BUS SYSTEM – CONTEXT ANALYSIS

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BUSINESS DEMAND

Design and implement a Bus route schedule system in order to program interactive applications for main users: drivers and customers / passengers.

USER'S VIEWS

The context only focuses on 2 main users: drivers and passengers. For different views of users, we will have different GUI design.

- ***Driver's view***: the drivers need to know which route, bus, stops about a given route they get assigned in a given date and time. Also, the drivers need to double check customers about their personal info, route and payment confirmation before allowing them to get in the bus.
- ***Customer's view***: after buying a bus trip, a customer should receive a confirmed receipt about their upcoming bus trip, such as route info, selling location and their approved payment. So, they can track their trip and show the receipt to a driver for proving their authorization.

GUI DESIGN

1 application includes different interfaces based on various user's views

- ***Login interface:*** can be used for both drivers and customers but linked to different pages later related to their login authorization.
- ***Route interface:*** drivers can use Route page to track their current trip about the destination, bus, stops and upcoming passengers. Customers / Passengers can also use the Route page for tracking their trip but they are not allowed to see the bus or driver's detailed info. For this project, we only design Route page for drivers.
- ***Purchase interface:*** customers can access a confirmed receipt from here where they can show it to a driver for their authorization to get in a bus. They can see info about a bus route they purchased, from which station - ticket box, and by their approved payment. Drivers are not allowed to see customers' detailed payment info, so actually they don't need this Purchase interface.

ASSUMPTIONS

- Ticket box in station has selling functionality for paper/electronic tickets, subscription, even deposit bus account balance.
- Ticket box is a self-service machine which needs no staff to operate.
- There might have multiple ticket boxes placed in a station. The location of ticket box is decided by where it's placed, e.g. food center, front door, etc.
- Tickets sold for customers under paper/electronic version are One-time purchase. Similarly, Amazon products can be bought by one-time payment or subscriptions.
- Bus system sells their bus route under 3 payment methods which are tickets, balance and monthly subscription. Therefore, customers' payment is classified into those 3 categories.
- Route is a single bus trip. Route = Trip = Ride.

ERD LOGIC

Two main associative entities, which are Route entity and Purchase entity, represent for Route interface and Purchase interface explained in GUI design part.

Route entity connecting bus, driver, stop, customer shows the necessary access authorization provided for *drivers* and *customers* in their Route interface. Correspondingly, Purchase entity connecting customer, payment, station, ticket-box shows that the receipt *customers* access in Purchase interface is able to show that info.

For the relationship between Ticket Box and Payment, ticket box sells the route for customers and get payment from them. A Ticket Box can issue 0 to many payments and payment can pay 0 to multiple times (ticket, deposit balance, subscription) at the same ticket box. The result of their relationship, shown by Purchase associative entity – Receipt issued for customers, represents for the Ticket Box's selling functionality. Also, Purchase / Receipt needs to confirm the upcoming route for customers, that's why Purchase entity connects with Route entity.