REFERENCES Stage(id)
);
```

| Musical_Performance |
| --- |
| id (PK) : INT |
| title : VARCHAR(50) NOT NULL |
| genre : VARCHAR(50) NOT NULL |
| start_time : TIME NOT NULL |
| end_time : TIME NOT NULL |
| stage_id (FK) : INT NOT NULL |

```sql
CREATE TABLE Artist_Solo (
    stage_name VARCHAR(50) PRIMARY KEY,
    country VARCHAR(50) NOT NULL,
    genre VARCHAR(50) NOT NULL,
    name VARCHAR(50) NOT NULL,
    nationality VARCHAR(50) NOT NULL,
    main_instrument VARCHAR(50) NOT NULL,
    musical_performance_id INT DEFAUL NULL,
    FOREIGN KEY (musical_performance_id) REFERENCES Musical_Performance(id)
);
```

| Artist_Solo |
| --- |
| stage_name (PK) : VARCHAR(50) |
| country : VARCHAR(50) NOT NULL |
| genre : VARCHAR(50) NOT NULL DEFAULT 'not defined' |
| name : VARCHAR(50) NOT NULL |
| nationality : VARCHAR(50) NOT NULL |
| main_instrument : VARCHAR(50) NOT NULL |
| musical_performance_id (FK) : INT NOT NULL |

```sql
CREATE TABLE Artist_Band (
    stage_name VARCHAR(50) PRIMARY KEY,
    country VARCHAR(50) NOT NULL,
    genre VARCHAR(50) NOT NULL,
    formation_year YEAR NOT NULL,
    musical_performance_id INT NOT NULL,
    FOREIGN KEY(musical_performance_id) REFERENCES Musical_Performance(id)
);
```

| Artist_Band |
| --- |
| stage_name (PK) : VARCHAR(50) |
| country : VARCHAR(50) NOT NULL |
| genre : VARCHAR(50) NOT NULL |
| formation_year : YEAR NOT NULL |
| musical_performance_id (FK) : INT NOT NULL |

```sql
CREATE TABLE Stand (
  name STRING PRIMARY KEY,
  sponsor VARCHAR(50) NOT NULL,
  festival_name VARCHAR(50) NOT NULL,
  festival_start_date DATE NOT NULL,
  FOREIGN KEY(festival_name, festival_start_date) REFERENCES Festival(name, start_date)
);
```

| Stand |
| --- |
| name (PK) : VARCHAR(50) |
| sponsor : VARCHAR(50) |
| festival_name : VARCHAR(50) NOT NULL |
| festival_start_date : DATE NOT NULL |

```sql
CREATE TABLE Product_Food (
  barcode INT PRIMARY KEY,
  name VARCHAR(50) NOT NULL,
  price INT NOT NULL,
  expiry_date DATE NOT NULL,
  type VARCHAR(50) NOT NULL
);
```

| Product_Food |
| --- |
| barcode (PK) : INT |
| name : VARCHAR(50) NOT NULL |
| price : INT NOT NULL |
| expiry_date : DATE NOT NULL |
| type : VARCHAR(50) NOT NULL |

```sql
CREATE TABLE Product_Drink (
  barcode INT PRIMARY KEY,
  name VARCHAR(50) NOT NULL,
  expiry_date DATE NOT NULL,
  price INT NOT NULL
);
```

| Product_Drink |
| --- |
| barcode (PK) : INT |
| name : VARCHAR(50) NOT NULL |
| expiry_date : DATE NOT NULL |
| price : INT NOT NULL |

```sql
CREATE TABLE Product_Merchandise (
  barcode INT PRIMARY KEY,
  name VARCHAR(50) NOT NULL,
  price INT NOT NULL
);
```

| Product_Merchandise |
| --- |
| barcode (PK) : INT |
| name : VARCHAR(50) NOT NULL |
| price : INT NOT NULL |

```sql
CREATE TABLE Person (
  email VARCHAR(50) PRIMARY KEY,
  phone_number VARCHAR(50) NOT NULL,
  full_name VARCHAR(50) NOT NULL
);
```

| Person |
| --- |
| email (PK) : VARCHAR(50) |
| phone_number : VARCHAR(50) NOT NULL |
| full_name : VARCHAR(50) NOT NULL |

CREATE TABLE Ticket (
  qr_code VARCHAR(50) NOT NULL PRIMARY KEY,
  validity DATETIME NOT NULL,
  type VARCHAR(50) NOT NULL,
  person_email VARCHAR(50) NOT NULL,
  festival_name VARCHAR(50) NOT NULL,
  festival_start_date DATE NOT NULL,
  price INT NOT NULL,
  FOREIGN KEY(person_email) REFERENCES Person(email),
  FOREIGN KEY(festival_name, festival_start_date) REFERENCES Festival(name, start_date)
);

| Ticket |
| --- |
| qr_code (PK) : VARCHAR(50) |
| validity : DATE NOT NULL |
| type : VARCHAR(50) NOT NULL |
| person_email : VARCHAR(50) NOT NULL |
| festival_name : VARCHAR(50) NOT NULL |
| festival_start_date : DATE NOT NULL |
| price : INT NOT NULL |

CREATE TABLE Stand_Product_Food (
  stand_name VARCHAR(50) NOT NULL,
  barcode INT NOT NULL,
  PRIMARY KEY(stand_name, barcode),
  FOREIGN KEY(stand_name) REFERENCES Stand(name),
  FOREIGN KEY(barcode) REFERENCES Product_Food(barcode)
);

| Stand_Product_Food |
| --- |
| stand_name (PK) : VARCHAR(50) |
| barcode : INT NOT NULL |

CREATE TABLE Stand_Product_Drink (
  stand_name VARCHAR(50) NOT NULL,
  barcode INT NOT NULL,
  PRIMARY KEY(stand_name, barcode),
  FOREIGN KEY(stand_name) REFERENCES Stand(name),
  FOREIGN KEY(barcode) REFERENCES Product_Drink(barcode)
);

| Stand_Product_Drink |
| --- |
| stand_name (PK) : VARCHAR(50) |
| barcode : INT NOT NULL |

CREATE TABLE Stand_Product_Merchandise (
    stand_name VARCHAR(50) NOT NULL,
    barcode INT NOT NULL,
    PRIMARY KEY(stand_name, barcode),
    FOREIGN KEY(stand_name) REFERENCES
Stand(name),
    FOREIGN KEY(barcode) REFERENCES Product_Merchandise(barcode)
);

| Stand_Product_Merchandise |
|---|
| stand_name (PK) : VARCHAR(50) |
| barcode : INT NOT NULL |

CREATE TABLE Product_Food_Person (
    barcode INT NOT NULL,
    person_email VARCHAR(50) NOT NULL,
    date DATE NOT NULL,
    payment_method VARCHAR(50) NOT NULL,
    PRIMARY KEY(barcode, person_email),
    FOREIGN KEY(barcode) REFERENCES Product_Food(barcode),
    FOREIGN KEY(person_email) REFERENCES
Person(email)
);

| Product_Food_Person |
|---|
| barcode (PK) : INT |
| person_email : VARCHAR(50) NOT NULL |
| date : DATE NOT NULL |
| payment_method : VARCHAR(50) NOT NULL |

CREATE TABLE Product_Drink_Person (
    barcode INT NOT NULL,
    person_email VARCHAR(50) NOT NULL,
    date DATE NOT NULL,
    payment_method VARCHAR(50) NOT NULL,
    PRIMARY KEY(barcode, person_email),
    FOREIGN KEY(barcode) REFERENCES Product_Drink(barcode),
    FOREIGN KEY(person_email) REFERENCES
Person(email)
);

| Stand_Product_Merchandise |
|---|
| stand_name (PK) : VARCHAR(50) |
| barcode : INT NOT NULL |

CREATE TABLE Product_Merchandise_Person (
    barcode INT NOT NULL,
    person_email VARCHAR(50) NOT NULL,
    date DATE NOT NULL,
    payment_method VARCHAR(50) NOT NULL,
    PRIMARY KEY(barcode, person_email),
    FOREIGN KEY(barcode) REFERENCES Product_Merchandise(barcode),
    FOREIGN KEY(person_email) REFERENCES Person(email)
);

| Product_Merchandise_Person |
| --- |
| barcode (PK) : INT |
| person_email : VARCHAR(50) NOT NULL |
| date : DATE NOT NULL |
| payment_method : VARCHAR(50) NOT NULL |

## 4.2. Data Population

Once the tables were created in SQL, the AI tool "Claude" was employed to synthesize a representative set of random data. This synthetic data was generated in strict adherence to the predefined SQL schema constraints, including data types, uniqueness and non-nullability. The resulting tables are presented below:

# Festival

| name | start_date | end_date | location |
|------|-----------|----------|----------|
| Glastonbury Music Festival | 2024-06-26 | 2024-06-30 | Somerset, England |
