## Persistent Data Management

In Online Bus Ticket system, we decide to store persistent data in a database. The persistent datas are; Users of the system (Visitor, Registered user, Admin),Ticket data which may be recorded a ticket\_id, seat\_no, voyage\_id. There are relation between user and ticket. . For each user there are some ticket. Voyage is stored in the system as well . There are relation between voyage and bus. For each voyage there are some bus.Also a different relation about voyage is between voyage and city. For each voyage there are some bus. . Bus is stored in the system as well. There are relation between ticket and bus. For each bus there are some ticket.

We store booking in RegisteredUser data. For each registereduser there are some booking. guests’ rate/comment data is stored in the system as well.

These are the persistent data that are need to be stored in database so that the data can outlive a single execution of the system. In OBTS, because of its advantages and suitability for the OBTS system, we decided to use relational database for the data management infrastructure. Some of the advantages of choosing a relational database ;Ease of use, Abstraction, Security,Flexibility, Precision,,Data Independence, Data Manipulation Language.

## Access Control and Security

This system is a multi-user system which contains two users and these users are visitors and registered users.The system provides different interfaces according to the functions of these users in the system. First, the administrator will connect to the system through the login interface and perform some operations such as adding, deleting and editing etc.. Only admin access the database and all datas that related to the system will be manually entered into the database. All users who will use the system will register themselves on the system. The registration process is carried out by user interfaces and the relevant data is entered into the registration forms. All entered data will be saved in the database and data will be exported from this database. Users who want to take advantage of all the privileges the system has are required to register with the system and perform their operations after logging into the system. Users will login to the system with their ssn numbers and passwords. During registration, field filling does not require access to the database, while completion of the process requires the data to be written to the database, which requires read and write access to the database. In that case, the required database fields will be blocked and simultaneous access of multiple users will be denied.Also,in this database system, users'

ssn numbers and passwords will be stored in the user table. When this information is entered by the registered user, the information is checked by authentication interfaces and if the user information is correct, it is directed to its own page.