Author

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Description

Using the MVC structure, the first step is to decide the user agents, entities and attributes then design the database structure using ER diagram, create db and classes, then create blueprints and logic with html and css for authentication, main controls and api's. Register blueprints in the app and test the code.

Technologies Used

Backend has been developed using Python's Flask framework. Front-end is coded in HTML and CSS for styling.
The following technologies were used:

1. **Flask SQLAlchemy** to interact with database and create database classes
2. **Flask login** to implement authentication
3. **Flask Restful** to create Rest API's
4. **Flask.Blueprint** to modularize the application into three blueprints
5. Other packages and libraries have been used as and when needed for implementing date, rendering template, fetching request form fields, redirection, etc.

DB Schema and design

Database has been designed into 6 tables. For diagrams please refer to page 2.

1. Category and Product tables carry inventory information, they have been divided to reduce redundancy due to multiple-products in one category.
2. Users and addresses store user information.
3. Orders and carts are used to manage order history and maintain user carts.

API Design

Created api for CRUD operations on Category and Products. The API's allow easy addition of categories and products into the system. Also, to query the database by providing id for the category or products to get information about them. One can also get a list of all products and categories by making a GET request. Find the link to Postman API by clicking here or use the link below. YAML file also added in submission. You will need to use the downloaded version of postman after setting up the python server to test these API's.

https://www.postman.com/flight-explorer-79219161/workspace/my-workspace/collection/28984634-0b36f844-ee38-4cf3-afb6-27e563a4cb4e?action=share&creator=28984634

Architecture and Features

The application structure is as follows:
Root folder

1. Project
    a. Templates folder - contains the required html templates.
    b. Static folder - contains the necessary graphs and CSS files.
    c. Instance folder - contains database.sqlite3 file
    d. __init__.py - for initializing the application and registering blueprints
    e. models.py - for database classes
    f. main.py - for controllers for user and admin
    g. auth.py - for authentication login framework
    h. resources.py - for API
2. Project pdf

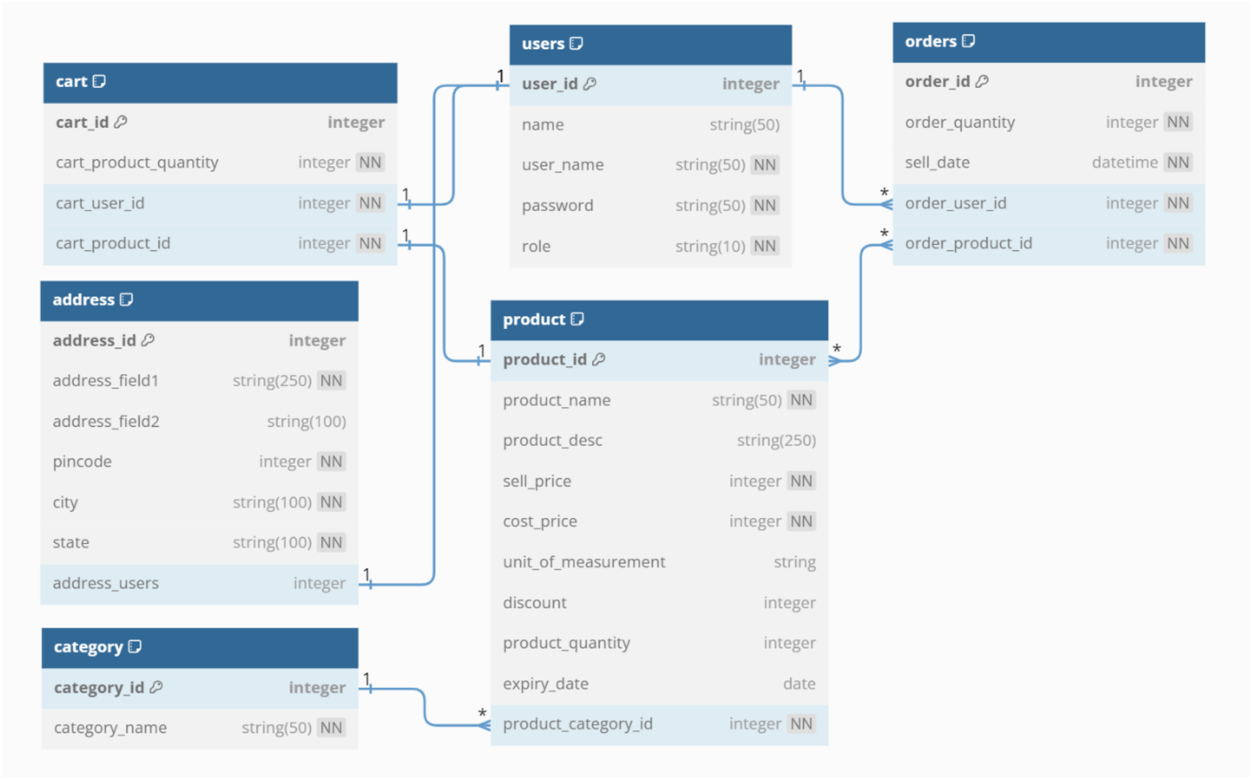
Application has multiple features:

1. Supports new user signup
2. Separate login page for Admin and User
3. Users can browse the products from different categories and add products to cart.
4. Users can also directly buy the product which reduces them from total inventory. Products can also be bought together by adding to cart and pressing the checkout button.
5. Admin can add and delete categories, products from the inventory.
6. Admin can use API's to perform CRUD operations on categories and products.

Video

Please find the video presentation link here.

Please follow the below Database diagram for more information:



cart	
cart_id	integer
cart_product_quantity	integer NN
cart_user_id	integer NN
cart_product_id	integer NN

users	
user_id	integer
name	string(50)
user_name	string(50) NN
password	string(50) NN
role	string(10) NN

orders	
order_id	integer
order_quantity	integer NN
sell_date	datetime NN
order_user_id	integer NN
order_product_id	integer NN

address	
address_id	integer
address_field1	string(250) NN
address_field2	string(100)
pincode	integer NN
city	string(100) NN
state	string(100) NN
address_users	integer

product	
product_id	integer
product_name	string(50) NN
product_desc	string(250)
sell_price	integer NN
cost_price	integer NN
unit_of_measurement	string
discount	integer
product_quantity	integer
expiry_date	date
product_category_id	integer NN

category	
category_id	integer
category_name	string(50) NN

DB Schema Design