Flight Reservation

Introduction to Databases

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❖Database Schema

```
drop database if exists flightReservation;
create database flightReservation;
use flightReservation;

drop table if exists user;
create table user
(uID INT AUTO_INCREMENT Primary Key,
 uNAME VARCHAR(30) NOT NULL,
age INT);
ALTER Table user AUTO_INCREMENT = 100;


Drop table if exists flightList;
create table flightList
(fID INT AUTO_INCREMENT Primary Key,
aName VARCHAR(30) NOT NULL,
numSeats INT NOT NULL);
ALTER Table flightList AUTO_INCREMENT = 200;

Drop table if exists reservation;
create table reservation
(uID INT,
 fID INT,
 reservedDate Date NOT NULL Default '0000-00-00' ,
 updatedAt timestamp NOT NULL on update
current_timestamp default current_timestamp,
 PRIMARY KEY (uID,fID,reservedDate),
 FOREIGN KEY (uID) references user (uID) on delete cascade,
 FOREIGN KEY (fID) references flightList (fID) on delete
cascade);
```

```
Drop table if exists seat;
create table seat
(uID INT,
fID INT,
seatNumber INT NOT NULL auto_increment UNIQUE,
 PRIMARY KEY (uID,fID,seatNumber),
 FOREIGN KEY (uID) references user (uID) on delete cascade,
 FOREIGN KEY (fID) references flightList (fID) on delete
cascade);
 ALTER Table seat AUTO_INCREMENT = 300;

Drop table if exists canceledReservation;
create table canceledReservation
(uID INT,
 fID INT,
canceledDate Date NOT NULL Default '0000-00-00',
 PRIMARY KEY (uID,fID)
);

Drop table if exists Archive;
create table Archive
(uId INT,
fId INT,
updatedAt timestamp NOT NULL);
```

❖Two Trigger(s)

```
DROP TRIGGER IF EXISTS INSERTTORES;
delimiter //
CREATE TRIGGER INSERTTORES
AFTER INSERT ON RESERVATION
FOR EACH ROW
BEGIN
 insert into seat(uID,fID) values(new.uID,new.fID);
END;//
delimiter ;
```

****

```
DROP TRIGGER IF EXISTS INSERTTOCANCEL;
delimiter //
CREATE TRIGGER INSERTTOCANCEL
AFTER INSERT ON CANCELEDRESERVATION
FOR EACH ROW
BEGIN
 delete from reservation where new.uID = uID and new.fID =
fID;
 delete from seat where new.uID = uID and new.fID = fID;
END;//
delimiter ;
```

❖Stored Procedure(s)

```
drop PROCEDURE if exists archivedReservation;
delimiter //
create PROCEDURE archivedReservation(IN value varchar(55))
BEGIN
insert into Archive select uid,fid,updatedAt from reservation
where date(updatedAt) > value ;
delete from reservation where date(updatedAt) > value;
END; //
delimiter ;
```

