



**Jean Coutu**

# Rule-Based Chatbot

# "PILPAL"

---

**GROUP 12**

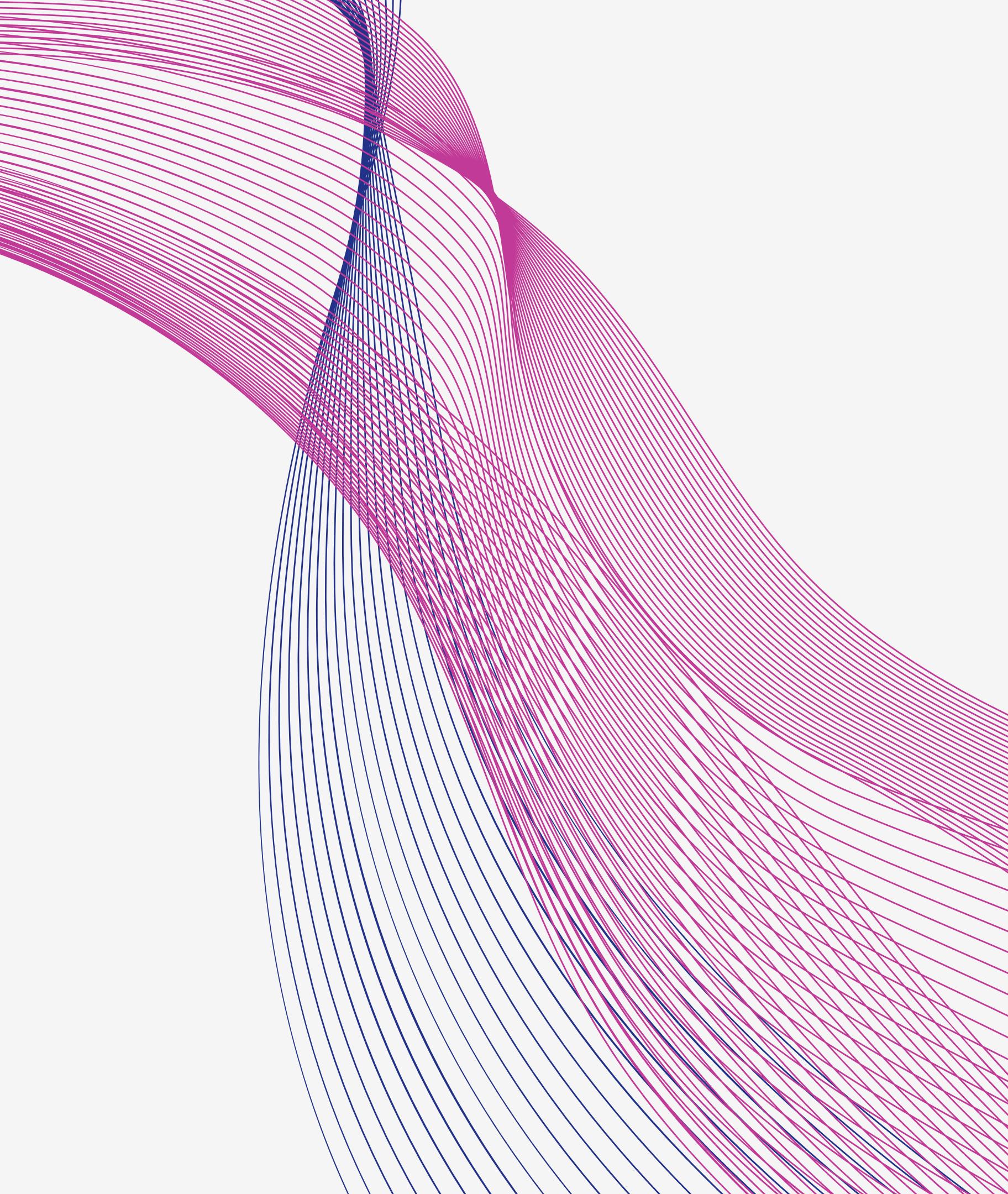
**Avi Malhotra  
Syed Ammad Sohail  
Moiz Shaikh**



---

# HISTORY

- A reputable Canadian pharmacy retailer, opened in 1969.
- Broad spectrum of products available including prescription medications, over-the-counter drugs, health, personal care and beauty items.
- Well-known in the health and wellness industry.
- Strong commitment to quality.
- Extensive network of stores spread across Canada.



