**Software Documentation**

EER DIAGRAM:

TABLES

#### The Artist Table

The Artist table lists information regarding all artists.

The Artist table is referred to by a foreign key in the Event, Album and Track tables.

**Columns**

* artist\_id: A surrogate primary key used to uniquely identify each artist in the table.
* name: The artist’s name.
* genre: The name of the artist’s genre.
* playcount: The artist’s play count given by LastFM.
* listeners: The artist's listeners given by LastFM.

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| Columns | | | | | | |
| Column Name | **Data Type** | **Not NULL** | **Unique** | **Unsigned** | **Auto Increment** | **Default** |
| artist\_id | SMALLINT(5) | V | - | V | V | - |
| name | VARCHAR(45) | V | - | - | - | - |
| genre | VARCHAR(45) | - | - | - | - | NULL |
| playcount | INT(11) | - | - | V | - | NULL |
| listeners | INT(11) | - | - | V | - | NULL |

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| Indexes | | |
| Index Name | **Type** | **Index Column** |
| PRIMARY | PRIMARY | artist\_id |
| listeners\_idx | INDEX | listeners |

#### The Event Table

The Event table lists all the artists’ events, including information regarding the ticketing sales date, the event date, and where the event takes place (name of venue).

The Event table refers to the Artist, Country and City table using a foreign key.

##### Columns

* event\_id: A surrogate primary key used to uniquely identify each event in the table.
* artist\_id: A foreign key identifying the artist which performs in the event.
* description: Event details.
* sale\_date: The date of the start of tickets sales.
* date: The date of the event.
* venue: The name of the venue where the event takes place.
* city\_id: A foreign key identifying the city where the event takes place.
* country\_id: A foreign key identifying the country where the event takes place.

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| Columns | | | | | | |
| Column Name | **Data Type** | **Not NULL** | **Unique** | **Unsigned** | **Auto Increment** | **Default** |
| event\_id | SMALLINT(5) | V | - | V | V | - |
| artist\_id | SMALLINT(5) | V | - | V | - | - |
| description | TEXT | - | - | - | - | NULL |
| sale\_date | DATE | - | - | - | - | NULL |
| date | DATE | V | - | - | - | - |
| venue | VARCHAR(150) | V | - | - | - | - |
| city\_id | SMALLINT(5) | V | - | V | - | - |
| country\_id | SMALLINT(5) | V | - | V | - | - |

|  |  |  |
| --- | --- | --- |
| Indexes | | |
| Index Name | **Type** | **Index Column** |
| PRIMARY | PRIMARY | event\_id |
| fk\_event\_artist\_idx | INDEX | artist\_id |
| fk\_event\_city\_idx | INDEX | city\_id |
| fk\_event\_country\_idx | INDEX | country\_id |
| event\_date\_idx | INDEX | date |

|  |  |  |  |
| --- | --- | --- | --- |
| Foreign Keys | | | |
| Foreign Key Name | **Refers to** | **On Update** | **On Delete** |
| fk\_event\_artist | Artist.artist\_id | CASCADE | CASCADE |
| fk\_event\_city | City.city\_id | CASCADE | RESTRICT |
| fk\_event\_country | Country.country\_id | CASCADE | RESTRICT |

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| Triggers | | |
| Trigger Name | Type | Checks |
| event\_BEFORE\_INSERT | BEFORE INSERT | event date > current date  sale date <= event date  city\_id corresponded to country\_id |
| check\_dates | BEFORE UPDATE | sale date <= event date |

#### The Country Table

The Country table contains a list of countries.

The Country table is referred to by a foreign key in the City and Event tables.

##### Columns

* country\_id: A surrogate primary key used to uniquely identify each country in the table.
* country: The name of the country.

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| Columns | | | | | | |
| Column Name | **Data Type** | **Not NULL** | **Unique** | **Unsigned** | **Auto Increment** | **Default** |
| country\_id | SMALLINT(5) | V | - | V | V |  |
| country | VARCHAR(45) | V | V | - | - |  |

|  |  |  |
| --- | --- | --- |
| Indexes | | |
| Index Name | **Type** | **Index Column** |
| PRIMARY | PRIMARY | country\_id |
| country\_UNIQUE | UNIQU | country |

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| --- | --- | --- | --- |
| Foreign Keys | | | |
| Foreign Key Name | **Refers to** | **On Update** | **On Delete** |
| fk\_event\_artist | Artist.artist\_id | CASCADE | CASCADE |
| fk\_event\_city | City.city\_id | CASCADE | RESTRICT |
| fk\_event\_country | Country.country\_id | CASCADE | RESTRICT |

#### The City Table

The City table contains a list of cities.