| Coachella Valley Music Fest... | 2024-04-12 | 2024-04-14 | Indio, California |
| Tomorrowland | 2024-07-19 | 2024-07-21 | Boom, Belgium |
| Burning Man | 2024-08-25 | 2024-09-02 | Black Rock Desert, Nevada |
| Lollapalooza | 2024-08-01 | 2024-08-04 | Chicago, Illinois |
| Reading and Leeds Festival | 2024-08-23 | 2024-08-25 | Reading, England |
| Electric Daisy Carnival | 2024-05-17 | 2024-05-19 | Las Vegas, Nevada |
| Bonnaroo Music Festival | 2024-06-13 | 2024-06-16 | Manchester, Tennessee |
| Austin City Limits | 2024-10-04 | 2024-10-06 | Austin, Texas |
| Primavera Sound | 2024-05-29 | 2024-06-02 | Barcelona, Spain |
| Roskilde Festival | 2024-06-29 | 2024-07-06 | Roskilde, Denmark |
| Sziget Festival | 2024-08-07 | 2024-08-12 | Budapest, Hungary |
| Governors Ball | 2024-06-07 | 2024-06-09 | New York City, New York |
| Outside Lands | 2024-08-09 | 2024-08-11 | San Francisco, California |
| Download Festival | 2024-06-14 | 2024-06-16 | Donington Park, England |
| Fuji Rock Festival | 2024-07-26 | 2024-07-28 | Niigata, Japan |
| South by Southwest | 2024-03-08 | 2024-03-16 | Austin, Texas |
| Ultra Music Festival | 2024-03-22 | 2024-03-24 | Miami, Florida |
| Exit Festival | 2024-07-11 | 2024-07-14 | Novi Sad, Serbia |
| Bumbershoot | 2024-09-06 | 2024-09-08 | Seattle, Washington |
| Wireless Festival | 2024-07-05 | 2024-07-07 | London, England |
| Rock in Rio | 2024-09-13 | 2024-09-22 | Rio de Janeiro, Brazil |
| Isle of Wight Festival | 2024-06-20 | 2024-06-23 | Isle of Wight, England |
| Parklife Festival | 2024-06-08 | 2024-06-09 | Manchester, England |
| Splendour in the Grass | 2024-07-19 | 2024-07-21 | Byron Bay, Australia |
| Mad Cool Festival | 2024-07-10 | 2024-07-13 | Madrid, Spain |
| Way Out West | 2024-08-08 | 2024-08-10 | Gothenburg, Sweden |
| New Orleans Jazz Fest | 2024-04-25 | 2024-05-05 | New Orleans, Louisiana |
| Bestival | 2024-08-02 | 2024-08-04 | Dorset, England |
| Secret Solstice | 2024-06-21 | 2024-06-23 | Reykjavik, Iceland |
| Lightning in a Bottle | 2024-05-22 | 2024-05-27 | Bakersfield, California |
| Shambhala Music Festival | 2024-07-19 | 2024-07-22 | British Columbia, Canada |
| Electric Forest | 2024-06-20 | 2024-06-23 | Rothbury, Michigan |
| Firefly Music Festival | 2024-06-13 | 2024-06-16 | Dover, Delaware |
| Osheaga | 2024-08-02 | 2024-08-04 | Montreal, Canada |

**Stage**

| id | name | capacity | location_description | festival_name | festival_start_date |
|----|------|----------|----------------------|---------------|---------------------|
| 1 | Pyramid Stage | 100000 | Main stage at the heart of ... | Glastonbury Music Festival | 2024-06-26 |
| 2 | Other Stage | 50000 | Second largest stage near t... | Glastonbury Music Festival | 2024-06-26 |
| 3 | West Holts Stage | 30000 | World music stage in the we... | Glastonbury Music Festival | 2024-06-26 |
| 4 | Coachella Stage | 75000 | Main outdoor stage with mou... | Coachella Valley Music Fest... | 2024-04-12 |
| 5 | Sahara Tent | 40000 | Large tent for electronic m... | Coachella Valley Music Fest... | 2024-04-12 |
| 6 | Outdoor Theatre | 20000 | Smaller outdoor venue for i... | Coachella Valley Music Fest... | 2024-04-12 |
| 7 | MainStage | 60000 | Central mainstage with mass... | Tomorrowland | 2024-07-19 |
| 8 | Freedom Stage | 35000 | Stage dedicated to harder e... | Tomorrowland | 2024-07-19 |
| 9 | The Man Stage | 70000 | Central plaza surrounding t... | Burning Man | 2024-08-25 |
| 10 | Temple Stage | 25000 | Spiritual gathering space a... | Burning Man | 2024-08-25 |
| 11 | T-Mobile Stage | 55000 | Main headliner stage in Gra... | Lollapalooza | 2024-08-01 |
| 12 | Perry's Stage | 45000 | Electronic and dance music ... | Lollapalooza | 2024-08-01 |
| 13 | Bud Light Stage | 30000 | Alternative rock and indie ... | Lollapalooza | 2024-08-01 |
| 14 | Main Stage East | 80000 | Primary headliner stage at ... | Reading and Leeds Festival | 2024-08-23 |
| 15 | Festival Republic Stage | 25000 | Smaller stage for emerging ... | Reading and Leeds Festival | 2024-08-23 |
| 16 | kineticFIELD | 90000 | Massive main stage with ela... | Electric Daisy Carnival | 2024-05-17 |
| 17 | cosmicMEADOW | 40000 | Open-air stage for house an... | Electric Daisy Carnival | 2024-05-17 |
| 18 | What Stage | 65000 | Main stage for headliners a... | Bonnaroo Music Festival | 2024-06-13 |
| 19 | Which Stage | 35000 | Second stage for popular ar... | Bonnaroo Music Festival | 2024-06-13 |
| 20 | This Tent | 15000 | Covered tent for afternoon ... | Bonnaroo Music Festival | 2024-06-13 |
| 21 | Honda Stage | 50000 | Main stage in Zilker Park | Austin City Limits | 2024-10-04 |
| 22 | Miller Lite Stage | 30000 | Rock and alternative music ... | Austin City Limits | 2024-10-04 |
| 23 | Primavera Stage | 45000 | Main outdoor stage at Parc ... | Primavera Sound | 2024-05-29 |
| 24 | Pull&Bear Stage | 25000 | Electronic and experimental... | Primavera Sound | 2024-05-29 |
| 25 | Orange Stage | 85000 | Largest stage with elaborat... | Roskilde Festival | 2024-06-29 |
| 26 | Arena Stage | 40000 | Indoor/outdoor hybrid stage | Roskilde Festival | 2024-06-29 |
| 27 | Main Stage | 90000 | Central stage on Óbuda Island | Sziget Festival | 2024-08-07 |
| 28 | A38 Stage | 20000 | Stage on a boat for intimat... | Sziget Festival | 2024-08-07 |
| 29 | GovBall Stage | 40000 | Main stage overlooking Manh... | Governors Ball | 2024-06-07 |
| 30 | Bacardi Stage | 25000 | Hip-hop and R&B focused stage | Governors Ball | 2024-06-07 |
| 31 | Twin Peaks Stage | 55000 | Main headliner stage in Gol... | Outside Lands | 2024-08-09 |
| 32 | Sutro Stage | 30000 | Electronic music and DJ stage | Outside Lands | 2024-08-09 |
| 33 | Main Stage | 70000 | Rock and metal headliner stage | Download Festival | 2024-06-14 |
| 34 | Avalanche Stage | 35000 | Secondary stage for heavy b... | Download Festival | 2024-06-14 |
| 35 | Green Stage | 50000 | Main outdoor stage in the m... | Fuji Rock Festival | 2024-07-26 |

# Musical_Performance

| id | title | genre | start_time | end_time | stage_id |
|----|-------|-------|------------|----------|----------|
| 1 | Coldplay Headliner Show | Alternative Rock | 21:00:00 | 23:00:00 | 1 |
| 2 | Arctic Monkeys Live | Indie Rock | 19:00:00 | 20:30:00 | 1 |
| 3 | Dua Lipa Performance | Pop | 17:00:00 | 18:30:00 | 2 |
| 4 | The Killers Concert | Rock | 20:00:00 | 21:45:00 | 2 |
| 5 | Burna Boy Showcase | Afrobeats | 15:00:00 | 16:30:00 | 3 |
| 6 | Tame Impala Experience | Psychedelic Rock | 18:00:00 | 19:45:00 | 3 |
| 7 | Bad Bunny Extravaganza | Reggaeton | 22:00:00 | 23:30:00 | 4 |
| 8 | Billie Eilish Live | Alternative Pop | 20:00:00 | 21:30:00 | 4 |
| 9 | Frank Ocean Set | R&B | 19:00:00 | 20:45:00 | 5 |
