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1.PROJECT SYNOPSIS

1.1 Introduction To Domain

This project concerned about developing a pharmacy management system that will be used for retail pharmacies. The purpose of this project is to manage all data derived for a pharmacy to maintain their business through the system rather than recording their data manually which is more risk to the business to maintain and to avoid loss. Most of them they record their data manually through book of accounts, this type of recording data it makes them to incurred more loss and they are not able to determine if they incurred loss or not for those who having a large stock of medicine. Due to this challenges which cause to minimize a business profit I became with solution on how they can reduce risk and maximize their profit through pharmacy management system.

1.2 Objectives

The overall objective of this project is to establish a system for pharmacy shops so as to improve the performance and efficiency of pharmacy shops management . in order to achieve this goal effectively, there are some specific objectives should be implemented:

The following are specific objectives for this project:

- To provide easily accessibility of customers management
- To provide easily accessibility of sales reports
- To provide easily accessibility of stock reports
- To provide easily accessibility of employees records etc.
- To minimize human errors.

1.3 Module Description

These are the main modules of the project:

- **Products module:** we can create, read, update and delete products from this module.
- **Customers module:** All the operations related to customers operations, is managed by this module.
- **Sells module:** it has been developed for managing sells.
- **Payment module:** It manages the payment.

1.4 Application

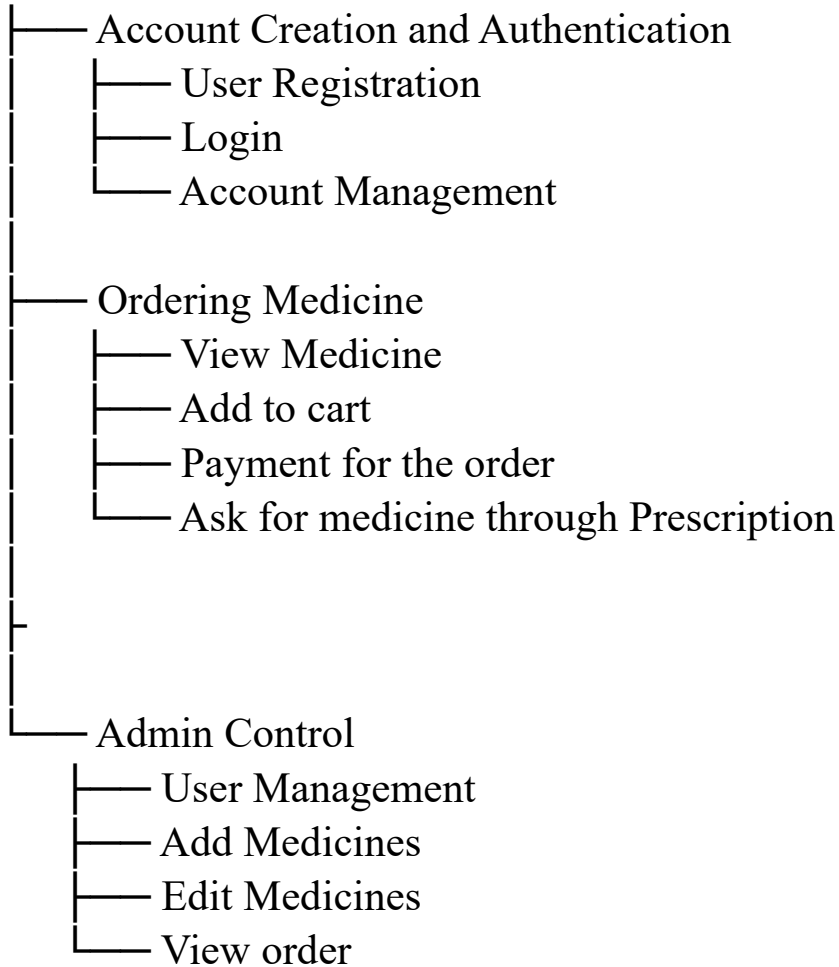
The user of this system is being able to manage all necessary activities of the pharmacy shop. The information management that provided by the system is a great advantage to reduce records errors associated with pharmacy shops.

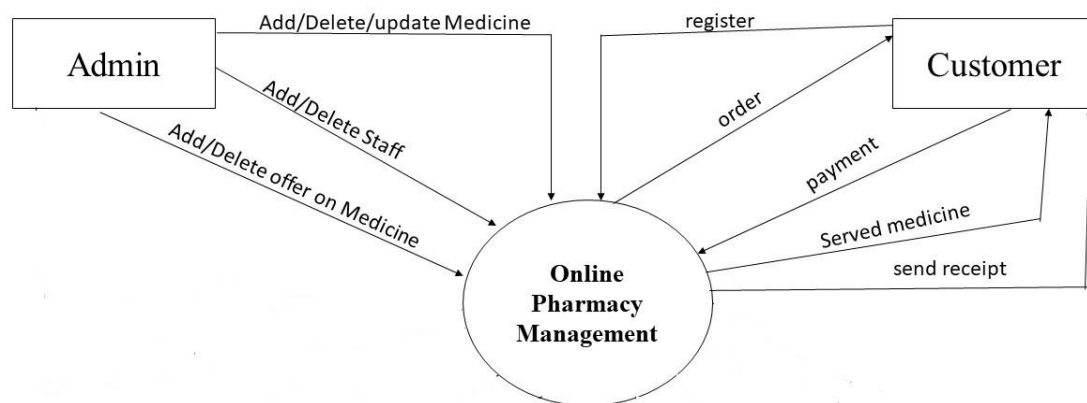
Pharmacy management system covered the following areas:

- Customers management
- Managers management
- Employees management
- Sales management
- Stock management