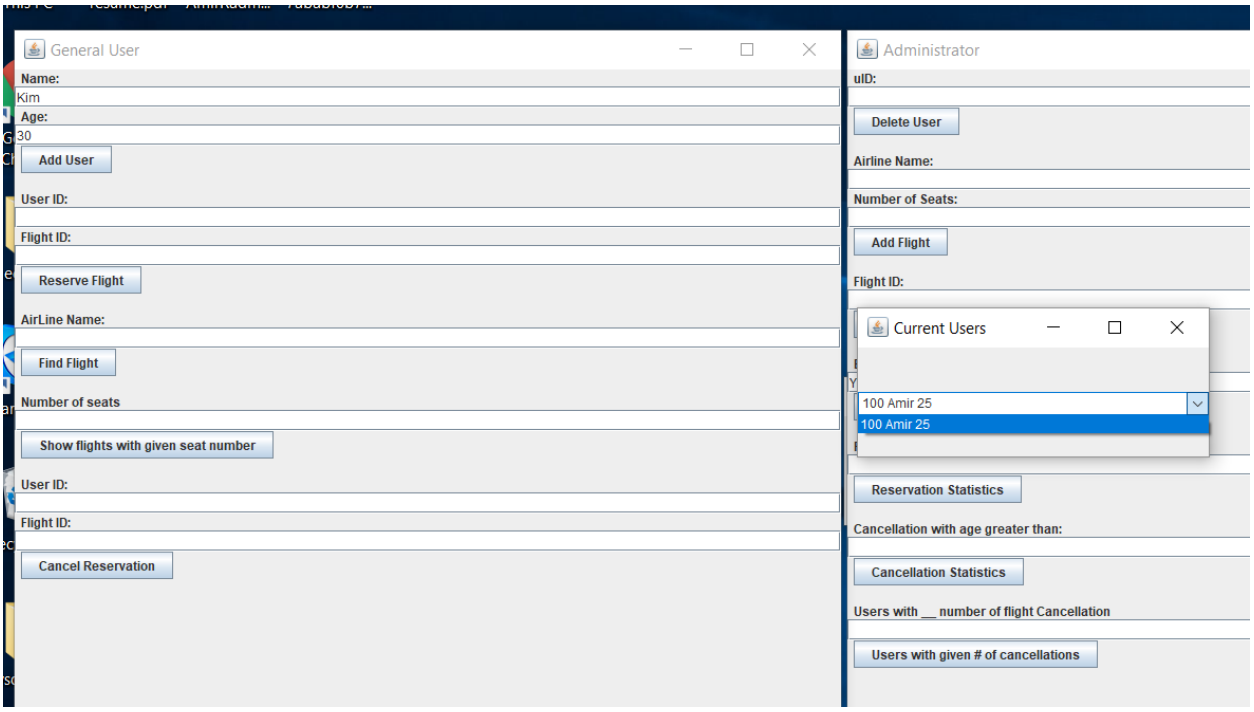
❖Functional Requirements ← → SQL Query

Functional Requirements	**Corresponding SQL Query**
Adding Users	Insert into user(uName,age) values(?,?)
Deleting Users	Delete from user where uID = ?
Adding Reservation	Insert into reservation (uID , fID,reservedDate) values(?,?,current_Date())
Canceling Reservation	Delete from reservation where uid = ? and fid = ?
Users with reservation who have not canceled any flights AT ALL (LOYAL CUSTOMERS)	select distinct uid from reservation where uid NOT IN (select uid from canceledreservation);
Adding Flights	Insert into flightList(aName, numSeats) values(?,?)
Deleting Flights	Delete from flightList where fid = ?
User's reservation with age > ?	select * from user JOIN reservation using(uID) group by uid having(age > ?);