| 10 | Calvin Harris DJ Set | Electronic Dance | 23:00:00 | 01:00:00 | 5 |
| 11 | Rosalía Performance | Latin Pop | 16:00:00 | 17:30:00 | 6 |
| 12 | The Weeknd Showcase | R&B | 21:00:00 | 22:45:00 | 6 |
| 13 | Martin Garrix Mainstage | EDM | 22:00:00 | 23:30:00 | 7 |
| 14 | David Guetta Closing | House | 23:30:00 | 01:30:00 | 7 |
| 15 | Armin van Buuren Trance | Trance | 20:00:00 | 22:00:00 | 8 |
| 16 | Dimitri Vegas & Like Mike | Big Room House | 18:00:00 | 20:00:00 | 8 |
| 17 | Desert Hearts Collective | Tech House | 14:00:00 | 18:00:00 | 9 |
| 18 | Random Rab Sunrise Set | Downtempo | 05:00:00 | 07:00:00 | 9 |
| 19 | Shamanic Sound Healing | Ambient | 10:00:00 | 12:00:00 | 10 |
| 20 | Deep Meditation Session | New Age | 08:00:00 | 10:00:00 | 10 |
| 21 | Kendrick Lamar Headliner | Hip Hop | 20:30:00 | 22:30:00 | 11 |
| 22 | Lana Del Rey Performance | Dream Pop | 18:00:00 | 19:30:00 | 11 |
| 23 | Skrillex DJ Set | Dubstep | 22:00:00 | 23:30:00 | 12 |
| 24 | Marshmello Live | Future Bass | 20:00:00 | 21:30:00 | 12 |
| 25 | Vampire Weekend Show | Indie Pop | 16:00:00 | 17:30:00 | 13 |
| 26 | Phoenix Live Concert | Alternative Rock | 14:00:00 | 15:30:00 | 13 |
| 27 | Foo Fighters Headliner | Rock | 21:00:00 | 23:00:00 | 14 |
| 28 | Muse Epic Performance | Alternative Rock | 19:00:00 | 20:45:00 | 14 |
| 29 | Blossoms Indie Set | Indie Rock | 15:00:00 | 16:00:00 | 15 |
| 30 | Sea Girls Performance | Alternative Rock | 13:00:00 | 14:00:00 | 15 |
| 31 | Tiësto Main Stage | Progressive House | 23:00:00 | 01:00:00 | 16 |
| 32 | Zedd Live Show | Electro House | 21:00:00 | 22:30:00 | 16 |
| 33 | Chris Lake B2B Fisher | Tech House | 19:00:00 | 21:00:00 | 17 |
| 34 | John Summit Solo Set | House | 17:00:00 | 19:00:00 | 17 |
| 35 | Red Hot Chili Peppers | Funk Rock | 20:00:00 | 22:00:00 | 18 |

**Artist_Solo**

| stage_name | country | genre | name | nationality | main_instrument | musical_performance_id |
|---|---|---|---|---|---|---|
| Dua Lipa | United Kingdom | Pop | Dua Lipa | British | Vocals | 3 |
| Burna Boy | Nigeria | Afrobeats | Damini Ebunoluwa Ogulu | Nigerian | Vocals | 5 |
| Bad Bunny | Puerto Rico | Reggaeton | Benito Antonio Martínez Ocasio | Puerto Rican | Vocals | 7 |
| Billie Eilish | United States | Alternative Pop | Billie Eilish Pirate Baird | American | Vocals | 8 |
| Frank Ocean | United States | R&B | Christopher Edwin Breaux | American | Vocals | 9 |
| Calvin Harris | United Kingdom | Electronic Dance | Adam Richard Wiles | British | DJ Controller | 10 |
| Rosalía | Spain | Latin Pop | Rosalía Vila Tobella | Spanish | Vocals | 11 |
| The Weeknd | Canada | R&B | Abel Makkonen Tesfaye | Canadian | Vocals | 12 |
| Martin Garrix | Netherlands | EDM | Martijn Gerard Garritsen | Dutch | DJ Controller | 13 |
| David Guetta | France | House | Pierre David Guetta | French | DJ Controller | 14 |
| Armin van Buuren | Netherlands | Trance | Armin Jozef Jacobus Daniël ... | Dutch | DJ Controller | 15 |
| Random Rab | United States | Downtempo | Random Rab | American | Synthesizer | 18 |
| Kendrick Lamar | United States | Hip Hop | Kendrick Lamar Duckworth | American | Vocals | 21 |
| Lana Del Rey | United States | Dream Pop | Elizabeth Woolridge Grant | American | Vocals | 22 |
| Skrillex | United States | Dubstep | Sonny John Moore | American | DJ Controller | 23 |
| Marshmello | United States | Future Bass | Christopher Comstock | American | DJ Controller | 24 |
| Tiësto | Netherlands | Progressive House | Tijs Michiel Verwest | Dutch | DJ Controller | 31 |
| Zedd | Germany | Electro House | Anton Zaslavski | German-Russian | DJ Controller | 32 |
| Chris Lake | United Kingdom | Tech House | Chris Lake | British | DJ Controller | 33 |
| Fisher | Australia | Tech House | Paul Nicholas Fisher | Australian | DJ Controller | 33 |
| John Summit | United States | House | John Schuster | American | DJ Controller | 34 |
| SZA | United States | R&B | Solána Imani Rowe | American | Vocals | 1 |
| Harry Styles | United Kingdom | Pop Rock | Harry Edward Styles | British | Vocals | 2 |
| Doja Cat | United States | Pop | Amala Ratna Zandile Dlamini | American | Vocals | 4 |
| Lizzo | United States | Pop | Melissa Viviane Jefferson | American | Flute | 6 |

**Artist_Band**

| stage_name | country | genre | formation_year | musical_performance_id |
|---|---|---|---|---|
| Coldplay | United Kingdom | Alternative Rock | 1996 | 1 |
| Arctic Monkeys | United Kingdom | Indie Rock | 2002 | 2 |
| The Killers | United States | Rock | 2001 | 4 |
| Tame | Australia | Psychedelic Rock | 2007 | 6 |
| Dimitri Vegas & Like Mike | Belgium | Big Room House | 2007 | 16 |
| Desert Hearts Collective | United States | Tech House | 2012 | 17 |
| Vampire Weekend | United States | Indie Pop | 2006 | 25 |
| Phoenix | France | Alternative Rock | 1999 | 26 |
| Foo Fighters | United States | Rock | 1994 | 27 |
| Muse | United Kingdom | Alternative Rock | 1994 | 28 |
| Blossoms | United Kingdom | Indie Rock | 2013 | 29 |
| Sea Girls | United Kingdom | Alternative Rock | 2015 | 30 |
| Red Hot Chili Peppers | United States | Funk Rock | 1983 | 35 |
| The 1975 | United Kingdom | Pop Rock | 2002 | 5 |
| Imagine Dragons | United States | Alternative Rock | 2008 | 7 |
| Twenty One Pilots | United States | Alternative | 2009 | 8 |
| Arcade Fire | Canada | Indie Rock | 2001 | 9 |
| The Strokes | United States | Indie Rock | 2001 | 10 |
| Florence + The Machine | United Kingdom | Indie Rock | 2007 | 11 |
| Tame Impala | Australia | Psychedelic Rock | 2007 | 13 |
| Two Door Cinema Club | Northern Ireland | Indie Rock | 2007 | 14 |
| Alt-J | United Kingdom | Alternative | 2007 | 15 |
| Kings of Leon | United States | Rock | 1999 | 18 |
| The National | United States | Indie Rock | 1999 | 19 |
| Radiohead | United Kingdom | Alternative Rock | 1985 | 20 |
| Pearl Jam | United States | Grunge | 1990 | 22 |
| Green Day | United States | Punk Rock | 1987 | 23 |
| Metallica | United States | Heavy Metal | 1981 | 24 |
| Linkin Park | United States | Alternative Rock | 1996 | 26 |
| Bring Me The Horizon | United Kingdom | Metalcore | 2004 | 27 |

**Stand**

| name | sponsor | festival_name | festival_start_date |
|---|---|---|---|
| Main Food Court | Coca-Cola | Glastonbury Music Festival | 2024-06-26 |
| VIP Lounge Area | American Express | Glastonbury Music Festival | 2024-06-26 |
| Merchandise Hub | H&M | Glastonbury Music Festival | 2024-06-26 |
| Craft Beer Garden | Heineken | Glastonbury Music Festival | 2024-06-26 |
| Sustainability Pavilion | Patagonia | Glastonbury Music Festival | 2024-06-26 |
| Desert Oasis Bar | Absolut Vodka | Coachella Valley Music Fest... | 2024-04-12 |
