### Technical Design Document

#### Project: Band Gear Exchange Forum

#### Course: Database Systems and Web Programming 2024 Summer

## Band-Gear-Exchange-Forum statusreport 04.08.24:

## PostgreSQL db created in my local PC:

## - db schema designed and created with primary and foreign keys (9 tables)

## - db is populated with test data

## - db inquiries and sql-views tested (couple of relevant use-cases of the service)

## - first development version of the bgef-db is ready (version 4)

## Next steps for db: already coded test-service use-cases as sql-views will be tested to find out the most feasible use cases for the final bgef-service.

## MS Edge Copilot LLM assisted in development following standard CRUD and Fetch-services. These e2e-services are mainly targeted to test the db-schema and support as a prototyping tool in innovation of the final use-cases of BGEF-service:

## Flask application: CRUD and Fetch(all and one) use-cases. Coded but not tested: model, service, controller and HTML/css-based UI for CRUD and Fetch.

## Next steps with bgef-service: most feasible use-cases will be defined and prototyped. The allready coded Flask-components will be tested soon and db solution will be tested thoroughly with CRUD and Fetch functions. Based on the experiences the bgef-service use-cases and related UI will be designed for prototyping.

## Documentation: documents will be updated soon: entity-diagram, db-schema, use-cases and UI, instructions. Testing: Test-log will be maintained, test data-set will be improved according to selected use-cases Configuration: config-files will be maintained and test-cycles speeded up (CI)

**Band-Gear-Exchange-Forum documentation**

## Overview

This plan briefly describes the system’s conceptual analysis and database design. Additionally, it presents a few key use cases and the database queries they require. Finally, there is a short description of the practical implementation’s architectural solutions.

The Band Gear Exchange Forum is a web-based service that allows users,

referred to as “Bidders”, to create and accept offers for exchanging band equipment.

This document also outlines the functionalities, user types, and operations of the service.

The technical implementation of the application is based on the Flask web framework and SQLAlchemy, which provides an ORM interface layer for the PostgreSQL database. The user interface is implemented with HTML pages.

Image 1: High level architecture of the system (will be updated here later on).

See next page, please. This page is left intentionally blank for a system picture.

## Service Functions

#### User Registration

#### User Types

1. **Registered Bidders**: Users who have created an account and logged in.
2. **Unregistered Bidderss**: Users who browse the service without logging in.

### System Functions

The system maintains, searches, suggests, and sorts exchange offers

for band equipment. Users interested in a gear can send questions to the provider via email.

#### Exchange Process

* **Offer Creation**: Bidders can create offers to exchange band equipment.
* **Offer Acceptance**: Bidders can accept any exchange offers.
* **Mutual Agreement**: A successful exchange requires mutual acceptance of each other’s offers. Bidders can modify their offers to better suit the exchange operation.

#### Communication

Questions and answers about the band equipment are exchanged via email or

phone between the parties involved.

#### Financial Transactions

No money is exchanged through the service.

Any financial arrangements are made separately, outside the service, e.g.via phone or email.

#### User Operations via Web Browser

Bidders can perform the following operations by using their web browsers:

* 1. **Create Offers**: Registered Bidders can create new exchange offers.
  2. **Browse Offers**: Both registered and unregistered Bidders can browse existing offers.
  3. **Accept Offers**: Registered Bidders can accept offers made by others.
  4. **Modify Offers**: Bidders can modify their offers to better suit the exchange deal.
  5. **Send Inquiries**: Interested users can send inquiries to Bidders via email.

Bidders can register and list their exchange offers in various categories, such as:

* Instruments
* Amplifiers
* Microphones
* Studio Equipment
* Etc.

#### Offer Details

Bidders input the details of their exchange offers as follows:

* Define the start and end dates of the exchange offer.
* Set compensation and delivery preferences.
* Maintain the status of their exchange offers and adjust the content as needed.
* Remove offers once the exchange is completed.

#### System Functions

The system maintains, searches, suggests, and sorts exchange offers for

band equipment. It includes:

* Creation and maintenance of band equipment lists.
* Maintenance and printing of open offers list.
* Status update of offers.

