Homework 3

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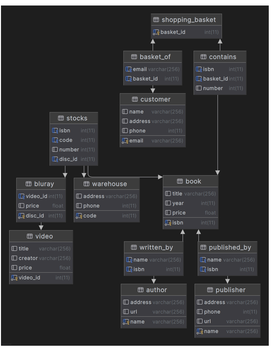
I have adhered to the Honor Code on this assignment.

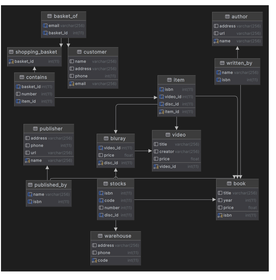
1.

(a) author, name
publisher, name
customer, email
shopping_basket, basket_id
book, ISBN
warehouse, code

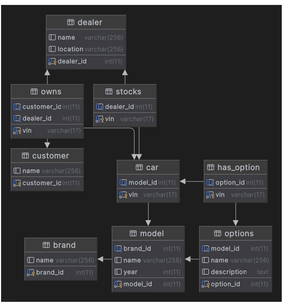
(b)



(c)



2.



Below is the list of SQL commands used to generate the above ER diagram. The DDL contains both relationship schema as well as primary and foreign key constraints.

```
use car_dealer;

create table brand
(
    brand_id int primary key,
    name     varchar(256)
);

create table model
(
    model_id int primary key,
    brand_id int,
    name     varchar(256),
    year     int,
    foreign key (brand_id) references brand (brand_id)
);


create table options
(
    option_id   int primary key,
    model_id    int,
    name        varchar(256),
    description text,
    foreign key (model_id) references model (model_id)
);

create table dealer
(
    dealer_id int primary key,
    name      varchar(256),
    location  varchar(256)
);

create table customer
(
    customer_id int primary key,
    name        varchar(256)
);

create table car
(
    vin      varchar(17) primary key,
    model_id int,
    foreign key (model_id) references model (model_id)
);

create table stocks
(
    dealer_id int,
    vin       varchar(17) primary key,
    foreign key (dealer_id) references dealer (dealer_id),
    foreign key (vin) references car (vin)
);

create table owns
(
    customer_id int,
    vin         varchar(17) primary key,
    dealer_id   int,
    foreign key (customer_id) references customer (customer_id),
    foreign key (vin) references car (vin),
    foreign key (dealer_id) references dealer (dealer_id)
);

create table has_option
(
    vin       varchar(17) primary key,
    option_id int,
    foreign key (vin) references car (vin),
    foreign key (option_id) references options (option_id)
);
```

3.


```
create table album
(
    album_id     int primary key,
    name         varchar(256),
    type         enum ('single', 'EP', 'LP'),
    art          blob,
    release_date date
);

create table song
(
    song_id int primary key,
    name    varchar(256),
    # length in seconds
    length  int,
    streams int
);

create table genre
(
    genre_id int primary key,
    title    varchar(256)
);

create table person
(
    person_id int primary key,
    name      varchar(256),
    birthday  date
);

create table ensemble
(
    ensemble_id   int primary key,
    name          varchar(256),
    founding_date date
);

create table entity
(
    entity_id   int primary key,
    person_id   int,
    ensemble_id int,
    foreign key (person_id) references person (person_id),
    foreign key (ensemble_id) references ensemble (ensemble_id)
);

# A song can be in many albums
create table song_in_album
(
    song_id  int,
    album_id int,
    foreign key (song_id) references song (song_id),
    foreign key (album_id) references album (album_id),
    primary key (song_id, album_id)
);


# Genres for album are generated from the list of genres associated with songs
# in the album
create table song_has_genre
(
    song_id  int,
    genre_id int,
    foreign key (song_id) references song (song_id),
    foreign key (genre_id) references genre (genre_id),
    primary key (song_id, genre_id)
);

create table person_in_ensemble
(
    person_id   int,
    ensemble_id int,
    foreign key (person_id) references person (person_id),
    foreign key (ensemble_id) references ensemble (ensemble_id),
    primary key (person_id, ensemble_id)
);

create table role
(
    entity_id int,
    song_id   int,
    foreign key (entity_id) references entity (entity_id),
    foreign key (song_id) references song (song_id),
    primary key (entity_id, song_id)
)
```