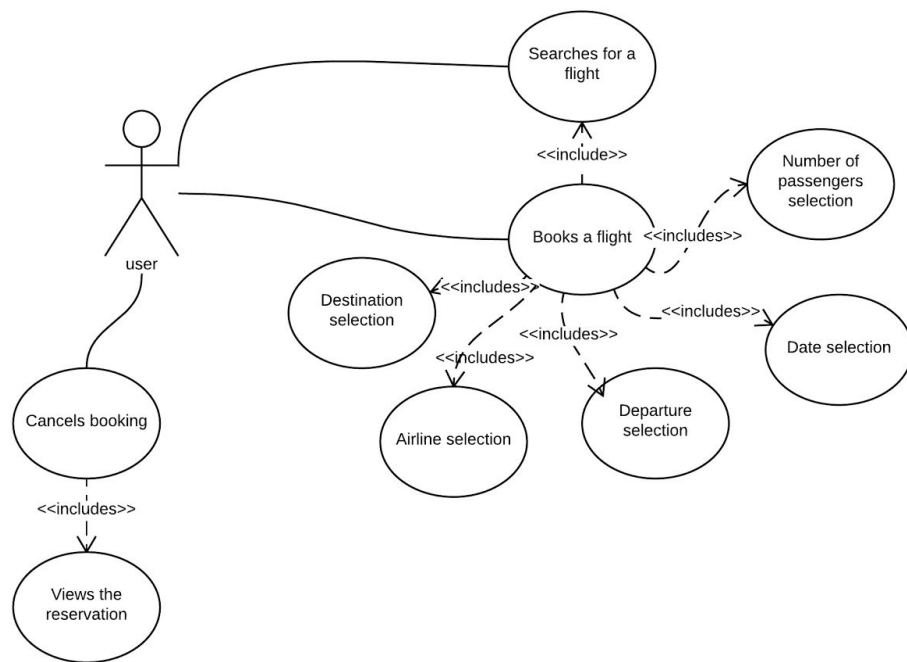Assignment 3
1) Description of the system.

   The system under design is destined for several flight carriers. It's purpose is to allow a user to book flights easily.

Use case model for a better description of what the system is capable of when using online application.:
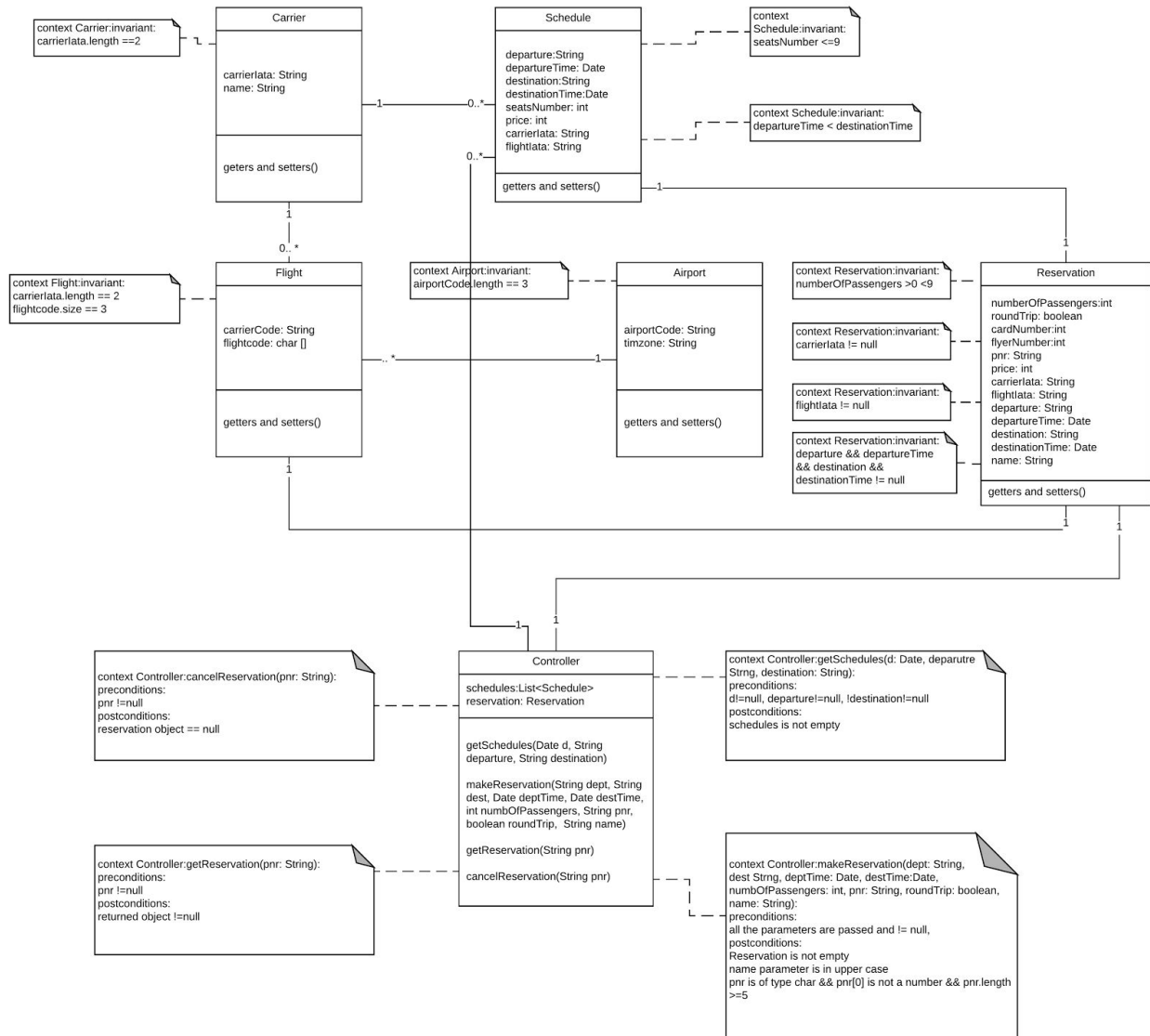