#### Listing and Status Management

* Lists offers by Bidder, status, category, date, and content.
* Changes the status of offers that lead to exchanges to “completed” but does not delete them.

#### Database Entities

#### Client Information (User = Bidder, Purchaser, admin)

* **User ID**: Unique identifier for the User
* **Name**: Bidder’s name.
* **Nickname**: Bidder’s nickname.
* **Password**: Bidder’s password.
* **Email**: Clients’s email address.
* **Email**: Client’s 2nd email address.
* **Phone Number**: Visible only to registered users.

#### Role Table

* **Client ’s role**: seller, buyer, admin  
    
  CREATE TABLE Role

(

id SERIAL NOT NULL PRIMARY KEY,

roleName VARCHAR(80) NOT NULL UNIQUE,

registeredUser BOOLEAN DEFAULT FALSE,

sellerRole BOOLEAN DEFAULT FALSE,

buyerRole BOOLEAN DEFAULT FALSE,

adminRole BOOLEAN DEFAULT FALSE

);

#### BidGenre Table

* **Offer Group Code**: Unique code for the offer group.
* **Offer Group Name**: Name of the offer group.

CREATE TABLE BidGenre

(

id SERIAL NOT NULL PRIMARY KEY,

bidGenreHeader VARCHAR(100) NOT NULL UNIQUE,

user\_id INT,

LastBidHeader\_id INT,

numberOfBids INT NOT NULL,

FOREIGN KEY(user\_id) REFERENCES User(id),

FOREIGN KEY(lastBidHeader\_id) REFERENCES BidHeader(id)

);

#### BidContent Table

* **Offer ID**: Unique identifier for the offer.
* **Offer Status**: Status of the offer.
* **Number of Equipment Rows**: Number of equipment rows in the offer.
* **Equipment Row Details**:
* **Quantity Offered**: Quantity of the equipment offered.
* **Offer Price**: Price of the equipment offered.
* **Vintage Product Life Story** (optional): History and background of the vintage product.
* **Original Price**: Original price of the product.
* **Comments and Additional Information**: Any additional details about the offer.

#### BidExchange Table (“Purchase Offer”)

* **Offer ID**: Unique identifier for the offer.
* **Offer Status**: Status of the offer.
* **Bidder ID**: Unique identifier for the provider.
* **Bidder Contact Information**: Contact details of the provider.
* **Bidder Preferences and References**: Preferences and references of the provider.
* **Start and End Dates**: Start and end dates of the offer.
* **Number of Product Rows**: Number of product rows in the offer.
* **Offered Equipment IDs**: IDs of the offered equipment.
* **Delivery Method**: Method of delivery for the equipment.
* **Exchange Preferences**: Desired products for exchange.
* **Additional Offer Information**: Any other relevant details about the offer.

#### Gear Table

* **Equipment Code**: Unique code for the equipment.
* **Equipment Name and Type Details**: Name and type details of the equipment, such as model year.
* **Detailed Description**: Detailed description of the equipment, including condition, color, sound, etc.
* **Vintage-gear lifestory (option)**
* **Amount offered**
* **Approximated value of the gear**
* **Comments and other relevant info**

#### Historical Statistics and Views

* **Yearly and Monthly Exchange Statistics by BidGenre**: Statistics on exchanges categorized by BidGenre for each month.
* **Bidder Statistics and List**: Statistics and list on users.

### Database and Conceptual Model Documentation

##### Introduction

#### The following sections provide implementation design of each table and their relations.

#### Database Schema db\_BGEF\_v4.0

#### 1.Client Table

The Client table stores information about users, who participate in the BGEF-system.

* **id**: A unique identifier for each user (Primary Key).
* **userName**: The name of the user.
* **password**: The password for the registered user’s account .
* **email:** User’s primary email
* **secondaryEmail:** User’s secondary email
* **userIcon\_Url:** Foreign Key to user's user's icon metadata file (optional)
* **role\_id:** Foreign Key to User’s roles in Role-table
* **blocked:** User is blocked out of the service provision.
* **latestBidHeader\_id:** Foreign Key to User’slast active bid