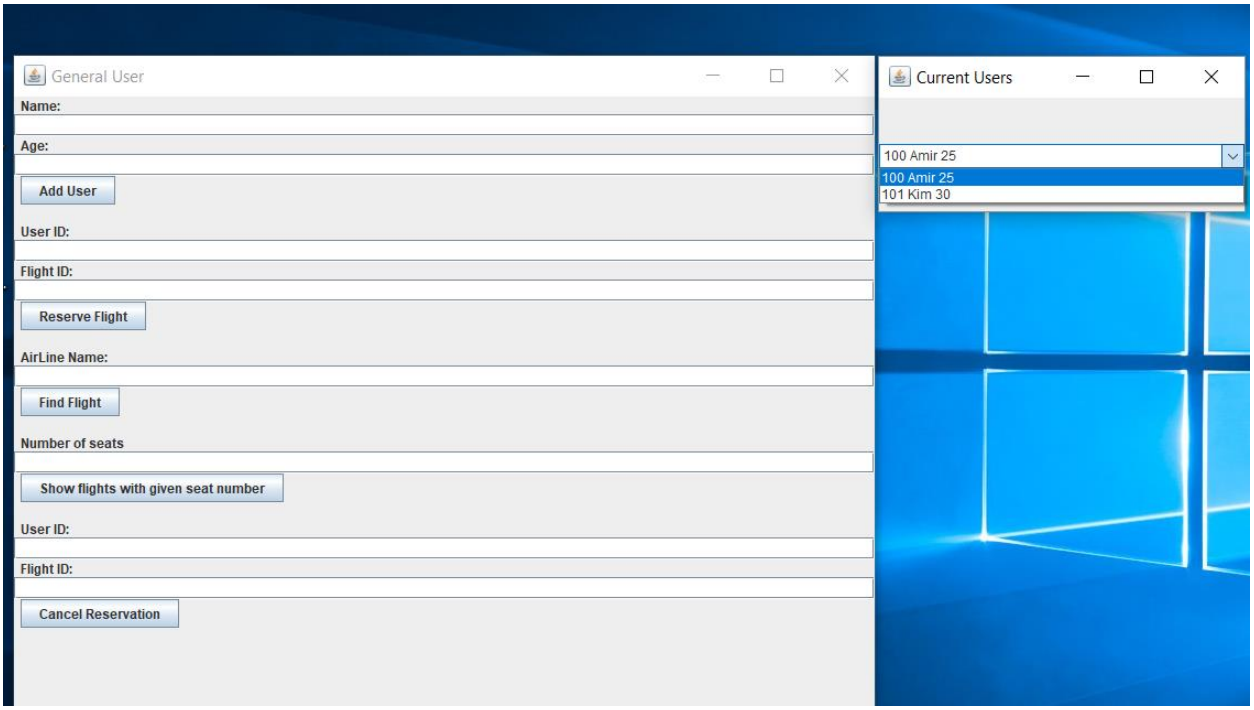
User's cancellation with age > ?	select * from user JOIN canceledReservation using(uID) group by uid having(age > ?);
Finding flights using airline name	Select aName from flightList group by aName having (aName = ?)
Finding flights with ? # seats	Select fid,aName from flightList where numSeats = ?
Flights that have not been reserved at all	select * from flightList FL left Outer JOIN reservation R on FL.fid = R.fid;
High Season Month(s): Months with more than 3 reservations	select distinct MonthName(reservedDate) as 'High Season Month(s)' from reservation group by Month(reservedDate) having(count(*)>=3);
Users who have canceled more than ? reservation	Select uid,uname from user u1 where ? < (select count(*) from canceledreservation where u1.uid = uid group by uid);
Average age of users who reserved	Select avg(age) as 'averageAge' from user U NATURAL JOIN (select distinct uid from reservation group by uid) T;