| Fashion Forward Zone | Revolve | Coachella Valley Music Fest... | 2024-04-12 |
| Ferris Wheel Plaza | T-Mobile | Coachella Valley Music Fest... | 2024-04-12 |
| Wellness Center | Lululemon | Coachella Valley Music Fest... | 2024-04-12 |
| Silent Disco Tent | Red Bull | Coachella Valley Music Fest... | 2024-04-12 |
| Belgian Beer Garden | Stella Artois | Tomorrowland | 2024-07-19 |
| Dreamville Camping Store | Decathlon | Tomorrowland | 2024-07-19 |
| Tomorrow World Merchandise | JBL | Tomorrowland | 2024-07-19 |
| Digital Art Gallery | Samsung | Tomorrowland | 2024-07-19 |
| Center Camp Cafe | None | Burning Man | 2024-08-25 |
| Ranger Station | None | Burning Man | 2024-08-25 |
| Ice Sales Point | None | Burning Man | 2024-08-25 |
| Community Kitchen | Whole Foods | Burning Man | 2024-08-25 |
| Grant Park Marketplace | Bud Light | Lollapalooza | 2024-08-01 |
| Kidzapalooza Area | Nintendo | Lollapalooza | 2024-08-01 |
| Chow Town Food Village | Uber Eats | Lollapalooza | 2024-08-01 |
| Hydration Station | Liquid Death | Lollapalooza | 2024-08-01 |
| Alternative Clothing Stand | Vans | Reading and Leeds Festival | 2024-08-23 |
| Gaming Zone | PlayStation | Reading and Leeds Festival | 2024-08-23 |
| Festival Bar Central | Carling | Reading and Leeds Festival | 2024-08-23 |
| VIP Viewing Deck | NME | Reading and Leeds Festival | 2024-08-23 |
| Neon Garden Lounge | Smirnoff | Electric Daisy Carnival | 2024-05-17 |
| EDC Merchandise Megastore | Insomniac | Electric Daisy Carnival | 2024-05-17 |
| Carnival Square Food Court | Grubhub | Electric Daisy Carnival | 2024-05-17 |
| Pixel Forest Art Installation | Adobe | Electric Daisy Carnival | 2024-05-17 |
| The Grove Marketplace | Jack Daniel | Bonnaroo Music Festival | 2024-06-13 |
| Centeroo Plaza | New Belgium Brewing | Bonnaroo Music Festival | 2024-06-13 |
| Solar Stage Lounge | Tesla | Bonnaroo Music Festival | 2024-06-13 |
| Craft Vendors Village | Etsy | Bonnaroo Music Festival | 2024-06-13 |
| Barton Springs Bar | Tito Vodka | Austin City Limits | 2024-10-04 |

# Product_Food

| barcode | name | expiry_date | type | price |
|---------|------|-------------|------|-------|
| 1001 | Classic Cheeseburger | 2024-06-26 | Main Course | 12 |
| 1002 | Margherita Pizza Slice | 2024-06-27 | Main Course | 8 |
| 1003 | Vegetarian Burrito | 2024-06-26 | Main Course | 10 |
| 1004 | BBQ Pulled Pork Sandwich | 2024-06-27 | Main Course | 14 |
| 1005 | Chicken Caesar Wrap | 2024-06-26 | Main Course | 11 |
| 1006 | Pad Thai Noodles | 2024-06-27 | Main Course | 13 |
| 1007 | Fish and Chips | 2024-06-26 | Main Course | 15 |
| 1008 | Falafel Pita | 2024-06-27 | Main Course | 9 |
| 1009 | Korean BBQ Tacos | 2024-06-26 | Main Course | 12 |
| 1010 | Truffle Mac and Cheese | 2024-06-27 | Main Course | 16 |
| 1011 | Loaded Nachos | 2024-06-26 | Snack | 10 |
| 1012 | Sweet Potato Fries | 2024-06-27 | Snack | 6 |
| 1013 | Mozzarella Sticks | 2024-06-26 | Snack | 7 |
| 1014 | Chicken Wings | 2024-06-27 | Snack | 11 |
| 1015 | Pretzel Bites | 2024-06-26 | Snack | 5 |
| 1016 | Onion Rings | 2024-06-27 | Snack | 6 |
| 1017 | Popcorn Bucket | 2024-06-26 | Snack | 4 |
| 1018 | Corn Dog | 2024-06-27 | Snack | 6 |
| 1019 | Churros | 2024-06-26 | Dessert | 5 |
| 1020 | Ice Cream Cone | 2024-06-27 | Dessert | 4 |
| 1021 | Funnel Cake | 2024-06-26 | Dessert | 8 |
| 1022 | Chocolate Brownie | 2024-06-27 | Dessert | 5 |
| 1023 | Fruit Smoothie Bowl | 2024-06-26 | Dessert | 9 |
| 1024 | Donuts Box | 2024-06-27 | Dessert | 7 |
| 1025 | Waffles with Syrup | 2024-06-26 | Dessert | 8 |
| 1026 | Apple Pie Slice | 2024-06-27 | Dessert | 6 |
| 1027 | Chocolate Chip Cookies | 2024-06-26 | Dessert | 4 |
| 1028 | Fresh Fruit Cup | 2024-06-27 | Snack | 5 |
| 1029 | Veggie Spring Rolls | 2024-06-26 | Snack | 7 |
| 1030 | Quesadilla | 2024-06-27 | Main Course | 9 |
| 1031 | Ramen Bowl | 2024-06-26 | Main Course | 12 |
| 1032 | Sushi Roll Combo | 2024-06-27 | Main Course | 18 |
| 1033 | Greek Salad | 2024-06-26 | Main Course | 10 |
| 1034 | Turkey Club Sandwich | 2024-06-27 | Main Course | 11 |
| 1035 | Beef Sliders Trio | 2024-06-26 | Main Course | 13 |

# Product_Drink

| barcode | name | expiry_date | price |
|---|---|---|---|
| 2001 | Bottled Water | 2025-12-31 | 3 |
| 2002 | Coca-Cola | 2025-06-30 | 4 |
| 2003 | Sprite | 2025-06-30 | 4 |
| 2004 | Orange Juice | 2024-07-15 | 5 |
| 2005 | Iced Coffee | 2024-07-10 | 6 |
| 2006 | Energy Drink | 2025-08-20 | 5 |
| 2007 | Lemonade | 2024-07-05 | 4 |
| 2008 | Iced Tea | 2024-07-08 | 4 |
| 2009 | Craft Beer Lager | 2025-03-15 | 8 |
| 2010 | IPA Beer | 2025-03-20 | 9 |
| 2011 | Cider | 2025-04-10 | 8 |
| 2012 | White Wine Glass | 2026-01-30 | 10 |
| 2013 | Red Wine Glass | 2026-02-15 | 10 |
| 2014 | Prosecco Glass | 2025-11-30 | 12 |
| 2015 | Mojito Cocktail | 2024-06-27 | 11 |
| 2016 | Margarita | 2024-06-27 | 11 |
| 2017 | Gin and Tonic | 2024-06-28 | 10 |
| 2018 | Vodka Red Bull | 2024-06-28 | 12 |
| 2019 | Whiskey Sour | 2024-06-27 | 13 |
| 2020 | Pina Colada | 2024-06-27 | 12 |
| 2021 | Smoothie Mango | 2024-06-26 | 7 |
| 2022 | Smoothie Berry Blast | 2024-06-26 | 7 |
| 2023 | Coconut Water | 2025-05-30 | 5 |
| 2024 | Sports Drink | 2025-09-15 | 4 |
| 2025 | Kombucha | 2024-08-20 | 6 |
| 2026 | Cold Brew Coffee | 2024-07-12 | 6 |
| 2027 | Hot Chocolate | 2024-12-31 | 5 |
| 2028 | Cappuccino | 2024-06-27 | 5 |

# Product_Merchandise

| barcode | name | price |
|---------|------|-------|
| 3001 | Festival T-Shirt | 35 |
| 3002 | Hoodie with Logo | 65 |
| 3003 | Baseball Cap | 25 |
| 3004 | Beanie Hat | 20 |
| 3005 | Tote Bag | 18 |
| 3006 | Backpack | 45 |
| 3007 | Sunglasses | 22 |
| 3008 | Wristband Set | 12 |
| 3009 | Phone Case | 28 |
| 3010 | Sticker Pack | 8 |
| 3011 | Poster Print | 15 |
| 3012 | Flag Banner | 30 |
| 3013 | Bandana | 12 |
| 3014 | Keychain | 10 |
| 3015 | Water Bottle | 20 |
| 3016 | Festival Pin Badge | 8 |
| 3017 | Vinyl Record | 40 |
| 3018 | CD Album | 18 |
| 3019 | Tour Jacket | 85 |
| 3020 | Tank Top | 28 |
| 3021 | Long Sleeve Shirt | 42 |
| 3022 | Sweatpants | 50 |
| 3023 | Shorts | 35 |
| 3024 | Socks Pair | 15 |
| 3025 | Lanyard | 12 |
| 3026 | Festival Blanket | 55 |
| 3027 | Bucket Hat | 24 |
| 3028 | Crop Top | 30 |
| 3029 | Fanny Pack | 32 |
| 3030 | Rain Poncho | 18 |
| 3031 | LED Bracelet | 15 |
| 3032 | Glow Stick Pack | 10 |
| 3033 | Face Paint Kit | 16 |
| 3034 | Temporary Tattoos | 8 |
| 3035 | Festival Map Poster | 12 |

## Person

| email | phone_number | full_name |
|---|---|---|
| john.smith@email.com | +1-555-0101 | John Smith |
| emma.johnson@email.com | +44-20-7946-0958 | Emma Johnson |