CREATE TABLE Client

(

id SERIAL NOT NULL PRIMARY KEY,

userName VARCHAR(50) NOT NULL UNIQUE,

password VARCHAR(25) DEFAULT NULL,

email VARCHAR(80) DEFAULT NULL,

secondaryEmail VARCHAR(80) DEFAULT NULL,

userIcon\_Url VARCHAR(80) DEFAULT NULL, -- Link to user's user's icon metadata file

role\_id INT NOT NULL,

blocked BOOLEAN DEFAULT FALSE,

latestBidHeader\_id INT,

FOREIGN KEY(role\_id) REFERENCES Role(id),

FOREIGN KEY(userIcon\_url) REFERENCES ImageMetadata(id),

FOREIGN KEY(latestBidHeader\_id) REFERENCES BidHeader(id)

);

**2. Role Table**

* **id:** A unique identifier for each role (Primary Key).
* **roleName:** bidder, byer, admin, unregistered.
* **registeredUser:** Indicates user registration status.
* **sellerRole:** True if user haveany active bids.
* **buyerRole:** True if user has bought any gear.
* **adminRole:** A boolean flag indicating if the user has administrative privileges.

CREATE TABLE Role

(

id SERIAL NOT NULL PRIMARY KEY,

roleName VARCHAR(80) NOT NULL UNIQUE,

registeredUser BOOLEAN DEFAULT FALSE,

sellerRole BOOLEAN DEFAULT FALSE,

buyerRole BOOLEAN DEFAULT FALSE,

adminRole BOOLEAN DEFAULT FALSE

);

#### 3. BidGenre Table

The BidGenre table categorizes the types of bids.

* **id**: A unique identifier for each bid genre (Primary Key).
* **bidGenre**: An integer representing the genre.
* **bidder**: A foreign key referencing the Bidder table.
* **bidGenreHeader**: A unique header for the bid genre.

CREATE TABLE BidGenre

(

id SERIAL NOT NULL PRIMARY KEY,

bidGenreHeader VARCHAR(100) NOT NULL UNIQUE,

user\_id INT,

LastBidHeader\_id INT,

numberOfBids INT NOT NULL,

FOREIGN KEY(user\_id) REFERENCES User(id),

FOREIGN KEY(lastBidHeader\_id) REFERENCES BidHeader(id)

);

#### 4. BidHeader Table

The BidHeader table contains information about individual bids (singles or bundles).

* **id**: A unique identifier for each bidheader (Primary Key).
* **user\_id**: A foreign key referencing the Client table.
* **bidGenre\_id**: A foreign key referencing the BidGenre table.
* **bidTypeCode:** Limited time offer, Flash offer, Bundle, Single...
* **bidStatus:** active, inactive, waiting to publishing, ending soon...
* **bidContent\_id:** A foreign key referencing the BidContent table.
* **bidHeaderTex**t: Bidheader text. Edited by the user for marketing purposes.
* **bidExchange1\_id -> bidExchange5\_id:** Foreign keys referencing the BidExchange table.
* **bidStartedTime**: The timestamp when the bid started.
* **bidEndingTime**: The timestamp when the bid will end.
* **bidEditedTime**: The timestamp when the bid was last edited.

CREATE TABLE BidHeader

(

id SERIAL NOT NULL PRIMARY KEY,

user\_id INT,

bidGenre\_id INT,

bidTypeCode INT,

bidStatus INT,

bidContent\_id INT,

bidHeaderText VARCHAR(100) NOT NULL UNIQUE,

bidExchange1\_id INT,

bidExchange2\_id INT,

bidExchange3\_id INT,

bidExchange4\_id INT,

bidExchange5\_id INT,

bidStartedTime TIMESTAMP NOT NULL,

bidEndingTime TIMESTAMP NOT NULL,

hdrEditedTime TIMESTAMP NOT NULL,

FOREIGN KEY(user\_id) REFERENCES User(id),

FOREIGN KEY(bidGenre\_id) REFERENCES BidGenre(id),

FOREIGN KEY(bidContent\_id) REFERENCES BidContent(id),

FOREIGN KEY(bidExchange1\_id) REFERENCES BidExchange(id),

FOREIGN KEY(bidExchange2\_id) REFERENCES BidExchange(id),

FOREIGN KEY(bidExchange3\_id) REFERENCES BidExchange(id),

FOREIGN KEY(bidExchange4\_id) REFERENCES BidExchange(id),

FOREIGN KEY(bidExchange5\_id) REFERENCES BidExchange(id)

);

#### 5. BidContent Table

The BidContent table stores the content of individual bids.