# PROBLEM STATEMENT

---

**From firsthand experience:**

1. There have been long queues / waiting time for services.
2. Many stores (such as St. Catherine, Downtown) are short-staffed.
3. Inconvenient for customers to travel to the store and get their minor queries resolved.

# Proposed SOLUTION

We developed a rule-based chatbot "PillPal" that fosters customer loyalty and satisfaction.

**24/7 support**, addressing unlimited customers queries, any time they want.

**Exclusion of waiting time**, preventing customers to visit stores for minor queries and eliminating distress and discomfort caused during the conventional process.

**Immediate assistance**, providing customers a platform to inquire regarding key challenges and issues that might require urgent attention.

# CUSTOMER ENGAGEMENT SCENARIOS

**01** USER  
REGISTRATION

**02** SEARCH AND  
ORDER MEDICINE

**03** RECOMMEND  
MEDICINE

**04** LOCATE NEAREST  
STORE

**05** REFILL  
PRESCRIPTION



# USER REGISTRATION

---

- Customers can register themselves, if they are a new user
- Customer is re-directed to Google Forms
- Database calls out to Google spreadsheet API
- Data entered is stored in database

# SEARCH AND ORDER MEDICINE

---

- Users can search the medicine database for medicines by keywords
- If the medicine is available, redirect user to place order
- Else, recommend alternate medicines that are available



# RECOMMEND MEDICINE

Customers input the symptoms they are experiencing or type of medicine they are looking for

## For symptoms input:

Customers are asked to refer to physician in case of complex symptoms

OR

Customers are recommended a particular medicine, providing a detailed description



# LOCATE NEAREST STORE

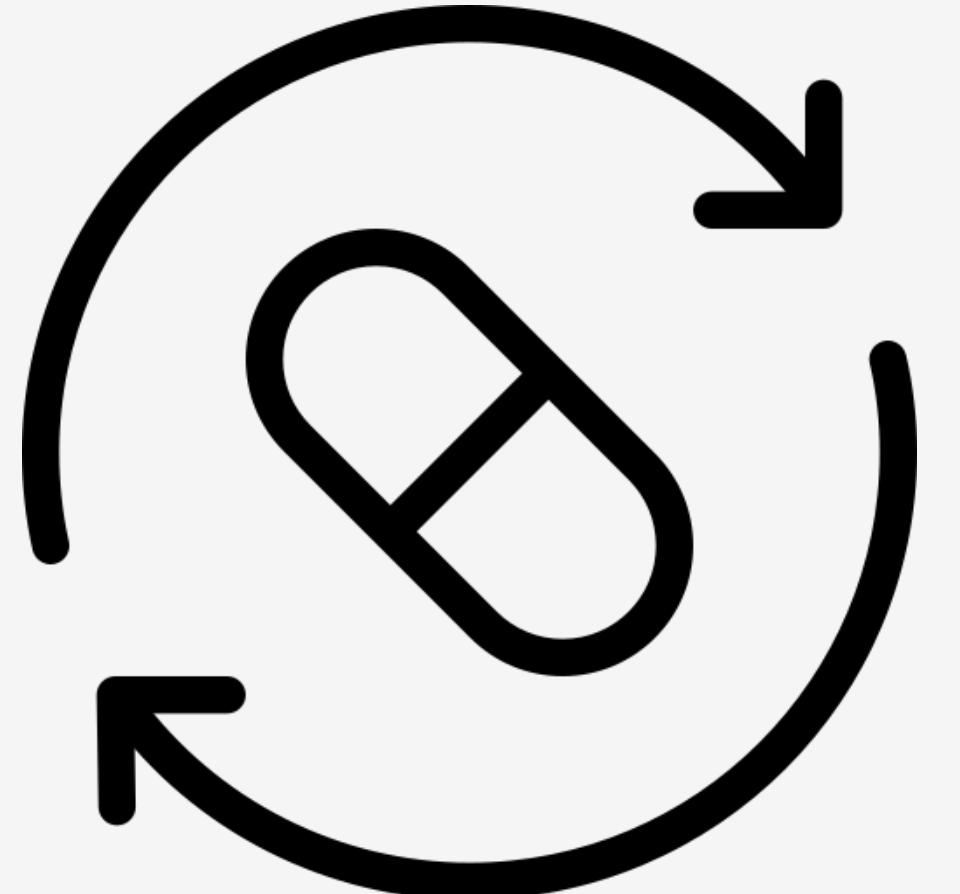
- Customers are asked to permit the chatbot to access their location or manually enter their zip code
- Minimum distance is computed and matched with the nearest store
- Store location is suggested using locations data in database



# REFILL PRESCRIPTION

---

- Each customer is entitled to a specific number of prescription refills, corresponding to their patient ID
- Upon verification, customer can access the remaining refills
- If customers are eligible for a refill, they can place an order for home delivery



# Libraries Used

## pgeocode

- Used to compute distances (in kms) between two postal codes.

## Pandas

- Organize and Store data in a structured manner
- Key features include data frame and data manipulation

## google.oauth2.credentials.Credentials

- Store and manage authentication token and credentials
- It enhances security and efficiency of authentication process

## googleapiclient.errors.HttpError

- Handle HTTP errors that might occur during making API requests
- Allows chatbot to handle errors more elegantly

## google\_auth\_oauthlib.flow.InstalledAppFlow

- Handle OAuth2 authentication
- Improves user experience by automating authentication flow within the chatbot.

## Random

- Enables variability in responses
- Generate random numbers
- Simulates availability of medicine for the chatbot

## google.auth.transport.requests

- For authenticating and making HTTP requests to Google's authentication servers.
- Secure access to Sheets API without exposing sensitive credentials.

## googleapiclient.discovery.build

- Creates a service object for Google Sheets API
- Allows data to be accessed and fetched by the chatbot.

## Rake

- Uses natural language to tokenize user input.
- Keywords are ranked based on co-occurrence matrix.

## OS

- Efficient authentication
- Avoid unnecessary re-authentication for customers

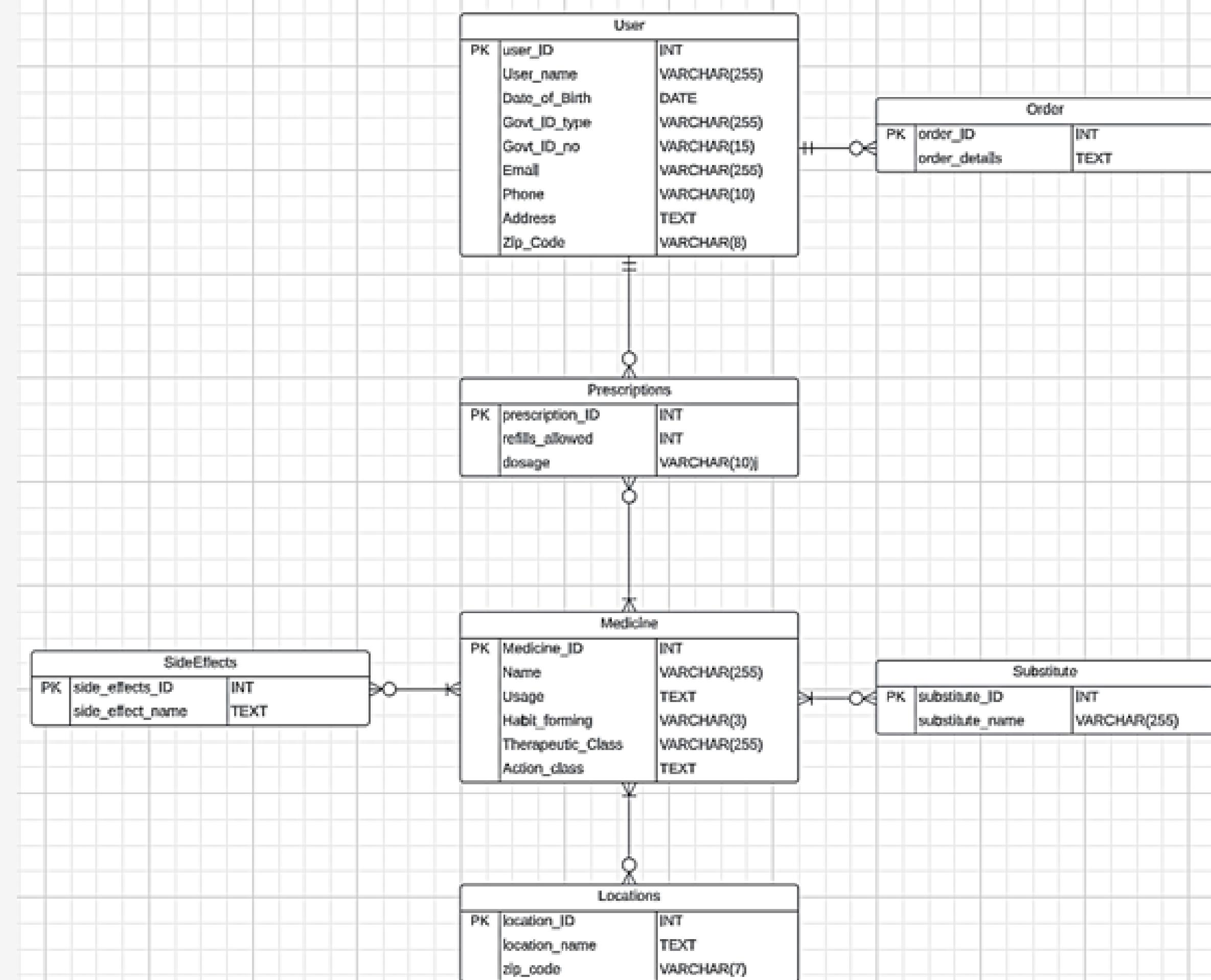
## IPython.display:

- Display data frames
- Allows chatbot to present data more vividly

# BENEFITS OF PILLPAL

- 01** Improved Customer Service & Support.
- 02** Accessibility and Convenience.
- 03** Competitive Advantage.
- 04** Positive Brand Image
- 05** Accessible knowledge about medication and products for customers.
- 06** Cost Optimization.
- 07** Providing valuable recommendations

# Database Schema



USER(USER\_ID, USER\_NAME, DATE\_OF\_BIRTH,  
GOVT\_ID\_TYPE,  
GOVT\_ID\_NO, EMAIL, PHONE, ADDRESS,  
ZIP\_CODE)  
PRIMARY KEY (PK): USER\_ID

ORDER(ORDER\_ID, ORDER\_DETAILS, USER\_ID)  
PK: ORDER\_ID  
FOREIGN KEY (FK): USER\_ID REFERENCES  
USER(USER\_ID)

PREScriptions(PRESCRIPTION\_ID,  
REFILLS\_ALLOWED,  
DOSAGE, USER\_ID, USER\_NAME,  
DATE\_OF\_BIRTH)  
PK: PRESCRIPTION\_ID  
FK: USER\_ID REFERENCES USER(USER\_ID)  
FK: USER\_NAME REFERENCES USER  
(USER\_NAME)  
FK: DATE\_OF\_BIRTH REFERENCES USER  
(DATE\_OF\_BIRTH)