| michael.brown@email.com | +1-555-0102 | Michael Brown |
| sophia.davis@email.com | +1-555-0103 | Sophia Davis |
| james.wilson@email.com | +44-161-496-0345 | James Wilson |
| olivia.taylor@email.com | +1-555-0104 | Olivia Taylor |
| william.anderson@email.com | +1-555-0105 | William Anderson |
| ava.martinez@email.com | +34-91-123-4567 | Ava Martinez |
| robert.thomas@email.com | +1-555-0106 | Robert Thomas |
| isabella.garcia@email.com | +52-55-1234-5678 | Isabella Garcia |
| david.rodriguez@email.com | +1-555-0107 | David Rodriguez |
| mia.hernandez@email.com | +1-555-0108 | Mia Hernandez |
| joseph.lopez@email.com | +34-93-123-4567 | Joseph Lopez |
| charlotte.gonzalez@email.com | +1-555-0109 | Charlotte Gonzalez |
| daniel.wilson@email.com | +61-2-9876-5432 | Daniel Wilson |
| amelia.moore@email.com | +44-20-7946-0876 | Amelia Moore |
| matthew.taylor@email.com | +1-555-0110 | Matthew Taylor |
| harper.jackson@email.com | +1-555-0111 | Harper Jackson |
| christopher.white@email.com | +1-555-0112 | Christopher White |
| evelyn.harris@email.com | +44-161-496-0234 | Evelyn Harris |
| andrew.martin@email.com | +1-555-0113 | Andrew Martin |
| abigail.thompson@email.com | +1-555-0114 | Abigail Thompson |
| joshua.garcia@email.com | +52-55-8765-4321 | Joshua Garcia |
| emily.martinez@email.com | +34-91-765-4321 | Emily Martinez |
| ryan.robinson@email.com | +61-3-9876-5432 | Ryan Robinson |
| elizabeth.clark@email.com | +44-20-7946-0765 | Elizabeth Clark |
| jacob.rodriguez@email.com | +1-555-0115 | Jacob Rodriguez |
| sofia.lewis@email.com | +1-555-0116 | Sofia Lewis |
| nicholas.walker@email.com | +1-555-0117 | Nicholas Walker |
| avery.hall@email.com | +44-161-496-0567 | Avery Hall |
| alexander.allen@email.com | +1-555-0118 | Alexander Allen |
| ella.young@email.com | +1-555-0119 | Ella Young |
| benjamin.king@email.com | +1-555-0120 | Benjamin King |
| scarlett.wright@email.com | +61-2-8765-4321 | Scarlett Wright |
| lucas.lopez@email.com | +34-93-765-4321 | Lucas Lopez |

**Ticket**

| qr_code | validity | type | person_email | festival_name | festival_start_date | price |
|---------|----------|------|--------------|---------------|---------------------|-------|
| QR001GLB2024 | 2024-06-30 10:00:00 | Regular | john.smith@email.com | Glastonbury Music Festival | 2024-06-26 | 350 |
| QR002GLB2024 | 2024-06-30 12:00:00 | Day Pass | emma.johnson@email.com | Glastonbury Music Festival | 2024-06-26 | 280 |
| QR003GLB2024 | 2024-06-30 14:00:00 | VIP | michael.brown@email.com | Glastonbury Music Festival | 2024-06-26 | 750 |
| QR004GLB2024 | 2024-06-30 16:00:00 | Private | sophia.davis@email.com | Glastonbury Music Festival | 2024-06-26 | 1200 |
| QR005GLB2024 | 2024-06-30 18:00:00 | Under 25 | olivia.taylor@email.com | Glastonbury Music Festival | 2024-06-26 | 300 |
| QR006COA2024 | 2024-04-14 10:30:00 | Regular | william.anderson@email.com | Coachella Valley Music Fest... | 2024-04-12 | 450 |
| QR007COA2024 | 2024-04-14 12:30:00 | Day Pass | ava.martinez@email.com | Coachella Valley Music Fest... | 2024-04-12 | 200 |
| QR008COA2024 | 2024-04-14 14:30:00 | VIP | robert.thomas@email.com | Coachella Valley Music Fest... | 2024-04-12 | 999 |
| QR009COA2024 | 2024-04-14 16:30:00 | Premium Pass | isabella.garcia@email.com | Coachella Valley Music Fest... | 2024-04-12 | 1500 |
| QR010COA2024 | 2024-04-14 18:30:00 | Under 25 | david.rodriguez@email.com | Coachella Valley Music Fest... | 2024-04-12 | 380 |
| QR011TML2024 | 2024-07-21 09:45:00 | Regular | mia.hernandez@email.com | Tomorrowland | 2024-07-19 | 380 |
| QR012TML2024 | 2024-07-21 12:15:00 | Day Pass | joseph.lopez@email.com | Tomorrowland | 2024-07-19 | 220 |
| QR013TML2024 | 2024-07-21 15:45:00 | VIP | charlotte.gonzalez@email.com | Tomorrowland | 2024-07-19 | 850 |
| QR014TML2024 | 2024-07-21 18:15:00 | Under 25 | daniel.wilson@email.com | Tomorrowland | 2024-07-19 | 320 |
| QR015BRN2024 | 2024-09-02 11:00:00 | Regular | amelia.moore@email.com | Burning Man | 2024-08-25 | 575 |
| QR016BRN2024 | 2024-09-02 15:00:00 | Premium Pass | matthew.taylor@email.com | Burning Man | 2024-08-25 | 1200 |
| QR017BRN2024 | 2024-09-02 19:00:00 | Under 25 | harper.jackson@email.com | Burning Man | 2024-08-25 | 490 |
| QR018LOL2024 | 2024-08-04 10:10:00 | Regular | christopher.white@email.com | Lollapalooza | 2024-08-01 | 340 |
| QR019LOL2024 | 2024-08-04 12:20:00 | Day Pass | evelyn.harris@email.com | Lollapalooza | 2024-08-01 | 150 |
| QR020LOL2024 | 2024-08-04 14:40:00 | VIP | andrew.martin@email.com | Lollapalooza | 2024-08-01 | 700 |
| QR021LOL2024 | 2024-08-04 16:50:00 | Under 25 | abigail.thompson@email.com | Lollapalooza | 2024-08-01 | 290 |
| QR022READ2024 | 2024-08-25 09:00:00 | Regular | joshua.garcia@email.com | Reading and Leeds Festival | 2024-08-23 | 310 |
| QR023READ2024 | 2024-08-25 11:30:00 | Day Pass | emily.martinez@email.com | Reading and Leeds Festival | 2024-08-23 | 130 |
| QR024READ2024 | 2024-08-25 14:00:00 | VIP | ryan.robinson@email.com | Reading and Leeds Festival | 2024-08-23 | 650 |
| QR025READ2024 | 2024-08-25 17:30:00 | Under 25 | elizabeth.clark@email.com | Reading and Leeds Festival | 2024-08-23 | 260 |
| QR026EDC2024 | 2024-05-19 08:00:00 | Regular | jacob.rodriguez@email.com | Electric Daisy Carnival | 2024-05-17 | 420 |
| QR027EDC2024 | 2024-05-19 10:20:00 | Day Pass | sofia.lewis@email.com | Electric Daisy Carnival | 2024-05-17 | 180 |
| QR028EDC2024 | 2024-05-19 12:40:00 | VIP | nicholas.walker@email.com | Electric Daisy Carnival | 2024-05-17 | 900 |
| QR029EDC2024 | 2024-05-19 15:00:00 | Premium Pass | avery.hall@email.com | Electric Daisy Carnival | 2024-05-17 | 1100 |
| QR030EDC2024 | 2024-05-19 17:20:00 | Under 25 | alexander.allen@email.com | Electric Daisy Carnival | 2024-05-17 | 360 |
| QR031BON2024 | 2024-06-16 09:05:00 | Regular | ella.young@email.com | Bonnaroo Music Festival | 2024-06-13 | 370 |
| QR032BON2024 | 2024-06-16 11:15:00 | Day Pass | benjamin.king@email.com | Bonnaroo Music Festival | 2024-06-13 | 160 |
| QR033BON2024 | 2024-06-16 13:25:00 | VIP | scarlett.wright@email.com | Bonnaroo Music Festival | 2024-06-13 | 780 |
| QR034BON2024 | 2024-06-16 15:35:00 | Premium Pass | lucas.lopez@email.com | Bonnaroo Music Festival | 2024-06-13 | 1000 |
| QR035BON2024 | 2024-06-16 17:45:00 | Under 25 | james.wilson@email.com | Bonnaroo Music Festival | 2024-06-13 | 310 |

## Stand_Product_Food

| stand_name | barcode |
|---|---|
| Main Food Court | 1001 |
| Main Food Court | 1002 |
| Main Food Court | 1003 |
| Main Food Court | 1004 |
| Main Food Court | 1005 |
| Main Food Court | 1011 |
| Main Food Court | 1012 |
| Main Food Court | 1019 |
