My Project “Tiny Computer Malls”

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Introduction

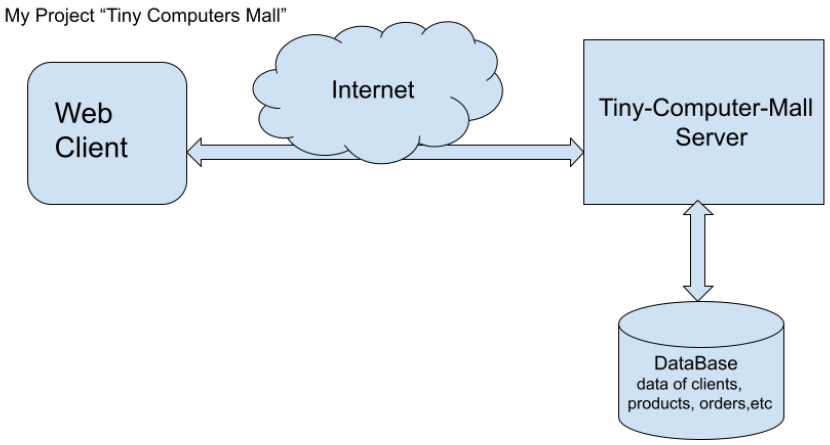
This is RuiJia, and currently I’m a Master Degree student in ASU.I’m passionate about programming, and I’m eager to learn new technologies and get my hands dirty to apply them. Amazon is a top e-commercial website in people’s daily life, and I’m curious how it works - I watch some videos in Udemy about the structure of a website like eBay, amazon, and how each component works together. After some investigation and research, I decided to build up a “Tiny Amazon” myself, with fundamental features.

Objective

Build up a web-server for shopping Computers. This should supports:

1. Account Register/Login.
   New clients can register an account, and existing clients can log-in with their account.
2. Add product to cart.
   Clients can view the full Computer-products list, and add what they need to the shopping cart.
3. Check out.
   Clients view the cart and check out.

Design



As shown above, I use the classical client-server-database module for this webserver: The web clients communicate with the “Tiny-Computer-Mall” server through networks, and the

data of clients information, product information and order information are stored in a database.
The client-server-database module is widely used today, and we gain the benefits that:

- There are lots of mature resources and tools for this module
- Centralized server and data storage.
- Separation of the capability and implementations of client and server.

Implementation Details

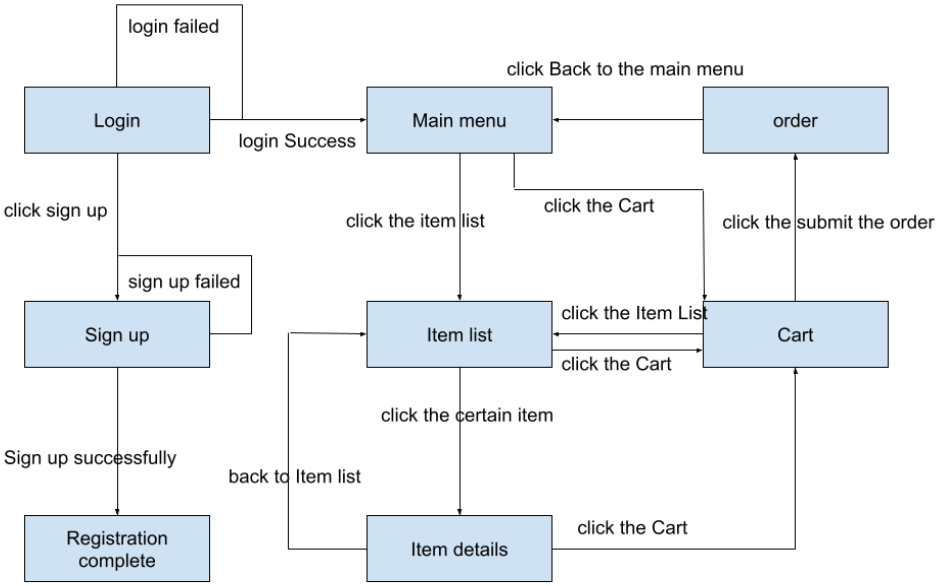
Framework-Django

- Python based framework for backend web application
- Fast,simple,less code

Framework-SQL(Sqlite)

- Easy to manipulate the data in relational database
- Almost all the Relational Database Management Systems (RDMS) use SQL as their standard database language.
- SQL Queries can be used to retrieve large amounts of records from a database quickly and efficiently.

Websites workflow



-Login/Signup:The user first goes to the login page. There are two options, one is login, and the other is sign up. Once login successfully, the user will go into the main menu.