The software is also destined for the travel agencies. Instead of online application, travel agencies are supposed to receive a desktop version of the same system and functionality.
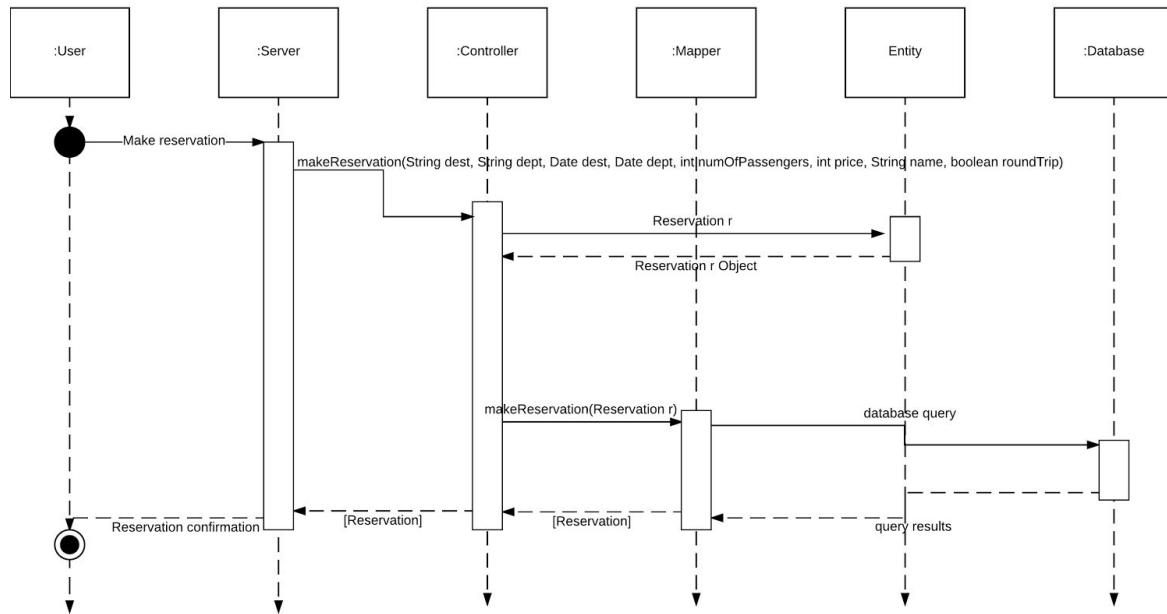
2) Design specification document

    a) Class diagram

a)

Carrier

context Carrier:invariant:
carrierIata.length ==2

carrierIata: String
name: String

geters and setters()

Schedule

departure:String
departureTime: Date
destination:String
destinationTime:Date
seatsNumber: int
price: int
carrierIata: String
flightIata: String

getters and setters()

context
Schedule:invariant:
seatsNumber <=9

context Schedule:invariant:
departureTime < destinationTime

Flight

context Flight:invariant:
carrierIata.length == 2
flightcode.size == 3

carrierCode: String
flightcode: char []

getters and setters()

context Airport:invariant:
airportCode.length == 3

Airport

airportCode: String
timzone: String

getters and setters()

context Reservation:invariant:
numberOfPassengers >0 <9

context Reservation:invariant:
carrierIata != null

context Reservation:invariant:
flightIata != null

context Reservation:invariant:
departure && departureTime
&& destination &&
destinationTime != null

Reservation

numberOfPassengers:int
roundTrip: boolean
cardNumber:int
flyerNumber:int
pnr: String
price: int
carrierIata: String
flightIata: String
departure: String
departureTime: Date
destination: String
destinationTime: Date
name: String

getters and setters()

context Controller:cancelReservation(pnr: String):
preconditions:
pnr !=null
postconditions:
reservation object == null

Controller

schedules:List<Schedule>
reservation: Reservation

getSchedules(Date d, String
departure, String destination)

makeReservation(String dept, String
dest, Date deptTime, Date destTime,
int numbOfPassengers, String pnr,
boolean roundTrip, String name)

getReservation(String pnr)

cancelReservation(String pnr)

context Controller:getSchedules(d: Date, deparutre
Strng, destination: String):
preconditions:
d!=null, departure!=null, !destination!=null
postconditions:
schedules is not empty

context Controller:getReservation(pnr: String):
preconditions:
pnr !=null
postconditions:
returned object !=null

context Controller:makeReservation(dept: String,
dest Strng, deptTime: Date, destTime:Date,
numbOfPassengers: int, pnr: String, roundTrip: boolean,
name: String):
preconditions:
all the parameters are passed and != null,
postconditions:
Reservation is not empty
name parameter is in upper case
pnr is of type char && pnr[0] is not a number && pnr.length
>=5

b) Sequence diagram of the making reservation process

c) State diagram of the booking object