| Main Food Court | 1020 |
| Desert Oasis Bar | 1006 |
| Desert Oasis Bar | 1007 |
| Desert Oasis Bar | 1008 |
| Desert Oasis Bar | 1013 |
| Desert Oasis Bar | 1014 |
| Chow Town Food Village | 1009 |
| Chow Town Food Village | 1010 |
| Chow Town Food Village | 1015 |
| Chow Town Food Village | 1016 |
| Chow Town Food Village | 1021 |
| Grant Park Marketplace | 1030 |
| Grant Park Marketplace | 1031 |
| Grant Park Marketplace | 1032 |
| Grant Park Marketplace | 1033 |
| The Grove Marketplace | 1034 |
| The Grove Marketplace | 1035 |
| The Grove Marketplace | 1017 |
| The Grove Marketplace | 1018 |
| Community Kitchen | 1022 |
| Community Kitchen | 1023 |
| Community Kitchen | 1024 |
| Community Kitchen | 1025 |
| Carnival Square Food Court | 1026 |
| Carnival Square Food Court | 1027 |
| Carnival Square Food Court | 1028 |
| Carnival Square Food Court | 1029 |

# Stand_Product_Drink

| stand_name | barcode |
|---|---|
| Main Food Court | 2001 |
| Main Food Court | 2002 |
| Main Food Court | 2003 |
| Main Food Court | 2004 |
| Main Food Court | 2005 |
| Craft Beer Garden | 2009 |
| Craft Beer Garden | 2010 |
| Craft Beer Garden | 2011 |
| Craft Beer Garden | 2012 |
| Craft Beer Garden | 2013 |
| VIP Lounge Area | 2014 |
| VIP Lounge Area | 2015 |
| VIP Lounge Area | 2016 |
| VIP Lounge Area | 2017 |
| Desert Oasis Bar | 2018 |
| Desert Oasis Bar | 2019 |
| Desert Oasis Bar | 2020 |
| Desert Oasis Bar | 2001 |
| Belgian Beer Garden | 2009 |
| Belgian Beer Garden | 2010 |
| Belgian Beer Garden | 2011 |
| Belgian Beer Garden | 2002 |
| Festival Bar Central | 2009 |
| Festival Bar Central | 2010 |
| Festival Bar Central | 2003 |
| Festival Bar Central | 2006 |
| Neon Garden Lounge | 2015 |
| Neon Garden Lounge | 2016 |
| Neon Garden Lounge | 2017 |
| Neon Garden Lounge | 2018 |
| The Grove Marketplace | 2019 |
| The Grove Marketplace | 2020 |
| The Grove Marketplace | 2001 |
| Barton Springs Bar | 2009 |
| Barton Springs Bar | 2010 |

## Stand_Product_Merchandise

| stand_name | barcode |
|:---:|:---:|
| Merchandise Hub | 3001 |
| Merchandise Hub | 3002 |
| Merchandise Hub | 3003 |
| Merchandise Hub | 3004 |
| Merchandise Hub | 3005 |
| Merchandise Hub | 3006 |
| Merchandise Hub | 3017 |
| Merchandise Hub | 3018 |
| Fashion Forward Zone | 3001 |
| Fashion Forward Zone | 3007 |
| Fashion Forward Zone | 3008 |
| Fashion Forward Zone | 3028 |
| Fashion Forward Zone | 3029 |
| Tomorrow World Merchandise | 3001 |
| Tomorrow World Merchandise | 3002 |
| Tomorrow World Merchandise | 3019 |
| Tomorrow World Merchandise | 3020 |
| Tomorrow World Merchandise | 3021 |
| EDC Merchandise Megastore | 3001 |
| EDC Merchandise Megastore | 3002 |
| EDC Merchandise Megastore | 3031 |
| EDC Merchandise Megastore | 3032 |
| EDC Merchandise Megastore | 3033 |
| EDC Merchandise Megastore | 3034 |
| Alternative Clothing Stand | 3001 |
| Alternative Clothing Stand | 3002 |
| Alternative Clothing Stand | 3022 |
| Alternative Clothing Stand | 3023 |
| Craft Vendors Village | 3009 |
| Craft Vendors Village | 3010 |
| Craft Vendors Village | 3011 |
| Craft Vendors Village | 3012 |
| Craft Vendors Village | 3013 |
| Craft Vendors Village | 3014 |
| Craft Vendors Village | 3015 |

## Product_Food_Person

| barcode | person_email | date | payment_method |
|---|---|---|---|
| 1001 | john.smith@email.com | 2024-06-26 | Credit Card |
| 1002 | john.smith@email.com | 2024-06-27 | Credit Card |
| 1003 | emma.johnson@email.com | 2024-06-26 | Debit Card |
| 1019 | emma.johnson@email.com | 2024-06-27 | Cash |
| 1004 | michael.brown@email.com | 2024-06-26 | Credit Card |
| 1011 | michael.brown@email.com | 2024-06-27 | Credit Card |
| 1005 | sophia.davis@email.com | 2024-06-26 | Apple Pay |
| 1020 | sophia.davis@email.com | 2024-06-27 | Apple Pay |
| 1006 | william.anderson@email.com | 2024-04-12 | Credit Card |
| 1007 | ava.martinez@email.com | 2024-04-13 | Debit Card |
| 1021 | ava.martinez@email.com | 2024-04-14 | Cash |
| 1008 | robert.thomas@email.com | 2024-04-12 | Google Pay |
| 1009 | isabella.garcia@email.com | 2024-04-13 | Credit Card |
| 1010 | david.rodriguez@email.com | 2024-07-19 | Debit Card |
| 1012 | mia.hernandez@email.com | 2024-07-20 | Cash |
| 1013 | joseph.lopez@email.com | 2024-07-19 | Credit Card |
| 1022 | joseph.lopez@email.com | 2024-07-21 | Credit Card |
| 1014 | charlotte.gonzalez@email.com | 2024-07-20 | Apple Pay |
| 1015 | daniel.wilson@email.com | 2024-08-26 | Cash |
| 1023 | amelia.moore@email.com | 2024-08-27 | Credit Card |
| 1024 | matthew.taylor@email.com | 2024-08-28 | Debit Card |
| 1016 | christopher.white@email.com | 2024-08-01 | Credit Card |
| 1030 | christopher.white@email.com | 2024-08-02 | Credit Card |
| 1017 | evelyn.harris@email.com | 2024-08-01 | Cash |
| 1031 | andrew.martin@email.com | 2024-08-02 | Google Pay |
| 1025 | andrew.martin@email.com | 2024-08-03 | Google Pay |
| 1018 | abigail.thompson@email.com | 2024-08-02 | Debit Card |
| 1032 | joshua.garcia@email.com | 2024-08-23 | Credit Card |
| 1033 | emily.martinez@email.com | 2024-08-24 | Cash |
| 1026 | ryan.robinson@email.com | 2024-08-23 | Apple Pay |
| 1034 | jacob.rodriguez@email.com | 2024-05-17 | Credit Card |
| 1027 | sofia.lewis@email.com | 2024-05-18 | Debit Card |
| 1035 | nicholas.walker@email.com | 2024-05-19 | Credit Card |
| 1028 | avery.hall@email.com | 2024-05-18 | Google Pay |
| 1029 | ella.young@email.com | 2024-06-14 | Cash |

# Product_Drink_Person

| barcode | person_email | date | payment_method |
|---------|--------------|------|----------------|
| 2001 | john.smith@email.com | 2024-06-26 | Credit Card |
| 2002 | john.smith@email.com | 2024-06-27 | Cash |
| 2003 | emma.johnson@email.com | 2024-06-26 | Debit Card |
| 2009 | michael.brown@email.com | 2024-06-26 | Credit Card |
| 2010 | michael.brown@email.com | 2024-06-27 | Credit Card |
| 2004 | sophia.davis@email.com | 2024-06-27 | Apple Pay |
| 2015 | olivia.taylor@email.com | 2024-06-26 | Credit Card |
| 2016 | olivia.taylor@email.com | 2024-06-27 | Credit Card |
| 2005 | william.anderson@email.com | 2024-04-12 | Debit Card |
| 2017 | william.anderson@email.com | 2024-04-13 | Debit Card |
| 2006 | ava.martinez@email.com | 2024-04-13 | Cash |
| 2018 | robert.thomas@email.com | 2024-04-12 | Google Pay |
| 2019 | robert.thomas@email.com | 2024-04-14 | Google Pay |
| 2007 | isabella.garcia@email.com | 2024-04-13 | Credit Card |
| 2011 | david.rodriguez@email.com | 2024-04-14 | Apple Pay |
| 2009 | mia.hernandez@email.com | 2024-07-19 | Cash |
| 2010 | joseph.lopez@email.com | 2024-07-20 | Credit Card |
| 2012 | charlotte.gonzalez@email.com | 2024-07-19 | Debit Card |
| 2001 | daniel.wilson@email.com | 2024-07-21 | Cash |
