In the Database Management final project, our team designed a web-based e-commerce database system targeting on insurances. We set three different kinds of users, home, business and visitors. Visitors can only browse the home page and products, they can purchase the products by signing up first, The other two kinds of users, home and business have some same attributes which are id, name, address. Home customers have specific attributes marriage status, gender, age and income. Business customers have specific attributes business category and company gross annual income. These two kinds of customers also have email and password when registering on the website. There is only one kind of administrator, who can login into the management interface through the button “Admin” on the top of the page.

In this web-based e-commerce database system, we hope to implement the following functions. The two kinds of customers can view the main page, alter their own personal information, browse the products, place orders and view their history orders. Administrators can view all the product, salesperson, store and customer information separately. Besides, they can alter or delete this information if needed. They could also view all users’ transaction records. Moreover, administrator can check different kinds of data aggregation information on the admin page like which store gets the most turnover, what’s the aggregate sales and profits, which is the best-selling product, which customer bought the most products, who is the best salesperson and so on.

We have 14 different tables in the database. Which are “admin”, “business”, “city”, “custkind”, “customers”, “home”, “products”, “region”, “salesperson”, “state”, “store”, “transaction”, “trans\_prod” and “user”. The E-R diagram is shown in figure 1 below.

Table “admin” stores the username and password of administrators

Table “business” stores the business category and company gross annual income of business users.

Table “city” stores name and state id of different cities

Table “custkind” stores two different kinds of customers, home and business.

Table “customers” stores the conjunct information of customers, include name, address (street, city\_id and zipcode) and customerkind\_id

Table “home” stores marriage status, gender, age and income of individual users.

Table “products” stores product name, amount, price, cost and rate of different products.

Table “region” stores the region name and region manager id of different regions.

Table “salesperson” stores name, address (street, city\_id and zipcode), email, title, store id and salary of different employees.

Table “state” stores the name of different states.

Table “store” contains name, street, city id, manager id, faculty number and region id of different stores.

Table “transaction” stores transaction date, total price, salesperson id and customer id.

Table “trans\_prod” stores the price and quantity of each product in every transactions.

Table “user” stores email, password and customer id of each user.

In the front-end design, we use HTML and CSS to build the structure of our website. We also implement JavaScript to achieve some user interaction effects. In the back-end design, we use php as the scripting language and MySQL as database.

Firstly, user can see the menu and induction of YST Insurance (name of our e-commerce company). Users could log in or create a new account by clicking the “Sign In” button. Figure X shows the login interface for users. Figure X shows the sign up interface for business users and Figure X shows the sign up interface for individual users. Figure X shows the user interface after logging in where users could go to other sections by clicking the corresponding buttons in the menu on the left side of the web page. Figure X shows the product interface where users can browse all the insurances we provide, they can also select the insurances they need and add them to the cart. Figure X shows the cart interface where users can see all the products they added in the cart alone with the total price of the products in the cart. Users could also delete the products they no longer need by clicking the cross in the “Delete” column. Figure X shows the order result interface. After user click “Click here to check out” button, the system will turn into this page where users can review the detailed information about the transactions he/she just made. Figure X shows the administrator log in interface where administrator could take full charge of the e-commerce system through the management interface and check some data aggregation information.

In our e-commerce system, we spend a lot of time testing the possible erroneous cases. Firstly, every user needs to input correct email and password to log in first in order to add products to the cart. Secondly, users can not add products which inventory are zero. Users also cannot add products which quantity is more than the inventory. When browsing the cart, users can not check out if the cart is empty.

Limitations, improvements.