* **id**: A unique identifier for each bid content (Primary Key).
* **bidHeader\_id:** A foreign key referencing the BidHeader table.
* **bidContent**: Descriptive text or summary of the content of the bid.
* **gear1\_id -> gear10\_id:** Foreign keys referencing the Gear table.
* **conEditedTime**: The timestamp when the bid was last edited.  
  Optional:
* **bundleImage\_id:** A foreign key referencing to the bundle image metadata file.  
  Optional:
* **bundleSound\_id:** A foreign key referencing to the bundle sound sample metadata file.

CREATE TABLE BidContent

(

id SERIAL NOT NULL PRIMARY KEY,

bidHeader\_id INT,

bidContent VARCHAR(500) NOT NULL,

gear1\_id INT,

gear2\_id INT,

gear3\_id INT,

gear4\_id INT,

gear5\_id INT,

gear6\_id INT,

gear7\_id INT,

gear8\_id INT,

gear9\_id INT,

gear10\_id INT,

conEditedTime TIMESTAMP NOT NULL,

bundleImage\_id INT, -- Link to bundle image metadata file

bundleSound\_id INT, -- Links to bundle sound sample metadata file

FOREIGN KEY(bidHeader\_id) REFERENCES BidHeader(id),

FOREIGN KEY(bundleImage\_id) REFERENCES ImageMetadata(id),

FOREIGN KEY(bundleSound\_id) REFERENCES SoundClipMetadata(id),

FOREIGN KEY(gear1\_id) REFERENCES Gear(id),

FOREIGN KEY(gear2\_id) REFERENCES Gear(id),

FOREIGN KEY(gear3\_id) REFERENCES Gear(id),

FOREIGN KEY(gear4\_id) REFERENCES Gear(id),

FOREIGN KEY(gear5\_id) REFERENCES Gear(id),

FOREIGN KEY(gear6\_id) REFERENCES Gear(id),

FOREIGN KEY(gear7\_id) REFERENCES Gear(id),

FOREIGN KEY(gear8\_id) REFERENCES Gear(id),

FOREIGN KEY(gear9\_id) REFERENCES Gear(id),

FOREIGN KEY(gear10\_id) REFERENCES Gear(id)

);

#### 6. Gear Table

* **id**: Unique system identifier for the equipment.
* **gearBrand: e.g. VOX, Roland, Sovtek, Marshall, Yamaha, Fender, Gibson, Gretch**
* **Gear Code**: Unique manufacturing-code for the equipment.
* **gearStatus:** e.g. reserved, free to offer, broken, badly scratched, used, mint
* **bidHeader\_id:** A foreign key referencing the BidHeader table.
* **gearName**: Name and type details of the equipment, such as model identifier and year of manufacturing.
* **gearDetails**: Detailed description of the equipment including, size, weight, condition, color, sound-description, etc.
* **gearStory** (optional)**:** Life-story of a Vintage-instrument, e.g. if famous musicians have used it or similar gear earlier.

##### amountOffered: Offered number of gear or gear.

* **approxValue:** The approximated current value of the gear in euros.

##### Comments: Bidder’s preferencess and other relevant details.

##### user\_id: A foreign key referencing the Client table.g. for user’s equipment listing

##### comments: User preferences concerning e.g. delivery and payment.

* **editedTime**: The timestamp when the gear attributes were last edited.