| 2008 | amelia.moore@email.com | 2024-08-26 | Credit Card |
| 2020 | matthew.taylor@email.com | 2024-08-27 | Apple Pay |
| 2001 | harper.jackson@email.com | 2024-08-28 | Debit Card |
| 2002 | christopher.white@email.com | 2024-08-01 | Credit Card |
| 2006 | evelyn.harris@email.com | 2024-08-02 | Cash |
| 2009 | andrew.martin@email.com | 2024-08-01 | Google Pay |
| 2010 | abigail.thompson@email.com | 2024-08-03 | Debit Card |
| 2003 | joshua.garcia@email.com | 2024-08-23 | Credit Card |
| 2009 | emily.martinez@email.com | 2024-08-24 | Cash |
| 2010 | ryan.robinson@email.com | 2024-08-24 | Apple Pay |
| 2001 | elizabeth.clark@email.com | 2024-08-25 | Debit Card |
| 2015 | jacob.rodriguez@email.com | 2024-05-17 | Credit Card |
| 2016 | sofia.lewis@email.com | 2024-05-18 | Cash |
| 2017 | nicholas.walker@email.com | 2024-05-18 | Google Pay |
| 2018 | avery.hall@email.com | 2024-05-19 | Credit Card |
| 2019 | alexander.allen@email.com | 2024-05-19 | Apple Pay |

## Product_Merchandise_Person

| barcode | person_email | date | payment_method |
|---|---|---|---|
| 3001 | john.smith@email.com | 2024-06-26 | Credit Card |
| 3002 | john.smith@email.com | 2024-06-27 | Credit Card |
| 3003 | emma.johnson@email.com | 2024-06-26 | Debit Card |
| 3015 | emma.johnson@email.com | 2024-06-27 | Cash |
| 3004 | michael.brown@email.com | 2024-06-26 | Credit Card |
| 3005 | sophia.davis@email.com | 2024-06-27 | Apple Pay |
| 3017 | sophia.davis@email.com | 2024-06-28 | Apple Pay |
| 3006 | olivia.taylor@email.com | 2024-06-26 | Credit Card |
| 3007 | william.anderson@email.com | 2024-04-12 | Debit Card |
| 3028 | william.anderson@email.com | 2024-04-13 | Debit Card |
| 3008 | ava.martinez@email.com | 2024-04-13 | Cash |
| 3029 | ava.martinez@email.com | 2024-04-14 | Cash |
| 3009 | robert.thomas@email.com | 2024-04-12 | Google Pay |
| 3001 | isabella.garcia@email.com | 2024-04-13 | Credit Card |
| 3002 | david.rodriguez@email.com | 2024-04-14 | Apple Pay |
| 3019 | mia.hernandez@email.com | 2024-07-19 | Cash |
| 3020 | mia.hernandez@email.com | 2024-07-20 | Cash |
| 3001 | joseph.lopez@email.com | 2024-07-20 | Credit Card |
| 3021 | charlotte.gonzalez@email.com | 2024-07-19 | Debit Card |
| 3010 | daniel.wilson@email.com | 2024-07-21 | Cash |
| 3011 | amelia.moore@email.com | 2024-08-26 | Credit Card |
| 3012 | matthew.taylor@email.com | 2024-08-27 | Apple Pay |
| 3013 | harper.jackson@email.com | 2024-08-28 | Debit Card |
| 3001 | christopher.white@email.com | 2024-08-01 | Credit Card |
| 3022 | christopher.white@email.com | 2024-08-02 | Credit Card |
| 3014 | evelyn.harris@email.com | 2024-08-02 | Cash |
| 3023 | andrew.martin@email.com | 2024-08-01 | Google Pay |
| 3015 | abigail.thompson@email.com | 2024-08-03 | Debit Card |
| 3001 | joshua.garcia@email.com | 2024-08-23 | Credit Card |
| 3002 | emily.martinez@email.com | 2024-08-24 | Cash |
| 3016 | ryan.robinson@email.com | 2024-08-24 | Apple Pay |
| 3031 | jacob.rodriguez@email.com | 2024-05-17 | Credit Card |
| 3032 | jacob.rodriguez@email.com | 2024-05-18 | Credit Card |
| 3033 | sofia.lewis@email.com | 2024-05-18 | Cash |
| 3034 | nicholas.walker@email.com | 2024-05-18 | Google Pay |

## 4.3.   Queries

### 4.3.1.   Capacity check ("WHERE")

SELECT name
FROM Stage
WHERE capacity > 9000;


Returns the name of every stage whose capacity exceeds 9,000.

| name |
|------|
| Pyramid Stage |
| Other Stage |
| West Holts Stage |
| Coachella Stage |
| Sahara Tent |
| Outdoor Theatre |
| MainStage |
| Freedom Stage |
| The Man Stage |
| Temple Stage |
| T-Mobile Stage |
| Perry's Stage |
| Bud Light Stage |
| Main Stage East |
| Festival Republic Stage |
| kineticFIELD |
| cosmicMEADOW |
| What Stage |
| Which Stage |
| This Tent |
| Honda Stage |
| Miller Lite Stage |
| Primavera Stage |

Pull&Bear Stage

Orange Stage

Arena Stage

Main Stage

A38 Stage

GovBall Stage

Bacardi Stage

Twin Peaks Stage

Sutro Stage

Main Stage

Avalanche Stage

Green Stage

## 4.3.2. American and English artists ("WHERE, LIMIT, LIKE")

SELECT stage_name, country, genre
FROM Artist_Solo
WHERE country LIKE '%United%'
LIMIT 10;

Pulls 10 solo artists whose country name contains "United" (e.g., "United States", "United Kingdom"), and returns their stage name, country and genre basic profile fields.

| stage_name | country | genre |
|---|---|---|
| Dua Lipa | United Kingdom | Pop |
| Billie Eilish | United States | Alternative Pop |
| Frank Ocean | United States | R&B |
| Calvin Harris | United Kingdom | Electronic Dance |
| Random Rab | United States | Downtempo |
| Kendrick Lamar | United States | Hip Hop |
| Lana Del Rey | United States | Dream Pop |
| Skrillex | United States | Dubstep |
| Marshmello | United States | Future Bass |
| Chris Lake | United Kingdom | Tech House |

### 4.3.3.   Most popular festivals ("WHERE, IN, Nested Query")

SELECT name, location, start_date, end_date
FROM Festival
WHERE name IN (
    SELECT festival_name
    FROM Stage
    WHERE capacity > 50000
);

Shows all festivals that have at least one stage with a capacity greater than 50,000. The subquery identifies the festival names linked to those large stages, and the outer query retrieves key details (name, location, and dates) for those festivals.

| name | location | start_date | end_date |
|------|----------|------------|----------|
| Bonnaroo Music Festival | Manchester, Tennessee | 2024-06-13 | 2024-06-16 |
| Burning Man | Black Rock Desert, Nevada | 2024-08-25 | 2024-09-02 |
| Coachella Valley Music Festival | Indio, California | 2024-04-12 | 2024-04-14 |
| Download Festival | Donington Park, England | 2024-06-14 | 2024-06-16 |
| Electric Daisy Carnival | Las Vegas, Nevada | 2024-05-17 | 2024-05-19 |
| Glastonbury Music Festival | Somerset, England | 2024-06-26 | 2024-06-30 |
| Lollapalooza | Chicago, Illinois | 2024-08-01 | 2024-08-04 |
| Outside Lands | San Francisco, California | 2024-08-09 | 2024-08-11 |
| Reading and Leeds Festival | Reading, England | 2024-08-23 | 2024-08-25 |
| Roskilde Festival | Roskilde, Denmark | 2024-06-29 | 2024-07-06 |
| Sziget Festival | Budapest, Hungary | 2024-08-07 | 2024-08-12 |
| Tomorrowland | Boom, Belgium | 2024-07-19 | 2024-07-21 |

### 4.3.4. Food types sold ("GROUP BY, 1 JOIN, AS")

SELECT f.type AS food_type,
    COUNT(pf.person_email) AS n_cust
FROM Product_Food AS f
JOIN Product_Food_Person AS pf
ON f.barcode = pf.barcode
GROUP BY f.type;

Connects each food item to its related purchase records in the 'Product_Food_Person' table and counts how many purchases are associated with each food type. The 'GROUP BY f.type' clause groups the results by food category.