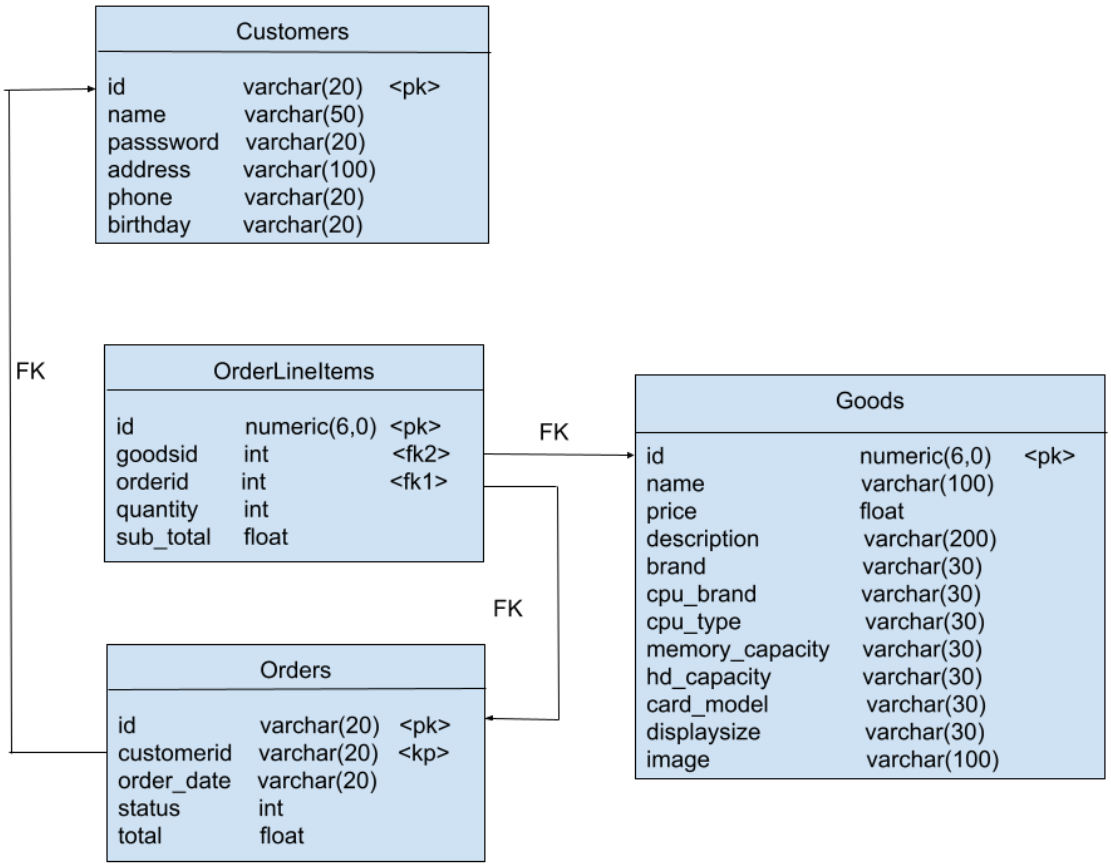
-Shopping: There are also two options in the main menu, one is going to the item list and the other is the cart page. In the Item list page, the user can check any item and add it to the cart.

-Check out shopping cart: On the cart page, there will show the details about the user's order which contains item name, quantity, subtotal and total. The user can click the submit button to place the order.

Server API

1. Account management
    - login(request): Handle user login, including validation of account and password.
    - register(request): Register for a new account.
    - logout(request): Log out user account.
2. Shopping
    - show_goods_details(request): Show a detailed view of the product selected by user.
    - add_cart(request): Add one product to cart.
    - show_cart(request): Show the cart that contains all the products user selected.
3. Check out
    - submit_orders(request): Check out all the items in the cart.

Module and Database



In the database, there are 4 tables, which are “Customers”,”OrderLineItems”,”Goods” and ”Orders”.

- Customers:
  The “Customers” table holds the information about the user which contains id(customer), name, password,address,phone,birthday. And the id(customer) is the prime key of the Customer table

- Orders
  The “Orders” table is the details of the every order which contains id(order), customerid,order_date,status,total. The id(order) is the prime key. The customerid is the foreign key which is linked to the “Customers” table.

- Goods
  The “Goods” table has the information of the Goods which contain id(good), name, price, description, brand,cpu_brand,cpu_type, memory_capacity, hd_capacity, card_model, displaysize, image. The id(good) is the primary key.

- OrderLineItemd
  The “OrderLineItemd” table holds the goods information of every order. There are five variables which contain id(orderlineitem), goodsid,orderid, quantity, subtotal. The id(orderlineitem) is the primary key. There are two foreign keys. One is the goodsid

which is linked to the “Goods” table. The other is the orderid which is linked to the “Orders” table.