##### gearImage\_id: Foreign Key to gear image metadata file (optional)

##### soundClip\_id: Foreign Key to gear sound sample metadata file (optional)

CREATE TABLE Gear

(

id SERIAL NOT NULL PRIMARY KEY,

gearBrand VARCHAR(30) NOT NULL,

gearCode INT,

gearStatus INT,

bidHeader\_id INT,

gearName VARCHAR(100) NOT NULL,

gearDetails TEXT,

gearStory TEXT,

amountOffered INT NOT NULL,

approxValue FLOAT default 0.00,

user\_id INT,

comments TEXT,

editedTime TIMESTAMP NOT NULL,

gearImage\_id INT, -- Links to gear image metadata file (optional)

soundClip\_id INT, -- Links to gear sound sample metadata file (optional)

FOREIGN KEY(user\_id) REFERENCES User(id),

FOREIGN KEY(bidHeader\_id) REFERENCES BidHeader(id),

FOREIGN KEY(gearImage\_id) REFERENCES ImageMetadata(id),

FOREIGN KEY(soundClip\_id) REFERENCES SoundClipMetadata(id));

#### 7. BidExchange Table

The BidExchange table manages mutual agreements between bidders.

* **id**: A unique identifier for each bid exchange (Primary Key).
* **salesBidder\_id**: A foreign key referencing the Client table (user).
* **salesBidHeader\_id:** A foreign key referencing the BidHeader table.
* **purchaseBidder\_id**: A foreign key referencing the Client table (user).
* **purchaseBidHeader\_id:** A foreign key referencing the BidHeader table.
* **agreedDeal**: A boolean flag indicating, if the deal is mutually agreed upon.
* **dealTimestamp**: The timestamp when the deal was made.

CREATE TABLE BidExchange --This table will allow bidders to exchange equipment based on their bids.

(

id SERIAL NOT NULL PRIMARY KEY,

salesBidder\_id INT NOT NULL, -- ID of the initial bidder (sales-bidder)

salesBidHeader\_id INT NOT NULL, -- ID of the sales offer header

purchaseBidder\_id INT NOT NULL, -- ID of the bidder making the purchase offer

purchaseBidHeader\_id INT NOT NULL, -- ID of the purchase offer header

agreedDeal BOOLEAN DEFAULT FALSE, -- Indicates if the deal is mutually agreed upon

dealTimestamp TIMESTAMP NOT NULL, -- Timestamp when the deal was made

FOREIGN KEY(salesBidder\_id) REFERENCES User(id),

FOREIGN KEY(salesBidHeader\_id) REFERENCES BidHeader(id),

FOREIGN KEY(purchaseBidder\_id) REFERENCES User(id),

FOREIGN KEY(purchaseBidHeader\_id) REFERENCES BidHeader(id)

);

The relationships between the tables are as follows:

* **Client**: Each user can create multiple bids and bid headers in any bid genres.
* **BidGenre**: Categorizes bids and is linked to a specific bidder.
* **BidHeader**: Contains the main information about a bid, including the initial bidder and the genre of the bid.
* **BidContent**: Stores the detailed content of each bid and is linked to both the bidder and the bid header.
* **Gear**: Stores the detailed content of each bid and is linked to both the bidder and the bid header.
* **BidExchange**: Manages the exchanges between bidders, including the details of the equipment offered and requested.

CREATE TABLE ImageMetadata

(

id SERIAL NOT NULL PRIMARY KEY,

imageName VARCHAR(100) NOT NULL,

AxSize VARCHAR(10) NOT NULL,

resolution VARCHAR(20) NOT NULL,

image\_url VARCHAR(255) NOT NULL -- Link to the actual image file

);

CREATE TABLE SoundClipMetadata

(

id SERIAL NOT NULL PRIMARY KEY,

clipName VARCHAR(100) NOT NULL,

format VARCHAR(10) NOT NULL, -- e.g., '.wav', '.mp3', etc.

quality VARCHAR(30) NOT NULL, -- e.g., '24-bit WAV', '196 kbps MP3', etc.

clipLengthInSeconds FLOAT NOT NULL,

isStereo BOOLEAN NOT NULL,

sample\_url VARCHAR(255) NOT NULL -- Link to the actual sound sample file

);

## Appendix:

## Database creation script:

CREATE TABLE Client

(

id SERIAL NOT NULL PRIMARY KEY,

userName VARCHAR(50) NOT NULL UNIQUE,

password VARCHAR(25) DEFAULT NULL,

email VARCHAR(80) DEFAULT NULL,

secondaryEmail VARCHAR(80) DEFAULT NULL,

userIcon\_Url VARCHAR(80) DEFAULT NULL, -- Link to user's user's icon metadata file

role\_id INT NOT NULL,

blocked BOOLEAN DEFAULT FALSE,

latestBidHeader\_id INT,

FOREIGN KEY(role\_id) REFERENCES Role(id),

FOREIGN KEY(userIcon\_url) REFERENCES ImageMetadata(id),

FOREIGN KEY(latestBidHeader\_id) REFERENCES BidHeader(id)