The City table refers to the Country table using a foreign key, and is referred to by a foreign key in the Event table.

##### Columns

* city\_id: A surrogate primary key used to uniquely identify each city in the table.
* city: The name of the city.
* country\_id: A foreign key identifying the country that the city belongs to.

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| --- | --- | --- | --- | --- | --- | --- |
| Columns | | | | | | |
| Column Name | **Data Type** | **Not NULL** | **Unique** | **Unsigned** | **Auto Increment** | **Default** |
| city\_id | SMALLINT(5) | V | - | V | V | - |
| city | VARCHAR(45) | V | - | - | - | - |
| country\_id | SMALLINT(5) | V | - | V | - | - |

|  |  |  |
| --- | --- | --- |
| Indexes | | |
| Index Name | **Type** | **Index Column** |
| PRIMARY | PRIMARY | city\_id |
| city\_idx | INDEX | city |
| fk\_city\_country\_idx | INDEX | county\_id |

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| --- | --- | --- | --- |
| Foreign Keys | | | |
| Foreign Key Name | **Refers to** | **On Update** | **On Delete** |
| fk\_city\_country | Country.country\_id | CASCADE | RESTRICT |

#### The Album Table

The Album table lists all the artists’ albums.

The Album table refers to the Artist table using a foreign key, and is referred to by a foreign key in the AlbumTracks table.

##### Columns

* album\_id: A surrogate primary key used to uniquely identify each album in the table.
* title: The album’s title.
* artist\_id: A foreign key identifying the artist which released the album.
* release\_year: The release year of the album.
* num\_of\_tracks: The number of tracks in the album.

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| --- | --- | --- | --- | --- | --- | --- |
| Columns | | | | | | |
| Column Name | **Data Type** | **Not NULL** | **Unique** | **Unsigned** | **Auto Increment** | **Default** |
| album\_id | SMALLINT(5) | V | - | V | V | - |
| title | VARCHAR(45) | V | - | - | - | - |
| artist\_id | SMALLINT(5) | V | - | V | - | - |
| release\_year | YEAR(4) | - | - | - | - | NULL |
| num\_of\_tracks | TINYINT(5) | - | - | V | - | NULL |
| album\_id | SMALLINT(5) | V | - | V | V | - |

|  |  |  |
| --- | --- | --- |
| Indexes | | |
| Index Name | **Type** | **Index Column** |
| PRIMARY | PRIMARY | album\_id |
| fk\_artist\_album\_idx | INDEX | artist\_id |
| album\_release\_year\_idx | INDEX | release\_year |

|  |  |  |  |
| --- | --- | --- | --- |
| Foreign Keys | | | |
| Foreign Key Name | **Refers to** | **On Update** | **On Delete** |
| fk\_artist\_album | Artist.artist\_id | CASCADE | CASCADE |

|  |  |  |
| --- | --- | --- |
| Triggers | | |
| Trigger Name | Type | Checks |
| check\_release\_year | BEFORE INSERT | release year <= current year |

#### The Track Table

The Track table lists all the artists’ tracks.

The Track table refers to the Artist table using a foreign key, and is referred to by a foreign key in the AlbumTracks table.