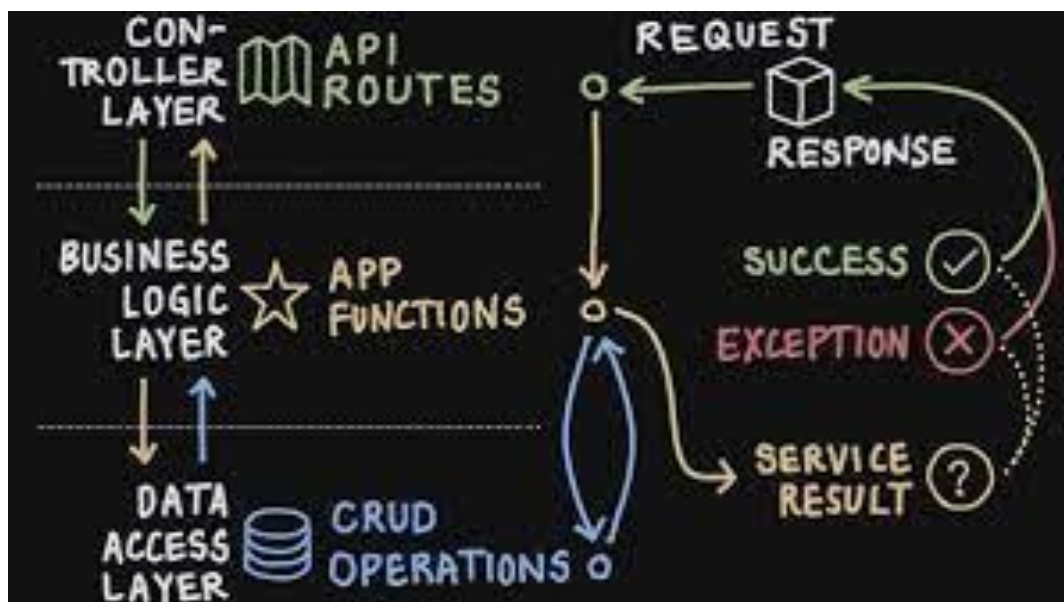
2. ARCHITECTURE DIAGRAM:

User Interface



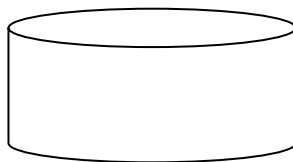
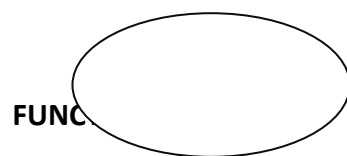


FAST-API FLOW :



DATA FLOW DIAGRAM

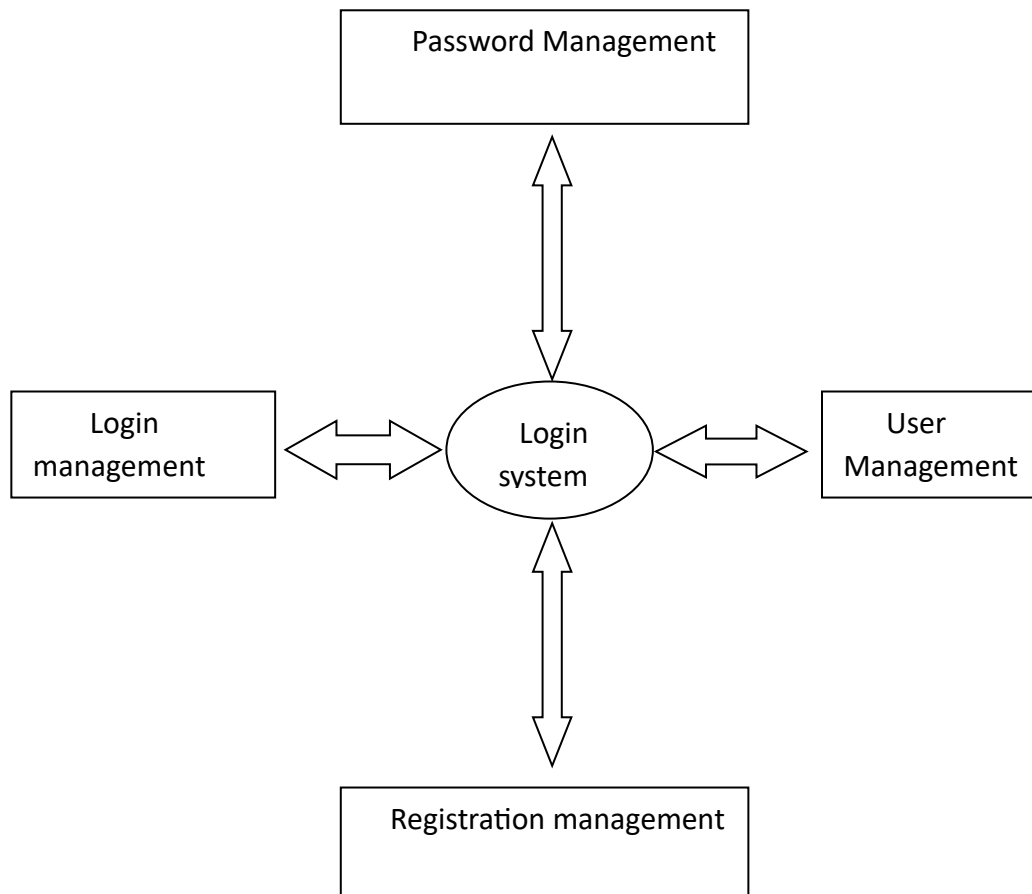
DATA FLOW DIAGRAM NOTATION



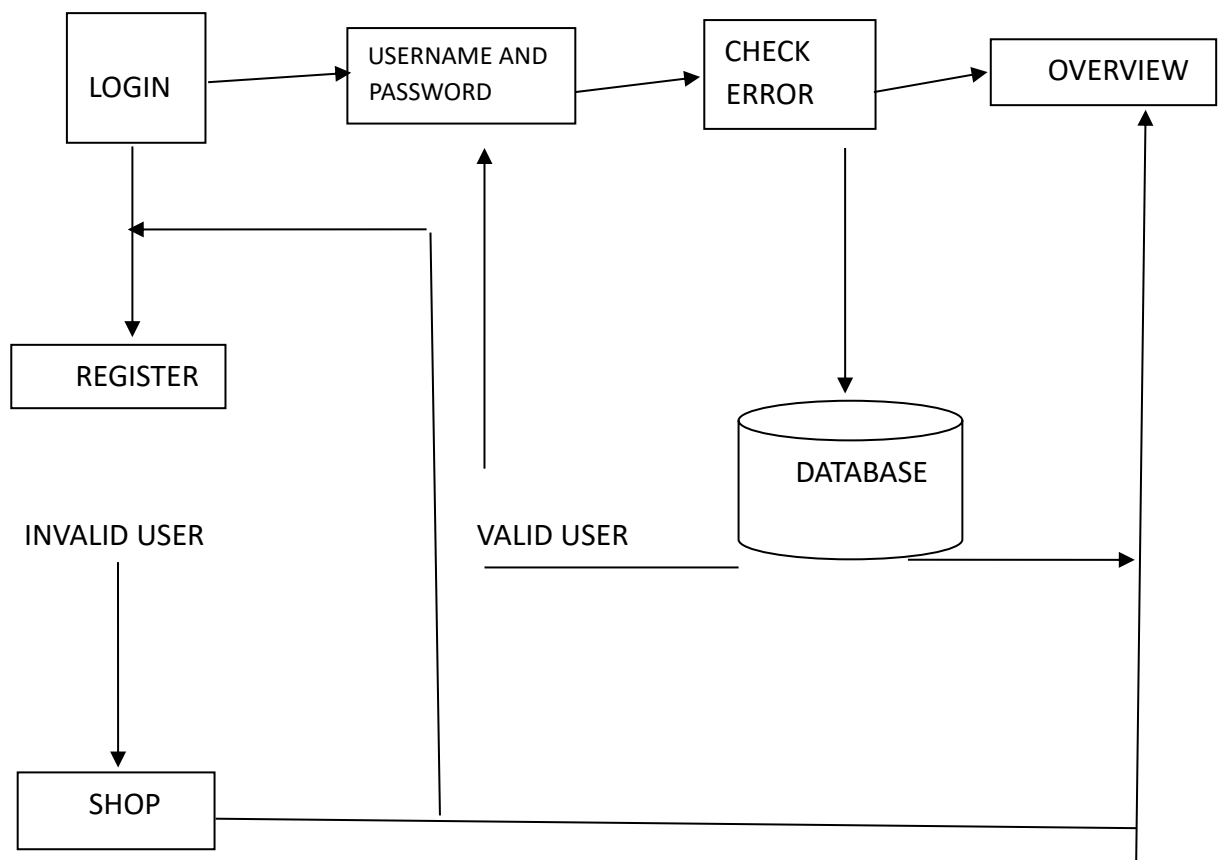
DATABASE

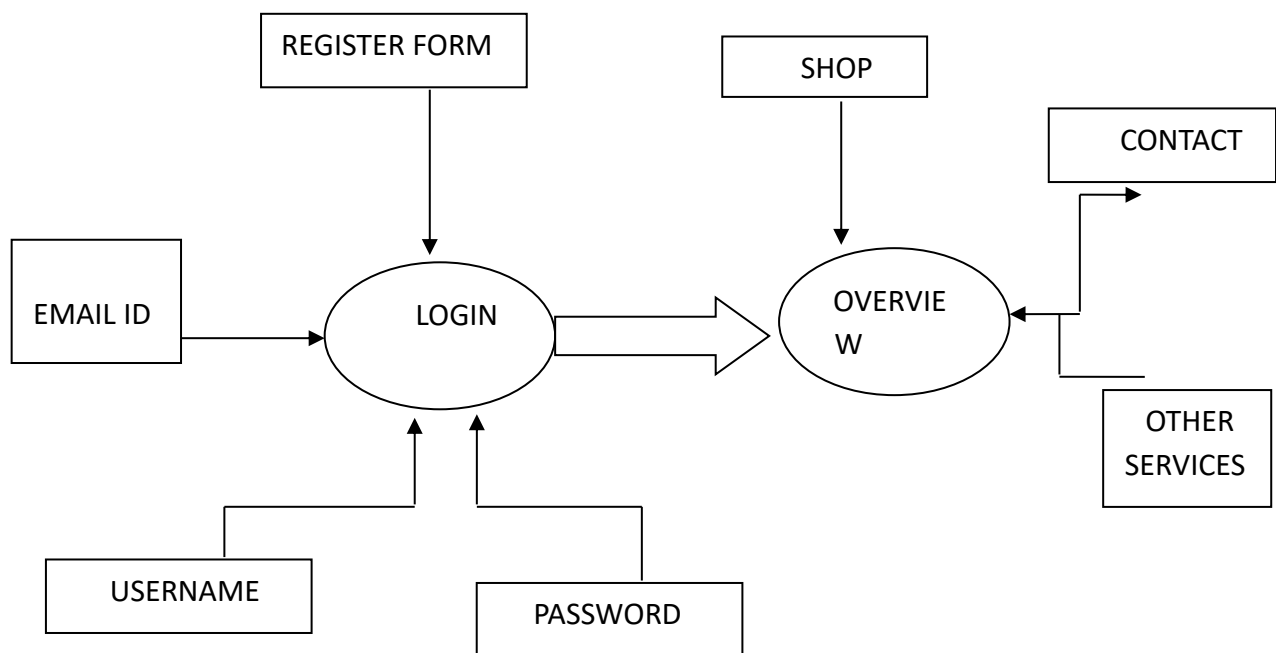


FLOW

DFD LEVEL 0

DFD LEVEL 1



DFD LEVEL 0 1

3. MODULAR DESCRIPTION IN DETAIL

The Pharmacy Store management project aims to develop a comprehensive system that facilitates the efficient management of medicine. This system consists of two main user roles: Admin and User. The Admin is responsible for managing medicines and orders. Users can view the medicines online and add to cart based on their needs. This detailed explanation will cover the functionalities and interactions of each user role in the system.

The online pharmacy management system consists of the following modular components for the admin:

1. User Management:

- Admin can manage user accounts, including registration, login, and profile management.
- Admin can view and update user information, such as contact details and delivery addresses.

2. Medicine Management:

- Admin can add new medicines to the system, including details like name, description, dosage, and price.
- Admin can update existing medicine information, such as stock availability and expiration dates.
- Admin can categorize medicines based on their type or medical condition.
- Admin can search and filter medicines based on various criteria, making it easier to find specific products.

3. Order Management:

- Admin can view and manage customer orders, including order status and payment details.
- Admin can update the order status, such as processing, shipped, or delivered.
- Admin can generate invoices and receipts for completed orders.
- Admin can handle order cancellations or modifications requested by customers.

4. Inventory Management:

- Admin can monitor and track the stock levels of medicines.
- Admin can receive notifications or alerts when stock levels are low or when certain medicines are about to expire.

4. TECHNICAL DESCRIPTION

The technical description of the Pharmacy Store Management project provides a detailed explanation of the underlying technology and architecture used to develop and implement the system. This section focuses on the technical aspects of the system, including the software, hardware, databases, and frameworks involved. The following points outline the key components of the technical description:

System Architecture

1. **Client-Server Architecture:** The Pharmacy Store Management follows a client-server architecture, where clients (web browsers or mobile applications) interact with the central server to request and process data. This architecture enables a distributed and scalable system.
2. **Three-Tier Architecture:** The system employs a three-tier architecture consisting of the presentation layer, application layer, and data layer. The presentation layer handles user interfaces, the application layer contains the business logic, and the data layer manages the storage and retrieval of data.

Programming Languages and Frameworks:-

1. **Front-End Development:** The front-end of the system is developed using HTML, CSS. Additionally, frameworks such as React or Angular are used to enhance the user interface and provide a dynamic and responsive experience.
2. **Back-End Development:** The back-end of the system utilizes server-side programming languages such as Python, Node.js. These languages provide the necessary functionality to handle requests, process data, and interact with the database.

- Database Management:-

1. Database System: The Pharmacy Store Management employs a relational database management system (RDBMS) such as MySQL. The RDBMS stores and manages the data related to users, faculty members, visitor entries, appointments, and visitor history.
2. Database Design: The database is designed using appropriate entity-relationship modeling techniques, ensuring data integrity, normalization, and efficient query processing. Tables are created to store user information, faculty details, visitor entries, appointments, and other relevant data.

- Security Measures:-

1. User Authentication: The system incorporates secure user authentication mechanisms to verify the identity of administrators, faculty members, and visitors. This includes password hashing, encryption, and the use of secure protocols.
2. Access Control: Role-based access control (RBAC) is implemented to manage user permissions and restrict access to sensitive functionalities and data. This ensures that only authorized users can perform specific actions within the system.
3. Data Protection: Medicine data and sensitive information are securely stored and protected through encryption and access control mechanisms. Data encryption is employed during data transmission and storage to prevent unauthorized access and maintain data confidentiality.

Integration and APIs:-

1. **Integration with External Systems:** The Pharmacy Store Management may integrate with other existing systems within the organization, such as LDAP for user authentication or CRM systems to synchronize visitor data.
2. **APIs and Web Services:** The system exposes APIs or web services to facilitate data exchange and integration with external systems or third-party applications. These APIs allow authorized systems to interact with the Pharmacy Store Management and retrieve or update relevant data.

Scalability and Performance:-

1. **Caching Mechanisms:** To improve performance, caching mechanisms like in-memory caching or content delivery networks (CDNs) can be utilized to store frequently accessed data closer to the users, reducing response times.
2. **Load Balancing:** To distribute incoming traffic and ensure high availability, load balancing techniques can be implemented. This involves distributing requests across multiple servers or using load balancing software or hardware.
3. **By implementing caching mechanisms and load balancing techniques,** the Pharmacy Store Management can achieve improved performance and scalability. Caching frequently accessed data reduces database load and response times, while load balancing evenly distributes user requests to maintain high availability and efficient resource utilization. These measures contribute to a seamless user experience, increased system responsiveness, and the ability to handle growing user loads.

5.CODE SNIPPETS

Login Page

```
<form class="my-3" method="POST" action="/login">

    <div class="row">
        <div class="col-md-4"></div>

        <div class="col-md-4">
<b>

                <h2 class="card-title text-center">Login</h2>
                <p class="card-text text-center">Please Enter your
account details.</p>

                <label for="username" class="form-label">Enter Your
Username:</label>

                <div class="input-group mb-3">
                    <span class="input-group-text"
id="spusername">@</span>
                    <input type="text" id="username" name="username"
class="form-control" placeholder="Username"
                    aria-label="Username" aria-describedby="basic-
addon1" required>
                </div>

                <label for="password" class="form-label">Enter Your
Password:</label>

                <div class="input-group mb-3">
                    <span class="input-group-text"
id="sppassword">@</span>
                    <input type="password" id="password"
name="password" class="form-control" placeholder="Password"
                    aria-label="Password" aria-describedby="basic-
addon1" required>
                </div>

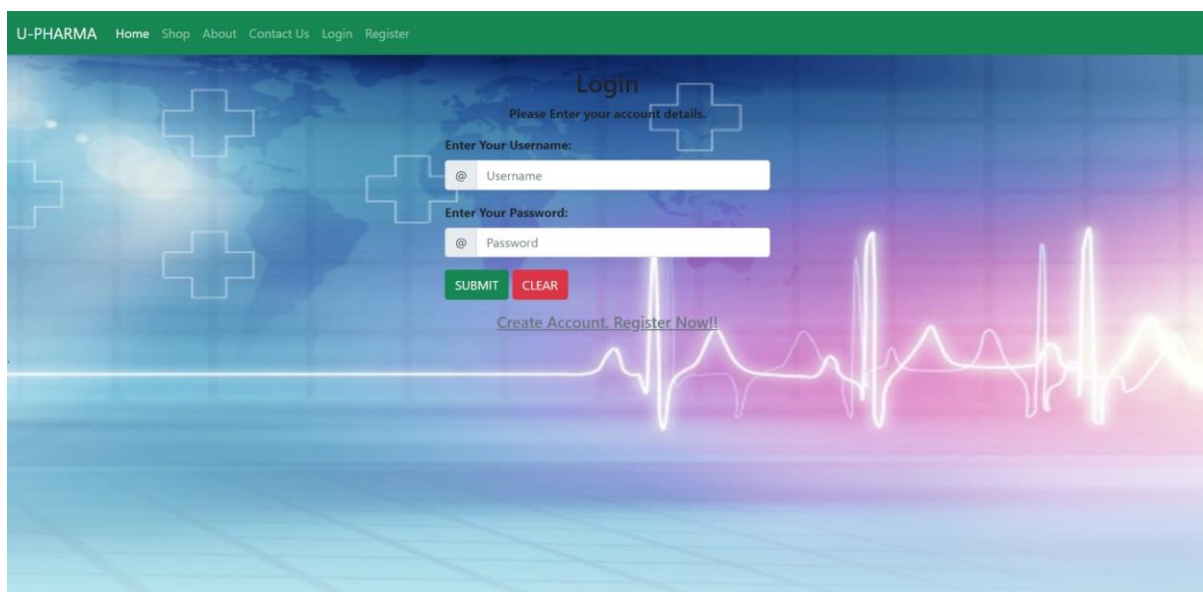
                <h5 class="text-danger">{{msg}}</h5>
                    <button class="btn btn-success"
type="submit">SUBMIT</button>
```

```
                                <button class="btn btn-danger"
type="reset">CLEAR</button>
                                <h5 class="text-center my-3"><a href="/register"
class="link-secondary">Create Account. Register Now!!</a> </h5>

                                </div>
                                </div>

                                </div>
                                </b>

                                </form>
```



Connecting to Database

```
@app.post("/review", response_class=HTMLResponse)
def review_page(request: Request, mreviews:str = Form(...)):
    with sqlite3.connect("app.db") as con:
        cur = con.cursor()
        review_query = "INSERT into reviews(review)
values('{}').format(mreviews)
        cur.execute (review_query)
        con.commit()
        return RedirectResponse("/", status_code=status.HTTP_302_FOUND)
app.post("/register", response_class=HTMLResponse)
def do_register(request: Request, username: str = Form(...), password: str =
Form(...), email: str = Form(...),
        address: str = Form(...), phone: str = Form(...)):
    with sqlite3.connect(DATABASE_NAME) as con:
        cur = con.cursor()
        cur.execute("INSERT into users(username, password, email, address,
phone) values(?,?,?,?,?)",
        (username, password, email, address, phone))
        con.commit()
        return RedirectResponse("/login", status_code=status.HTTP_302_FOUND)
```



```
@app.get("/shop", response_class=HTMLResponse)
def shop(request: Request):
    con = sqlite3.connect(DATABASE_NAME)
    con.row_factory = sqlite3.Row
    cur = con.cursor()
    cur.execute("select * from products")
    plants = cur.fetchall()
    con.close
    return templates.TemplateResponse("shop.html", {"request": request,
"plants": plants})
```

U-PHARMA Home Shop About Contact Us Login Register

MEDICINE



Name: PARACETAMOL TABLETS IP
Tags: FEVER,COLD,BODY PAIN
Category: Fever
Price: 30

[More Details](#)



Name: LEVOCETIRIZINE TABLET
Tags: COLD,ALLERGY,ITCHING
Category: ALLERGY
Price: 50

[More Details](#)



Name: TELIMISARTAN
Tags: BLOOD PRESSURE, HEART PROBLEM
Category: BLOOD PRESSURE
Price: 60

[More Details](#)



Name: NIMESULIDE TABLETS
Tags: BODY PAIN, HEADACHE, LIGHT FEVER
Category: BODY PAIN
Price: 50

[More Details](#)



Name: AZITHROMYCIN TABLETS I.P
Tags: ANTI-BIOTIC, FEVER, COUGH
Category: ANTI-BOITIC
Price: 70

[More Details](#)



Name: BROMHEXINE TABLETS
Tags: COUGH TABLET
Category: Plants
Price: 40

[More Details](#)



Name: VITAMIN B COMPLEX (15's)
Tags: VITAMIN
Category: Plants
Price: 75

[More Details](#)



Name: METFORMIN HYDROCHLORIDE PROLONGED-RELEASE AND GLIMEPIRIDE TABLETS IP
Tags: DIABETIC DRUGS
Category: DIABETIC DRUGS
Price: 55

[More Details](#)



Name: PANTOPRAZOLE TABLET
Tags: GASTIC, ACID REFLUX, STOMACH PAIN
Category: ACIDITY
Price: 55

[More Details](#)

```
@app.get("/addtocart", response_class=HTMLResponse ())
    cur.execute("INSERT into carts(pid, qty, uid) values(?,?,?)",
                (pid, qty, uid))
    con.commit()
    return RedirectResponse("/cart", status_code=status.HTTP_302_FOUND)
@app.get("/cart", response_class=HTMLResponse)
def cart(request: Request):
    if not request.session.get('isLogin'):
        return RedirectResponse('/login', status_code=status.HTTP_302_FOUND)

    uid = request.session.get('uid')

    con = sqlite3.connect(DATABASE_NAME)
    con.row_factory = sqlite3.Row
    cur = con.cursor()
    cur.execute("SELECT *,c.id as cid from USERS u,carts c, products p where
u.id=c.uid and c.pid=p.id and c.uid=?", [uid])
    items = cur.fetchall()
    total = sum(map(lambda item: int(item['qty']) * int(item['price']), items))
    con.close
    return templates.TemplateResponse("/cart.html", {"request": request,
"items": items, "total" :total})
```

U-PHARMA [Home](#) [Shop](#) [About](#) [Contact Us](#) [Cart](#) [My Orders](#) [Hey, yuval](#) [Logout](#)

My Orders

#	Tablet Name	Qty	Total Price	Status	Date
5	PARACETAMOL TABLETS IP	1	30	ORDERED	28/01/2022 20:22:46
7	TELIMISARTAN	1	60	ORDERED	30/01/2022 23:07:29
8	METFORMIN HYDROCHLORIDE TABLETS	2	110	ORDERED	30/01/2022 23:07:52
9	PARACETAMOL TABLETS IP	1	30	ORDERED	31/01/2022 14:59:20
12	PARACETAMOL TABLETS IP	1	30	ORDERED	26/02/2022 12:55:30

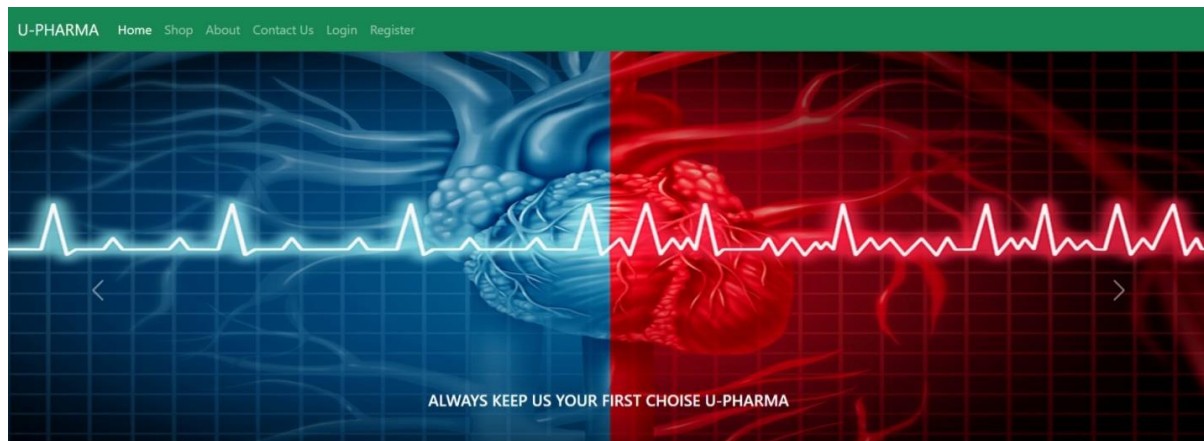
Importing Modules

```
from ast import For
from datetime import datetime
import re
from turtle import st
from fastapi import APIRouter
from fastapi import FastAPI, Request, Cookie
from fastapi.params import Form
from fastapi.responses import HTMLResponse
from fastapi.staticfiles import StaticFiles
from fastapi.templating import Jinja2Templates
import sqlite3
import starlette.status as status
from starlette.middleware.sessions import SessionMiddleware
from starlette.responses import RedirectResponse, Response
from fastapi.security import HTTPBasic, HTTPBasicCredentials
import products
import user
import cart
```

Error handling

```
@router.post("/login", response_class=HTMLResponse)
def do_login(request: Request, response: Response, username: str = Form(...), password: str = Form(...)):
    con = sqlite3.connect(DATABASE_NAME)
    con.row_factory = sqlite3.Row
    cur = con.cursor()
    user = cur.fetchone()
    if not user:
        raise HTTPException(status_code=404, detail="Wrong Login id or password.Contact Admin")
    return templates.TemplateResponse("/login.html", {"request": request, "msg": "Invalid Username or Password"})
    else:
        request.session.setdefault("isLogin", True)
        request.session.setdefault('username', user['username'])
        request.session.setdefault('uid', user['id'])
        return RedirectResponse("/", status_code=status.HTTP_302_FOUND)
```

Home Page



Main Module

```
router = APIRouter()
security = HTTPBasic()

# configuring the static, which serve static
router.mount("/static", StaticFiles(directory="static"), name="static")

# adding the Session Middleware
#router.add_middleware(SessionMiddleware, secret_key='MyApp')

# configuring the HTML pages
templates = Jinja2Templates(directory="templates")

#constant name for DATABASE_NAME
DATABASE_NAME = "app.db"

class user:

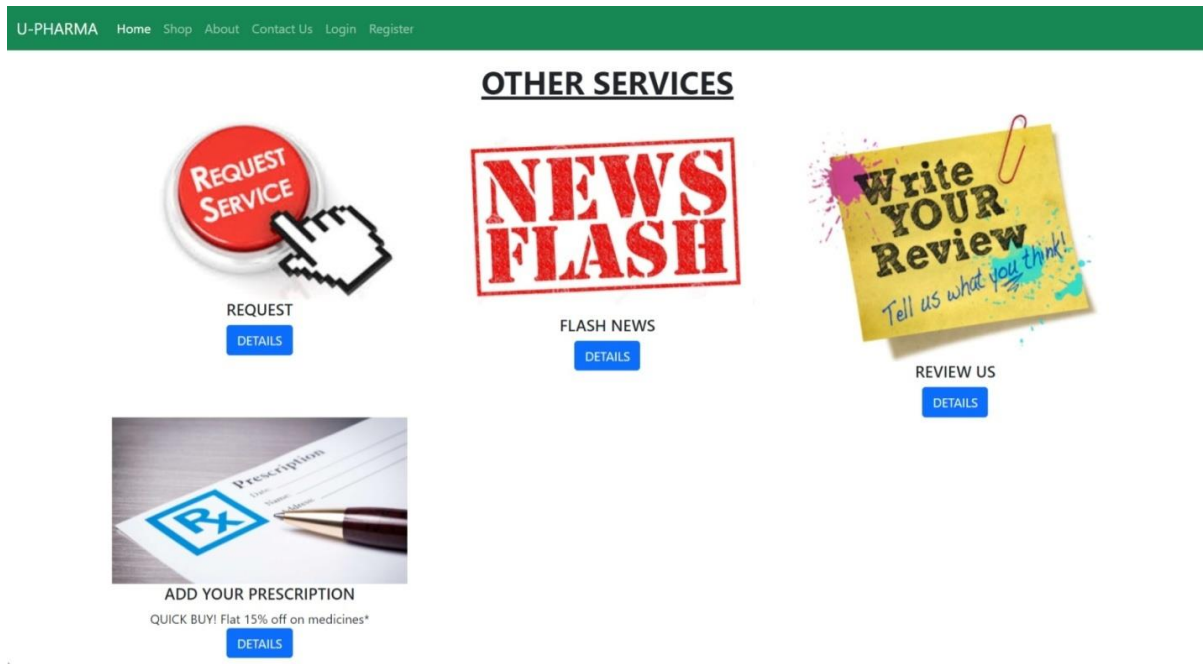
    @router.get("/register", response_class=HTMLResponse)
```

```
def register(request: Request):
    return templates.TemplateResponse("register.html", {"request":
request})

@router.post("/register", response_class=HTMLResponse)
def do_register(request: Request, username: str = Form(...), password: str
= Form(...), email: str = Form(...),
                address: str = Form(...), phone: str = Form(...)):
    with sqlite3.connect(DATABASE_NAME) as con:
        cur = con.cursor()
        cur.execute("INSERT into users(username, password, email, address,
phone) values(?,?,?,?,?)",
                    (username, password, email, address, phone))
        con.commit()
    return RedirectResponse("/login", status_code=status.HTTP_302_FOUND)

@router.get("/login", response_class=HTMLResponse)
def login(request: Request):
    return templates.TemplateResponse("login.html", {"request": request})

@router.post("/login", response_class=HTMLResponse)
def do_login(request: Request, response: Response, username: str =
Form(...), password: str = Form(...)):
    con = sqlite3.connect(DATABASE_NAME)
    con.row_factory = sqlite3.Row
    cur = con.cursor()
    cur.execute("select * from users where username =? and password=?",
[username, password])
    user = cur.fetchone()
    if not user:
        raise HTTPException(status_code=404, detail="Wrong Login id or
password.Contact Admin")
    return templates.TemplateResponse("/login.html", {"request":
request, "msg": "Invalid Username or Password"})
    else:
        request.session.setdefault("isLogin", True)
        request.session.setdefault('username', user['username'])
        request.session.setdefault('uid', user['id'])
        return RedirectResponse("/", status_code=status.HTTP_302_FOUND)
```



Admin module

```
router = APIRouter()
security = HTTPBasic()

# configuring the static, which serve static
router.mount("/static", StaticFiles(directory="static"), name="static")

# adding the Session Middleware
#router.add_middleware(SessionMiddleware, secret_key='MyApp')

# configuring the HTML pages
templates = Jinja2Templates(directory="templates")

#constant name for DATABASE_NAME
DATABASE_NAME = "app.db"

class admins:

    @router.get("/admin/", response_class=HTMLResponse)
```

```
def admin_index(request: Request):
    return templates.TemplateResponse("/admin/index.html", {"request":
request})

@router.post("/admin/", response_class=HTMLResponse)
def admin_index(request: Request, username: str = Form(...), password: str
= Form(...)):
    con = sqlite3.connect(DATABASE_NAME)
    con.row_factory = sqlite3.Row
    cur = con.cursor()
    cur.execute("select * from admin where username =? and password=?",
[username, password])
    admin = cur.fetchone()
    if not admin:
        return templates.TemplateResponse("/admin/index.html", {"request":
request, "msg": "Invalid Username or Password"})
    else:
        request.session.setdefault("isLogin", True)
        request.session.setdefault('username', admin['username'])
        request.session.setdefault('uid', admin['id'])
        request.session.setdefault('role', admin['role'])
        return RedirectResponse("/admin/dashboard",
status_code=status.HTTP_302_FOUND)

@router.get("/admin/dashboard", response_class=HTMLResponse)
def dashboard(request: Request):
    con = sqlite3.connect(DATABASE_NAME)
    con.row_factory = sqlite3.Row
    cur = con.cursor()
    cur.execute("select * from products")
    products = cur.fetchall()
    con.close
    return templates.TemplateResponse("/admin/dashboard.html", {"request":
request, "items": products})

@router.get("/promo", response_class=HTMLResponse)
def promo(request: Request):
    return templates.TemplateResponse("/admin/promo.html", {"request":
request})
```

```
@router.get("/admin/products", response_class=HTMLResponse)
def admin_products(request: Request):
    con = sqlite3.connect(DATABASE_NAME)
    con.row_factory = sqlite3.Row
    cur = con.cursor()
    cur.execute("select * from products")
    products = cur.fetchall()
    con.close()
    return templates.TemplateResponse("/admin/products.html", {"request":
request, "products": products})

@router.get("/admin/products/create", response_class=HTMLResponse)
def admin_products_create(request: Request):
    return templates.TemplateResponse("/admin/products_create.html",
{"request": request})

@router.post("/admin/products/create", response_class=HTMLResponse)
def admin_products_create(request: Request, pname:str = Form(...), price:
str = Form(...), image: str = Form(...), details: str = Form(...), tags: str =
Form(...), category:str = Form(...)):
    with sqlite3.connect(DATABASE_NAME) as con:
        cur = con.cursor()
        cur.execute("INSERT into products(name, price, details, image, tags,
category) values(?, ?, ?, ?, ?, ?)",
                    (pname, price, details, image, tags, category))
        con.commit()
    return
RedirectResponse("/admin/products",status_code=status.HTTP_302_FOUND)

@router.get("/admin/orders", response_class=HTMLResponse)
def admin_orders(request: Request):
    con = sqlite3.connect(DATABASE_NAME)
    con.row_factory = sqlite3.Row
    cur = con.cursor()
    cur.execute("SELECT *, o.id as oid from users u, products p, orders o
where o.uid = u.id and o.pid = p.id")
    orders = cur.fetchall()
```



```
        con.close
        return templates.TemplateResponse("/admin/orders.html", {"request":
request, "orders": orders})

    @router.get("/admin/logout", response_class=HTMLResponse)
    def admin_logout(request: Request):
        return templates.TemplateResponse("/admin/logout", {"request":
request})

    @router.get("/admin/products_edit/{pid}", response_class=HTMLResponse)
    def admin_product_edit(request: Request, pid: int = 0):
        return templates.TemplateResponse("/admin/products_edit.html",
{"request": request})

    @router.get("/admin/products_delete/{pid}", response_class=HTMLResponse)
    def admin_product_delete(request: Request, pid: int = 0):
        return RedirectResponse("/admin/products",
status_code=status.HTTP_302_FOUND)

    @router.get("/admin/orders", response_class=HTMLResponse)
    def admin_orders(request: Request):
        return templates.TemplateResponse("/admin/orders.html", {"request":
request})

    @router.get("/admin/orders_view/{oid}", response_class=HTMLResponse)
    def admin_order_view(request: Request, oid: int = 0):
        return templates.TemplateResponse("/admin/orders_view.html",
{"request": request})
```

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Admin Login

Please Enter your details.

Enter Your Username:

Enter Your Password:

[SUBMIT](#) [CLEAR](#)

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My Orders

#	Tablet Name	Qty	Total Price	Status	Date
5	PARACETAMOL TABLETS IP	1	30	ORDERED	28/01/2022 20:22:46
7	TELIMISARTAN	1	60	ORDERED	30/01/2022 23:07:29
8	METFORMIN HYDROCHLORIDE TABLETS	2	110	ORDERED	30/01/2022 23:07:52
9	PARACETAMOL TABLETS IP	1	30	ORDERED	31/01/2022 14:59:20
12	PARACETAMOL TABLETS IP	1	30	ORDERED	26/02/2022 12:55:30

PRODUCTS CREATE

Products

Please Enter the Products details.

Enter Product Name :
@ Product name

Enter Product Price :
@ Product price

Enter Product Image :
@ Product image

Enter Product details :
@ Product details

Enter Product tags :
@ Product tags

Enter Product category :
PARCETMOL

SUBMIT

CLEAR

Dashboard

stock

#	Medicine	Stocks
1	PARACETAMOL TABLETS IP	50
2	LEVOCETIRIZINE TABLET	49
3	TELIMISARTAN	50
4	NIMESULIDE TABLETS	50
5	AZITHROMYCIN TABLETS I.P	50
6	BROMHEXINE TABLETS	50
7	VITAMIN B COMPLEX (15's)	50
8	METFORMIN HYDROCHLORIDE TABLETS	50
9	PANTOPRAZOLE TABLET	50

Product Request

NAME	Date
inhaler (levolin)	2022-03-09T09:00

PROMO

[coming up, promo](#)

PAYMENT SUMMARY

[ALL PAYMENTS](#)

CHAT BOX

[CHAT BOX](#)

6. CONCLUSION

UPharmacy management system is actually a software which handles the essential data of medicines and actually about the database of a pharmacy and its management. It provides the statistics about medicines or drugs which are in stocks which data can also be updated and edited. It works as per the requirements of the user and have options accordingly. This software also has ability to provide offers on medicines etc. there is other function available too. The main purpose is effectively and easily handling of pharmacy data and its management. We've learnt a lot through this project. This project has sharpened our concept of software-hardware interface. We've learnt a lot about different documentation. This project has not only tested our technical skills but has also tested our temperament. There were times that we lost hope but we recovered through constant concentration and hard work. If you have any kind of suggestion, improvements, more efficient development idea please feel free to communicate with us.

FUTU RE ENHANCEMENT

- DEALING WITH PRESCRIPTIONS
- CASH ON DELIVERY MODE

REFERENCES

Books:

1. "Learning Python" by Mark Lutz
2. "Python: Python Programming For Beginners" by Adam Stark

Reference Links:

1. Python Weekly is a curated newsletter that delivers the latest news, articles, tutorials, and releases related to Python. It's a great resource to stay up to date with Python community.

<https://www.pythonweekly.com/>

2. PyPi is the official repository for Python packages. It hosts a vast collection of open-source Python libraries and modules. You can search for specific packages and find their documentation, usage examples, and installation instructions -- <https://pypi.org/>

3. "Python Django Web Framework - Full Course for Beginners" by freeCodeCamp.org
-- [<https://www.youtube.com/watch?v=E5mRWOjo-U4>]
-- [<https://www.youtube.com/watch?v=E5mRWOjo-U4>]

4. "Django Tutorials" by thenewboston :
-- [<https://www.youtube.com/playlist?list=PL6gx4Cw19DGBImzz.FcLgDhKTTINLIX11K>]
-- (<https://www.youtube.com/playlist?list=PL6gx4Cw19DGBImzz.FcLgDhKTTINLIX11K>)