);

CREATE TABLE Role

(

id SERIAL NOT NULL PRIMARY KEY,

roleName VARCHAR(80) NOT NULL UNIQUE,

registeredUser BOOLEAN DEFAULT FALSE,

sellerRole BOOLEAN DEFAULT FALSE,

buyerRole BOOLEAN DEFAULT FALSE,

adminRole BOOLEAN DEFAULT FALSE

);

CREATE TABLE BidGenre

(

id SERIAL NOT NULL PRIMARY KEY,

bidGenreHeader VARCHAR(100) NOT NULL UNIQUE,

user\_id INT,

LastBidHeader\_id INT,

numberOfBids INT NOT NULL,

FOREIGN KEY(user\_id) REFERENCES User(id),

FOREIGN KEY(lastBidHeader\_id) REFERENCES BidHeader(id)

);

CREATE TABLE BidHeader

(

id SERIAL NOT NULL PRIMARY KEY,

user\_id INT,

bidGenre\_id INT,

bidTypeCode INT,

bidStatus INT,

bidContent\_id INT,

bidHeaderText VARCHAR(100) NOT NULL UNIQUE,

bidExchange1\_id INT,

bidExchange2\_id INT,

bidExchange3\_id INT,

bidExchange4\_id INT,

bidExchange5\_id INT,

bidStartedTime TIMESTAMP NOT NULL,

bidEndingTime TIMESTAMP NOT NULL,

hdrEditedTime TIMESTAMP NOT NULL,

FOREIGN KEY(user\_id) REFERENCES User(id),

FOREIGN KEY(bidGenre\_id) REFERENCES BidGenre(id),

FOREIGN KEY(bidContent\_id) REFERENCES BidContent(id),

FOREIGN KEY(bidExchange1\_id) REFERENCES BidExchange(id),

FOREIGN KEY(bidExchange2\_id) REFERENCES BidExchange(id),

FOREIGN KEY(bidExchange3\_id) REFERENCES BidExchange(id),

FOREIGN KEY(bidExchange4\_id) REFERENCES BidExchange(id),

FOREIGN KEY(bidExchange5\_id) REFERENCES BidExchange(id)

);

CREATE TABLE BidContent

(

id SERIAL NOT NULL PRIMARY KEY,

bidHeader\_id INT,

bidContent VARCHAR(500) NOT NULL,

gear1\_id INT,

gear2\_id INT,

gear3\_id INT,

gear4\_id INT,

gear5\_id INT,

gear6\_id INT,

gear7\_id INT,

gear8\_id INT,

gear9\_id INT,

gear10\_id INT,

conEditedTime TIMESTAMP NOT NULL,

bundleImage\_id INT, -- Link to bundle image metadata file

bundleSound\_id INT, -- Links to bundle sound sample metadata file

FOREIGN KEY(bidHeader\_id) REFERENCES BidHeader(id),

FOREIGN KEY(bundleImage\_id) REFERENCES ImageMetadata(id),

FOREIGN KEY(bundleSound\_id) REFERENCES SoundClipMetadata(id),

FOREIGN KEY(gear1\_id) REFERENCES Gear(id),

FOREIGN KEY(gear2\_id) REFERENCES Gear(id),

FOREIGN KEY(gear3\_id) REFERENCES Gear(id),

FOREIGN KEY(gear4\_id) REFERENCES Gear(id),

FOREIGN KEY(gear5\_id) REFERENCES Gear(id),

FOREIGN KEY(gear6\_id) REFERENCES Gear(id),

FOREIGN KEY(gear7\_id) REFERENCES Gear(id),

FOREIGN KEY(gear8\_id) REFERENCES Gear(id),

FOREIGN KEY(gear9\_id) REFERENCES Gear(id),

FOREIGN KEY(gear10\_id) REFERENCES Gear(id)

);