##### Columns

* track\_id: A surrogate primary key used to uniquely identify each track in the table.
* title: The track title.
* artist\_id: A foreign key identifying the artist who released the track.
* duration: The track’s duration time (in seconds).
* listeners: The track’s listeners given by LastFM.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Columns | | | | | | |
| Column Name | **Data Type** | **Not NULL** | **Unique** | **Unsigned** | **Auto Increment** | **Default** |
| track\_id | INT(10) | V | - | V | V | - |
| title | VARCHAR(45) | V | - | - | - | - |
| artist\_id | SMALLINT(5) | V | - | V | - | - |
| duration | SMALLINT(5) | - | - | V | - | NULL |
| listeners | INT(11) | - | - | V | - | NULL |
| track\_id | INT(10) | V | - | V | V | - |

|  |  |  |
| --- | --- | --- |
| Indexes | | |
| Index Name | **Type** | **Index Column** |
| PRIMARY | PRIMARY | track\_id |
| fk\_track\_artist\_idx | INDEX | artist\_id |

|  |  |  |  |
| --- | --- | --- | --- |
| Foreign Keys | | | |
| Foreign Key Name | **Refers to** | **On Update** | **On Delete** |
| fk\_track\_artist | Artist.artist\_id | CASCADE | CASCADE |

#### The Lyrics Table

The Lyrics table lists all the tracks’ lyrics. This tables uses MyISAM engine, and the reason for that is to be able to use FULLTEXT index on lyrics column. The track\_id **does not** refer to Track table, because MyISAM engine does not support foreign keys. However, the track\_id appears in Track table. It is up to the DBA to keep these columns consistent.

##### Columns

* track\_id: A surrogate primary key used to uniquely identify each lyric in the table.
* lyrics: The track's lyrics.

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| --- | --- | --- | --- | --- | --- | --- |
| Columns | | | | | | |
| Column Name | **Data Type** | **Not NULL** | **Unique** | **Unsigned** | **Auto Increment** | **Default** |
| track\_id | INT(10) | V | - | V | - | - |
| lyrics | TEXT | - | - | - | - | NULL |

|  |  |  |
| --- | --- | --- |
| Indexes | | |
| Index Name | **Type** | **Index Column** |
| PRIMARY | PRIMARY | track\_id |
| lyrics\_idx | FULLTEXT | lyrics |

#### The AlbumTracks Table

The AlbumTracks table lists all the tracks of the album.

The AlbumTracks table refers to the Album and Track tables using a foreign key.

##### Columns

* album\_id: A foreign key identifying the album.
* track\_id: A foreign key identifying the track.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Columns | | | | | | |
| Column Name | **Data Type** | **Not NULL** | **Unique** | **Unsigned** | **Auto Increment** | **Default** |
| album\_id | SMALLINT(5) | V | - | V | V |  |
| track\_id | INT(10) | V | - | V | - |  |

|  |  |  |
| --- | --- | --- |
| Indexes | | |
| Index Name | **Type** | **Index Column** |
| PRIMARY | PRIMARY | album\_id, track\_id |
| fk\_track\_idx | INDEX | track\_id |

|  |  |  |  |
| --- | --- | --- | --- |
| Foreign Keys | | | |
| Foreign Key Name | **Refers to** | **On Update** | **On Delete** |
| fk\_album | Album.album\_id | CASCADE | CASCADE |
| fk\_track | Track.track\_id | CASCADE | CASCADE |

VIEWS

STORED PROCEDURES

#### sp\_insertAlbum

##### Description

The sp\_insertAlbum stored procedure inserts a new album to Album table. If the album already exists (i.e. the DB contains an album by the same artist with the same title), then an error is returned.

##### Parameters

* p\_title: The title of album.
* p\_artist\_id: The ID of the artist. Must be a valid ID (i.e. exists in Artist table).
* p\_release\_year: The release year of the album. Cannot be later than current year.
* p\_num\_of\_tracks: The number of tracks in the album.

#### sp\_insertEvent

##### Description

The sp\_insertEvent stored procedure inserts a new event to Event table.

##### Parameters

* p\_artist\_id: The ID of the artist. Must be a valid ID (i.e. exists in Artist table).
* p\_description: Event details.
* p\_sale\_date: Starting sale date. Cannot be later than the date of the event.
* p\_date: The date of event. Cannot be earlier than current date.
* p\_venue: The name of the venue where the event takes place.
* p\_city\_id: The ID of the city. Must be a valid ID (i.e. exists in City table).

#### sp\_updateEventDate

##### Description

The sp\_updateEventDate stored procedure is used to update the event date.

##### Parameters

* p\_event\_id: The ID of the event. Must be a valid ID (i.e. exists in Event table).
* p\_event\_date: The event date. Cannot be earlier than sale date.