**Problem Description:**

A car branch need to have a bus ticket reservation system. The bus ticket reservation system should contain the following data:

The car branch manage a lot of agents. Each agent has: agent id, address, agent name

A agent can have many employees. Each employee has: employee id, name, address, phone number, identity number, salary, email, birth. Each employee is provided a account ( user name and password ). Each employee has the difference position and power.

The information of position group has: position id, type. There are several types:travel planner,travel supervisor, driver, ticket seller, service guide, security guard, porter

Each position group has separately privileges. The information of privileges group has: privilege id, name.

The agent manage passengers. Each passenger has: passenger id, name, phone number, address, identity number, gender, email.

To easy to mange and filter the address of stations in the general local area, there is the information of places: place id, name

Each passenger can choose a pickup station and drop-off station. Each station has: station id,place id, detail address, name, capacity, parked bus number.

The bus of the branch has: bus id, registration number, model, capacity.

Routes involve to the passenger journey has: route id, start bus station id , end bus station id, distance

Each trip is set up by travel planner has: trip id, driver id, bus id, route id, departure time, duration, number of booked seat, direction.

The agent distribute ticket to the passenger. Each ticket has: ticket id, trip id, passenger id, fare, type, seat number.

The agent manage the booking transaction. Each booking transaction has: transaction id, ticket id, passenger id, employee id, booking time.

Each employee can take on more than 1 position.

A passenger can booking more than 1 ticket.

A trip can have more than 1 driver.

A route is bi-directional. Determine the direction of a route base on the direction attribute of the trip.

**Problem process:**

Booking period:

The service guide instruct the passenger full field information include: the identify number, phone number, address, gender, email. Then, the ticket seller check again to guarantee all the required fields is correctly fielded.

Then, the passenger pick a trip by choose options: destination, pickup station, drop-off station, departure time, the available seat, ticket type. Options will plan by the travel planner, so he passenger must follow this template.

Then, the ticket seller verify selections of customer. If valid, the ticket seller informs the passenger and waits for their confirmation. If they confirm, the ticket seller print the ticket, give it to them and remind them arrive at the correct time on the ticket. Else if the refuse, the customer need to modify the information.

Departure period:

The passengers wait in the agent. Before departure time of the current trip 15 minutes, the intermediate car take on the passengers to the bus station.

At bus station, the porter put the passenger luggages into the trunk.

When it’s time, the service guide instruct passengers to the car, and give the water and tissue to them.

Drop-off period:

When the bus arrive the end bus station, the porter take passenger luggages of the bus and give it to the passenger.