create table EndUsersBuyerSeller (

password:varchar(20),

user\_id:varchar(15),

user\_email:varchar(30),

upper\_limit(int),

alerts,

history,

create\_bid,

delete\_bid,

delete\_listing,

create\_listing,

primary key(user\_id));

create table Has(

user\_id:varchar(15),

employee\_id: varchar(15),

primary key(user\_id,employee\_id),

foreign key(user\_id) references EndUsersBuyerSeller,

foreign key(employee\_id) references CustomerRepresentative);

create table Trades (

date:date,

price:int,

trade\_id:varchar(15),

primary key(trade\_id));

create table Make(

user\_id:varchar(15),

trade\_id:varchar(15),

primary key(user\_id, trade\_id),

foreign key (user\_id) references EndUserBuyerSeller,

foreign key (trade\_id) references Trades);

create table UpdatesAutoBid (

upper\_limit:int,

bid\_num:int,

foreign key (upper\_limit) references EndUsersBuyerSeller NOT NULL,

foreign key (bid\_num) references Bid NOT NULL);

create table Checks (

trade\_id:varchar(15),

primary key (trade\_id),

foreign key (trade\_id) references Trades);

Auction (

name: varchar(15),

date:date, auction\_id:varchar(10),

type: varchar(6),

primary key: auction\_id));

create table Submit(

bid\_num:int,

auction\_id: varchar(10),

primary key(bid\_num, auction\_id),

foreign key (bid\_num) references Bid,

foreign key (auction\_id) references Auction) ;

create table CustomerRepresentative (

modify\_bid,

reset\_password,

remove\_bid,

answer\_question,

employee\_id: varchar(15),

primary key(employee\_id));

create table Deals (

auction\_id:varchar(10),

employee\_id: varchar(15),

primary key(auction\_id, employee\_id),

foreign key(auction\_id) references Auction,

foreign key(employee\_id) references CustomerRepresentative);

create table HasStaffMember (

create\_representative\_account,

s\_employee\_id :varchar(15),

c\_employee\_id: varchar(15),

primary key(s\_employee\_id),

foreign key (c\_employee\_id) references CustomerRepresentative NOT NULL);

create table SalesReports (

best\_selling\_enduser: varchar(15),

best\_selling\_item :varchar(15),

earnings\_per\_seller:int, e

arnings\_per\_buyer :int,

earnings\_per\_item\_type :int,

earnings\_per\_item :int,

total\_earnings:int);

create table Generates (

s\_employee\_id: varchar(15),

primary key( s\_employee\_id),

foreign key (s\_employee\_id) references StaffMember);

create table Bid(

price:int, currency:varchar (3),

bid\_num: int, status: varchar(5),

type:varchar(6),

date:date, time:time, primary key(bid\_num)) ;

create table Admin (

create\_admin\_account,

create\_representative\_account,

foreign key (create\_representative\_account,) references CustomerRepresentative NOT NULL);

Highlighted functions are the functions for the system to perform, so we did not indicate the data types in schema.

Below is the final schema

CREATE TABLE users (

  user\_id int primary key,

  user\_password varchar(20) NOT NULL,

  email varchar(20) NOT NULL,

  name varchar(20) NOT NULL,

  upper\_limit float);

CREATE TABLE admin (

admin\_id int primary key,

admin\_password varchar(20) NOT NULL);

CREATE TABLE customer\_representative (

employee\_id int,

employee\_password varchar(20) NOT NULL;

primary key(employee\_id));

CREATE TABLE buyers (

  alerts varchar(50),

  number\_of\_bids int,

  upper\_limit float,

  user\_id int,

  foreign key (user\_id) references users(user\_id),

  foreign key (upper\_limit) references users(upper\_limit));

CREATE TABLE sellers (

   user\_id int,

  number\_of\_sales int,

   user\_id references users (user\_id)

);

CREATE TABLE trades (

  trade\_id int primary key,

  user\_id int,

  price float,

  foreign key (userid) references users(userid));

CREATE TABLE questions(

  user\_questions varchar(300),

  answers varchar(300),

  user\_id int,

  employee\_id int,

  employee\_id references customer\_representative (employee\_id),

  user\_id references users (user\_id));

CREATE TABLE autobid (

   user\_id int,

   upper\_limit float,

   bid\_id int,

   foreign key (user\_id) references users(user\_id),

   foreign key (upper\_limit) references users(upper\_limit)

   foreign key (bid\_id) references bids(bid\_id));

CREATE TABLE bids(

   bid\_id int primary key,

   date\_time DATETIME NOT NULL,

   user\_id int,

   price int NOT NULL,

   foreign key (userid) references users(userid));

CREATE TABLE auction(

   auction\_id int primary key,

   item\_name varchar(50) NOT NULL,

   auction\_type varchar(20) NOT NULL,

   date\_created DATETIME NOT NULL);

CREATE TABLE salesreports (

best\_selling\_enduser varchar(15),

best\_selling\_item varchar(15),

earnings\_per\_seller int,

earnings\_per\_buyer int,

earnings\_per\_item\_type int,

earnings\_per\_item int,

total\_earnings int);

customer\_rep\_has\_users (user\_id int, employee\_id: int), primary key(user\_id,employee\_id), foreign key(user\_id) references users, foreign key(employee\_id) references customer\_representative);

admin\_has\_customer\_representative(admin\_id int, employee\_id int, primary key(admin\_id), foreign key (employee\_id) references customer\_representative (employee\_id) NOT NULL);

auto\_bid\_updates\_bid (upper\_limit float, bid\_id int, foreign key (upper\_limit) references users (upper\_limit) NOT NULL, foreign key (bid\_id) references bid (bid\_id) NOT NULL);

users\_make\_trades(user\_id int, trade\_id int, primary key(user\_id, trade\_id), foreign key (user\_id) references users, foreign key (trade\_id) references trades (trade\_id));

customer\_rep\_deals\_auction (auction\_id int, employee\_id int, primary key(auction\_id, employee\_id), foreign key(auction\_id) references auction, foreign key(employee\_id) references customer\_representative (employee\_id));

bid\_submitbid\_auction(bid\_id int, auction\_id int, primary key(bid\_id, auction\_id), foreign key (bid\_id) references bid, foreign key (auction\_id) references auction (auction\_id));

trades\_checks\_autobid(trade\_id:varchar(15), primary key (trade\_id), foreign key (trade\_id) references trades (trade\_id));