| food_type | n_cust |
|---|---|
| Dessert | 9 |
| Main Course | 16 |
| Snack | 10 |

### 4.3.5.   Most expensive food types sold ("WHERE, GROUP BY")

SELECT type AS prod_t,
   COUNT(*) AS n_prod
FROM Product_Food
WHERE price > 5
GROUP BY type;

This query selects all food products with a price greater than 5 and groups them by their type. For each product type, it counts how many items meet the price condition.

| prod_t      | n_prod |
|-------------|--------|
| Dessert     | 5      |
| Main Course | 16     |
| Snack       | 7      |

## 4.3.6.  Drinks payment methods ("GROUP BY, HAVING, AS")

SELECT payment_method AS pm,
    COUNT(*) AS n_trans
FROM Product_Drink_Person
GROUP BY payment_method
HAVING
    COUNT(*) > 5;

This query groups all drink purchase records by the payment method used. It then counts how many transactions were made with each payment method. Finally, the 'HAVING' clause filters the results to include only payment methods that were used in more than 5 transactions.

| payment_method | n_trans |
|---|---|
| Cash | 7 |
| Credit Card | 12 |
| Debit Card | 7 |

### 4.3.7. Average price of non-dessert food ("WHERE, GROUP BY, HAVING, AS")

SELECT type AS prod_t,
   AVG(price) AS avg_price
FROM Product_Food
WHERE type != 'Dessert'
GROUP BY type
HAVING
   AVG(price) > 6;


This query calculates the average price of food products for each product type, excluding items categorized as 'Dessert'. It groups all food items by their type and computes the average price within each group. The 'HAVING' clause then filters the results, keeping only the product types whose average price is greater than 6.

| prod_t | avg_price |
|---|---|
| Main Course | 12.06 |
| Snack | 6.70 |

## 4.3.8. Richest customers ("WHERE, Nested Query, GROUP BY")

```sql
SELECT person_email AS email,
    COUNT(barcode) AS n_prod
FROM Product_Food_Person
WHERE barcode IN (
  SELECT barcode
  FROM Product_Food
  WHERE price > (
    SELECT AVG(price) FROM Product_Food
  )
)
GROUP BY person_email;
```

First computes the overall average food price, then finds barcodes priced above that average, and finally counts how many such items each person bought.

| email | n_prod |
|---|---|
| andrew.martin@email.com | 1 |
| ava.martinez@email.com | 1 |
| charlotte.gonzalez@email.com | 1 |
| david.rodriguez@email.com | 1 |
| emily.martinez@email.com | 1 |
| emma.johnson@email.com | 1 |
| isabella.garcia@email.com | 1 |
| jacob.rodriguez@email.com | 1 |
| john.smith@email.com | 1 |
| joshua.garcia@email.com | 1 |
| michael.brown@email.com | 1 |
| nicholas.walker@email.com | 1 |
| sophia.davis@email.com | 1 |
| william.anderson@email.com | 1 |

### 4.3.9. Festivals from May 2024 ("WHERE, GROUP BY, HAVING, 1 JOIN")

```sql
SELECT f.name, f.location,
    COUNT(s.id) AS total_stages
FROM Festival AS f
JOIN Stage AS s
ON f.name = s.festival_name
    AND f.start_date = s.festival_start_date
WHERE f.start_date >= '2024-06-01'
GROUP BY f.name, f.location
HAVING
    COUNT(s.id) >= 2;
```

Joins festivals to their stages (matching both name and start date), restricts to festivals starting on/after 2024-06-01, groups by festival's name and location, and keeps only those with at least two stages.

| name | location | total_stages |
|---|---|---|
| Austin City Limits | Austin, Texas | 2 |
| Bonnaroo Music Festival | Manchester, Tennessee | 3 |
| Burning Man | Black Rock Desert, Nevada | 2 |
| Download Festival | Donington Park, England | 2 |
| Glastonbury Music Festival | Somerset, England | 3 |
| Governors Ball | New York City, New York | 2 |
| Lollapalooza | Chicago, Illinois | 3 |
| Outside Lands | San Francisco, California | 2 |
| Reading and Leeds Festival | Reading, England | 2 |
| Roskilde Festival | Roskilde, Denmark | 2 |
| Sziget Festival | Budapest, Hungary | 2 |
| Tomorrowland | Boom, Belgium | 2 |

## 4.3.10. Rock festivals ("WHERE, GROUP BY, HAVING, 2 JOINS")

```
SELECT f.name AS festival_name,f.location,
    COUNT(*) AS total_performances,
    COUNT(*) AS total_stages
FROM Festival AS f
JOIN Stage AS s
ON f.name = s.festival_name
    AND f.start_date = s.festival_start_date
JOIN Musical_Performance AS mp
ON s.id = mp.stage_id
WHERE mp.genre LIKE '%Rock%'
GROUP BY f.name, f.location
HAVING
    COUNT(*) >= 2;
```

This query finds festivals that host rock performances. It joins festivals, their stages, and musical performances to identify those linked to the 'Rock' genre. For each festival, it counts the number of distinct rock performances and stages, returning only festivals with at least two different rock performances.

| festival_name | location | total_performances | total_stages |
|---|---|---|---|
| Glastonbury Music Festival | Somerset, England | 4 | 4 |
| Reading and Leeds Festival | Reading, England | 4 | 4 |

# 5 | Extra

## 5.1.  SQL Database and Query Execution

As additional work, we have deployed an instance of a Google Cloud MySQL database containing the same data used in this project. Furthermore, we have created a simple Google Colab Notebook, accessible through the link below, which connects to the database and allows users to run the queries presented in this report. In addition, users can write and execute their own SQL code to explore the data further.

**Google Colab link**

## 5.2.  Relational Model

In this additional section of our work, we decided to design the Relational Model derived from the Logical Model. Each table includes its primary keys, marked with a single asterisk (*), while composite primary keys are identified with a double asterisk (**). Attributes that serve as foreign keys are shown with directional arrows pointing to their source tables and are underlined in the tables that reference them.

**Artist_Band**
| | |
|---|---|
| stage_name | * |
| country | |
| genre | |
| formation_year | |
| musical_performance_id | |

**Stage**
| | |
|---|---|
| id | * |
| name | |
| capacity | |
| location_description | |
| festival_name | |
| festival_start_date | |

**Musical_Performance**
| | |
|---|---|
| id | * |
| title | |
| genre | |
| start_time | |
| end_time | |
| stage_id | |

**Artist_Solo**
| | |
|---|---|
| stage_name | * |
| country | |
| genre | |
| name | |
| nationality | |
| main_instrument | |
| musical_performance_id | |

**Festival**
| | |
|---|---|
| name | ** |
| start_date | ** |
| end_date | |
| location | |

**Stand**
| | |
|---|---|
| name | * |
| sponsor | |
| festival_name | |
| festival_start_date | |
| festival_start_date | |

**Ticket**
| | |
|---|---|
| qr_code | ** |
| validity | |
| price | |
| type | |
| person_email | |
| festival_name | |
| festival_start_name | |

**Person**
| | |
|---|---|
| email | * |
| phone_number | |
| full_name | |

**Product_Food_Person**
| | |
|---|---|
| barcode | ** |
| person_email | ** |
| date | |
| payment_method | |

**Product_Food**
| | |
|---|---|
| barcode | * |
| name | |
| price | |
| expiry_date | |
| type | |

**Stand_Product_Food**
| | |
|---|---|
| stand_name | ** |
| barcode | ** |

**Product_Drink_Person**
| | |
|---|---|
| barcode | ** |
| person_email | ** |
| date | |
| payment_method | |

**Product_Drink**
| | |
|---|---|
| barcode | * |
| name | |
| price | |
| expiry_date | |

**Stand_Product_Food**
| | |
|---|---|
| stand_name | ** |
| barcode | ** |

**Product_Merchandise_Person**
| | |
|---|---|
| barcode | ** |
| person_email | ** |
| date | |
| payment_method | |

**Product_Merchandise**
| | |
|---|---|
| barcode | * |
| name | |
| price | |

**Stand_Product_Food**
| | |
|---|---|
| stand_name | ** |
| barcode | ** |