❖Screenshots

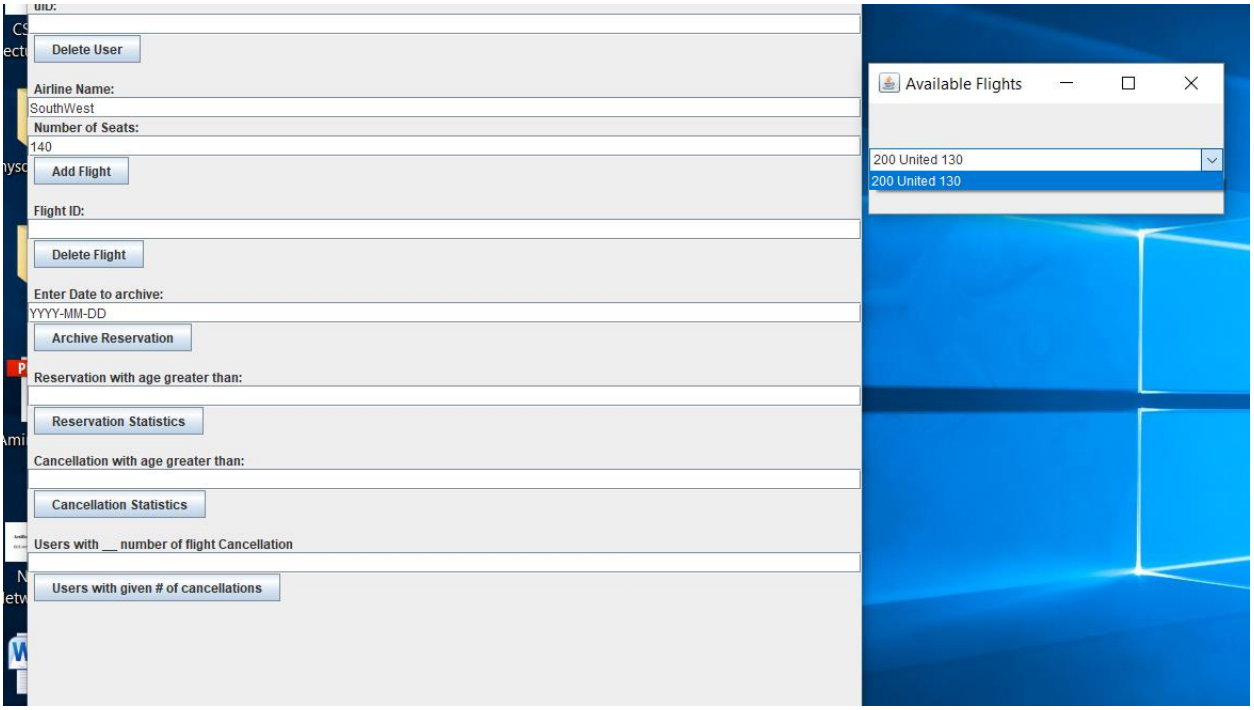
Before adding 2nd user:



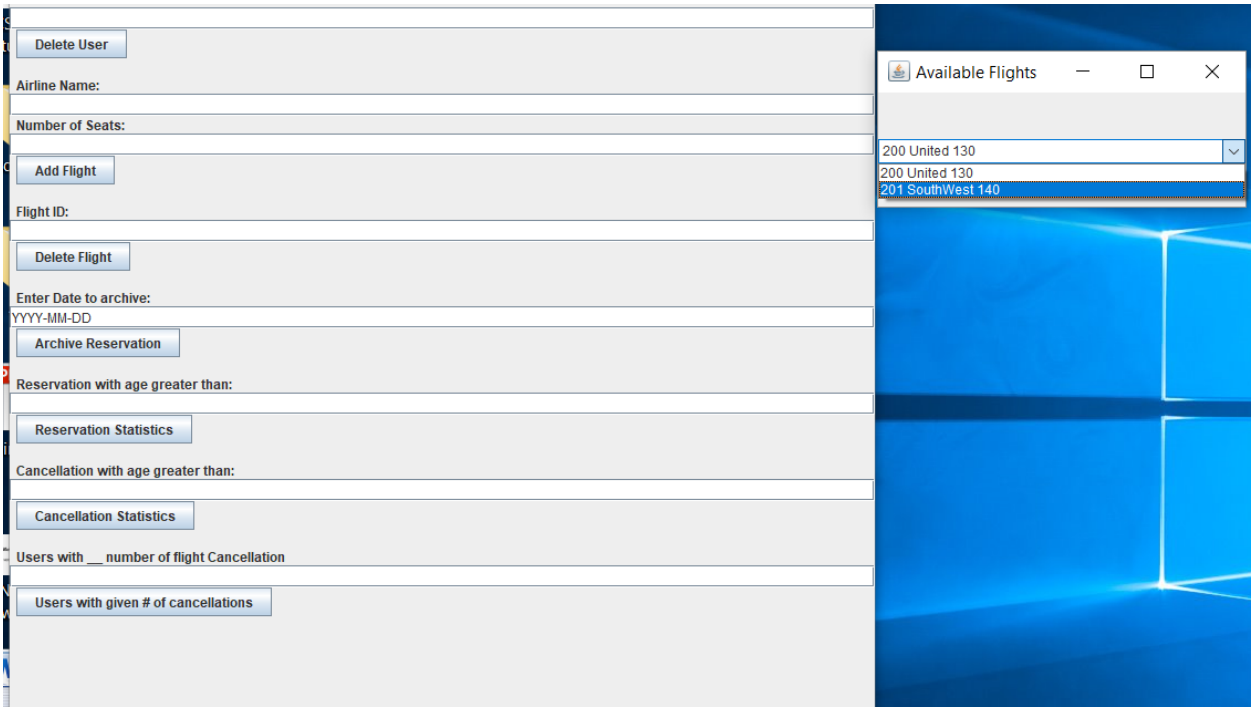
After adding 2nd user:



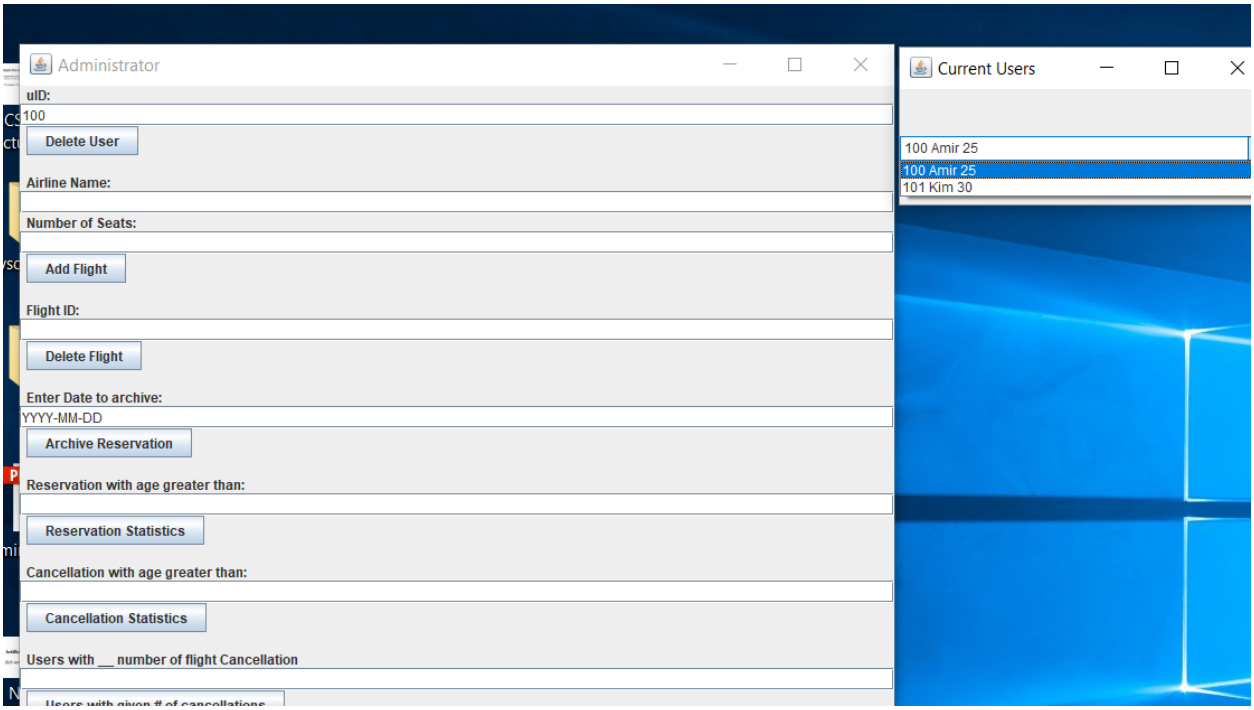
Before adding 2nd flight :



After adding 2nd flight:



Before deleting a user:



After deleting a user: