## भारतीय सूचना प्रौद्योगिकी संस्थान भागलपुर
### INDIAN INSTITUTE OF INFORMATION TECHNOLOGY BHAGALPUR
(An Institute of National Importance under Act of Parliament)

75 Azadi Ka Amrit Mahotsav

**COURSE CODE :- SAI-2**

**(SOCIETY ACADEMIA INTERNSHIP)**

# TITLE - OPTIMISATION OF MEDICINE SALES (WRITEUP)

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# About our problem statement:

**How have we observed this problem in various section of society:**

- **Decline in business of local (offline) pharmacies**
  Traditional pharmacies argue that e-pharmacies have cost advantages, as they may not have the same operational expenses, such as maintaining a physical storefront.
  These conflicts have led to legal battles, protests, and lobbying efforts on both sides.



- **Prevention of wastage of time and energy for customers**
  In case of a medical emergencies people waste a lot of time in searching for medicines in stores nearby

- **Lack of regulation in e-pharmacies (as pointed out by Drugs Controller General of India (DCGI))**

- The absence of uniform regulations for e-pharmacies across various states in India has been a source of frustration as epharmacies like Pharmeasy and Tata1mg sell schedule H drugs without license like alprazolam, diazepam, amphetamine etc.



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# Why DCGI served a show-cause notice on e-pharmacies

*Online pharmacies do not comply with licence conditions like selling against a prescription, maintaining records about the sale of Schedule H drugs, and more, which can lead to drug abuse and self-medication.*

AYUSHMAN KUMAR | FEBRUARY 13, 2023 / 06:43 PM IST

At least 20 prominent e-pharmacies that sell and distribute medicines online have been served a show-cause notice by the Drug Controller General of India (DCGI) for violating the provisions of the Drugs and Cosmetics Act, 1940, and the Drugs and Cosmetics Rules, 1945.

Among the prominent names that have been served with this notice are Tata1mg, Flipkart Health+, Practo, PharmEasy, and Amazon.

The apex drug watchdog has said that these platforms have been retailing drugs not permitted for sale without a proper licence.

# How can we contribute in order to solve this problem

> **Provide an online platform for local pharmacies to connect.** Allow multi-channel marketing by combining online and offline marketing efforts to create a cohesive brand presence that appeals to a broader audience.

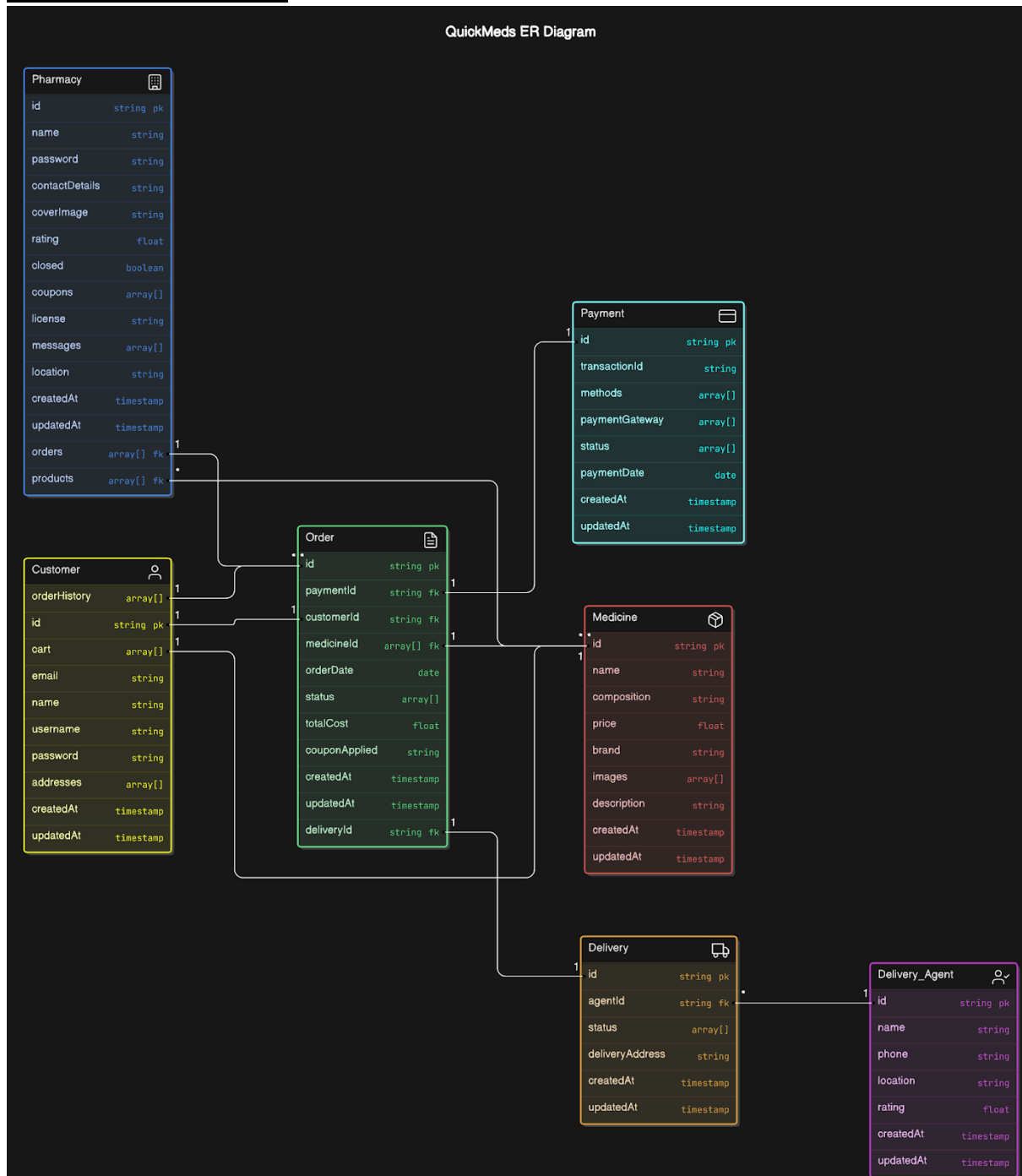➢ **Display nearby pharmacies on the map as per location of customer.**
Helps significantly improve the convenience of customers by making use of geolocation services, interactive map interface, filtering options and search functionalities.

➢ **Keep a real time database of available medicines in stores.** This database will be updated in real time based on transaction slips and e-bills, physical bills can be read by an image to text extractor API such as Google Cloud Vision API.

# HOW DIFFERENT TECHNOLOGIES CAN BE UTILISED FOR OUR IDEA

➢ **Backend services -** NodeJS + Express JS

➢ **Database services –** PostgreSQL (DB) + Sequelize (ORM)

➢ **Frontend services –** HTML + CSS+ React.js + Redux toolkit

➢ **Encrypted System** - JWT + bcypt/bcyptjs

➢ **Real Time Media Processing -** imageKit.io + multer

➢ **Notifications and Order Confirmation -** Nodemailer

➢ **Payment Gateway Integration –** Razorpay API

# Database Model



QuickMeds ER Diagram

Model Link:
https://app.eraser.io/workspace/aShn3F9Da0oxf0PgTuB2?origin=share&elements=lHe4YlAoWFPmMEG-rlKhcg

# REVENUE MODEL (for future)

- **Commission-Based Model**: Establish a commission-based revenue model in which the platform collects a small percentage from each sale made by partner pharmacies, ensuring a continuous income stream while incentivizing pharmacies to increase sales through the app.

- **Subscription Service**: Introduce a subscription service that offers customers enhanced benefits, such as faster delivery times, exclusive discounts, and special promotions, creating ongoing value that encourages customer loyalty and repeat business.

- **Ad Revenue**: Create an advertising model that enables pharmacies to invest in featured or sponsored listings on the platform, significantly enhancing their visibility to potential customers and improving their chances of attracting new clients effectively.

## Solution to Reach Rural Areas from Nearest Cities for Medicine Delivery :-

### Finding Nearest Cities Using Geolocation
1. By utilizing geolocation technology to automatically identify a user's location, the system can effectively connect them to nearby cities, facilitating faster service and providing more relevant options for medicine delivery tailored to their needs.

**Collaboration with Government and NGOs for Delivery –**

1. **Leverage Government Schemes**: Form strategic partnerships with government healthcare initiatives to ensure compliance with regulations while also utilizing existing rural healthcare infrastructure for more efficient service delivery and enhanced accessibility.
2. **NGO Partnerships**: Collaborate with non-governmental organizations that are already established in the rural health sector, leveraging their expertise and networks for effective distribution support and outreach to underserved communities in need of medical assistance.

## FUTURE PLANS

**Mobile Application**: Develop a user-friendly mobile app that enhances customer experience, streamlines medicine ordering, and provides real-time tracking and notifications for deliveries.

**Geo-Location Feature**: Integrate a geo-location service to help users find nearby pharmacies quickly, enabling faster delivery and ensuring location-based order prioritization.

**Prescription Field and Verification**: Implement a secure prescription upload field and automated verification system, ensuring compliance with regulations and safe dispensing of prescribed medications.

**PDF Scanner Implementation**: Develop a PDF scanning feature that reads e-bills, automatically extracting key data and updating the vendor database in real-time for accurate record-keeping.

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