CREATE TABLE Gear

(

id SERIAL NOT NULL PRIMARY KEY,

gearBrand VARCHAR(30) NOT NULL,

gearCode INT,

gearStatus INT,

bidHeader\_id INT,

gearName VARCHAR(100) NOT NULL,

gearDetails TEXT,

gearStory TEXT,

amountOffered INT NOT NULL,

approxValue FLOAT default 0.00,

user\_id INT,

comments TEXT,

editedTime TIMESTAMP NOT NULL,

gearImage\_id INT, -- Links to gear image metadata file

soundClip\_id INT, -- Links to gear sound sample metadata file

FOREIGN KEY(user\_id) REFERENCES User(id),

FOREIGN KEY(bidHeader\_id) REFERENCES BidHeader(id),

FOREIGN KEY(gearImage\_id) REFERENCES ImageMetadata(id),

FOREIGN KEY(soundClip\_id) REFERENCES SoundClipMetadata(id)

);

CREATE TABLE BidExchange --This table will allow bidders to exchange equipment based on their bids.

(

id SERIAL NOT NULL PRIMARY KEY,

salesBidder\_id INT NOT NULL, -- ID of the initial bidder (sales-bidder)

salesBidHeader\_id INT NOT NULL, -- ID of the sales offer header

purchaseBidder\_id INT NOT NULL, -- ID of the bidder making the purchase offer

purchaseBidHeader\_id INT NOT NULL, -- ID of the purchase offer header

agreedDeal BOOLEAN DEFAULT FALSE, -- Indicates if the deal is mutually agreed upon

dealTimestamp TIMESTAMP NOT NULL, -- Timestamp when the deal was made

FOREIGN KEY(salesBidder\_id) REFERENCES User(id),

FOREIGN KEY(salesBidHeader\_id) REFERENCES BidHeader(id),

FOREIGN KEY(purchaseBidder\_id) REFERENCES User(id)

FOREIGN KEY(purchaseBidHeader\_id) REFERENCES BidHeader(id),

);

CREATE TABLE ImageMetadata

(

id SERIAL NOT NULL PRIMARY KEY,

imageName VARCHAR(100) NOT NULL,

AxSize VARCHAR(10) NOT NULL,

resolution VARCHAR(20) NOT NULL,

image\_url VARCHAR(255) NOT NULL -- Link to the actual image file

);

CREATE TABLE SoundClipMetadata

(

id SERIAL NOT NULL PRIMARY KEY,

clipName VARCHAR(100) NOT NULL,

format VARCHAR(10) NOT NULL, -- e.g., '.wav', '.mp3', etc.

quality VARCHAR(30) NOT NULL, -- e.g., '24-bit WAV', '196 kbps MP3', etc.

clipLengthInSeconds FLOAT NOT NULL,

isStereo BOOLEAN NOT NULL,

sample\_url VARCHAR(255) NOT NULL -- Link to the actual sound sample file

);

-- SOME VIEWS FOR TESTING:

CREATE VIEW BidGenreList AS

SELECT bg.id, bg.bidGenreHeader, COUNT(bc.id) as count, MAX(bc.conEditedTime) AS latest

FROM db\_bgefv4\_schemav2.BidGenre bg

LEFT JOIN db\_bgefv4\_schemav2.BidHeader bhr ON (bg.id = bhr.bidGenre\_id)

LEFT JOIN db\_bgefv4\_schemav2.BidContent bc ON (bhr.id = bc.bidHeader\_id)

GROUP by bg.id, bg.bidGenreHeader;

CREATE VIEW BidList AS

SELECT bh.id, bh.user\_id, bh.bidGenre\_id, bh. bidTypeCode, bh.bidStatus, bh.bidHeaderText,

COUNT(\*) AS count, MIN(bc.coneditedTime) AS edited,

MAX(bc.coneditedTime) AS latest

FROM db\_bgefv4\_schemav2.BidHeader bh

LEFT JOIN db\_bgefv4\_schemav2.BidContent bc ON (bh.id = bc.bidHeader\_id)

GROUP BY bh.id, bh.bidHeaderText, bh.user\_id, bh.bidGenre\_id

ORDER BY MAX(bc.coneditedTime) DESC;