MEDICINE(MEDICINE\_ID, NAME, USAGE,  
HABIT\_FORMING,  
THERAPEUTIC\_CLASS, ACTION\_CLASS)  
PK: MEDICINE\_ID

PREScriptions\_MEDICINE(PRESCRIPTION\_ID,  
MEDICINE\_ID)  
PK: PRESCRIPTION\_ID, MEDICINE\_ID  
FK: prescription\_ID REFERENCES  
Prescriptions(prescription\_ID)  
FK: MEDICINE\_ID REFERENCES  
MEDICINE(MEDICINE\_ID)



# LOGICAL MODEL

SIDEFFECTS(SIDE\_EFFECTS\_ID,  
SIDE\_EFFECT\_NAME)  
PK: SIDE\_EFFECTS\_ID

MEDICINE\_SIDEFFECTS(MEDICINE\_ID,  
SIDE\_EFFECTS\_ID)  
PK: MEDICINE\_ID, SIDE\_EFFECTS\_ID  
FK: MEDICINE\_ID REFERENCES  
MEDICINE(MEDICINE\_ID)  
FK: SIDE\_EFFECTS\_ID REFERENCES  
SIDEFFECTS(SIDE\_EFFECTS\_ID)

LOCATIONS(LOCATION\_ID, LOCATION\_NAME,  
ZIP\_CODE)  
PK: LOCATION\_ID

MEDICINE\_LOCATIONS(MEDICINE\_ID,  
LOCATION\_ID)  
PK: MEDICINE\_ID, LOCATION\_ID  
FK: MEDICINE\_ID REFERENCES  
MEDICINE(MEDICINE\_ID)  
FK: LOCATION\_ID REFERENCES  
LOCATIONS(LOCATION\_ID)

SUBSTITUTE (SUBSTITUTE\_ID,  
SUBSTITUTE\_NAME)  
PK: SUBSTITUTE\_ID

MEDICINE\_SUBSTITUTE(MEDICINE\_ID,  
SUBSTITUTE\_ID)  
PK: MEDICINE\_ID, SUBSTITUTE\_ID  
FK: MEDICINE\_ID REFERENCES  
MEDICINE(MEDICINE\_ID)  
FK: SUBSTITUTE\_ID REFERENCES  
SUBSTITUTE(SUBSTITUTE\_ID)

# Use Case Scenario 1: User registration

Hello, I am PillPal - The Pharma Bot for Jean Coutu. I am here to help you with your needs.

Please select one of the following options so that I can assist you better:

1. This is my first time here, can you please register me as a user?
2. I am looking for a specific medicine.
3. I am feeling unwell and would like to know what medicine I should take.
4. I would like to place an order for some medicine.
5. I would like to know the closest JC Pharma store to me.
6. I would like to refill my prescription.

Note: Please type 'quit' to exit the program at any time 😊

1

Welcome to Jean Coutu! Please register here:

<https://docs.google.com/forms/d/e/1FAIpQLSfykpsjSNPkye9TrR37B9qvP5ms5Hr9s4EOTs6I65qm9CU5w/viewform?fbzx=7672851772923116123>

Have you filled the Google form?

yes, I have!

User added successfully!

Name: Syed Ammad Sohail

Date of Birth: 9/8/1999

ID Type: Permanent Residence Card

ID Number: 12332122

Email: ammadsohail2017@gmail.com

Phone: 4384664396

Address: 1680, Av. Lincoln, Montreal, Quebec

Zip Code: H3H 1G9

# Use Case Scenario 2a: Medicine Search

Hello, I am PillPal - The Pharma Bot for Jean Coutu. I am here to help you with your needs.

Please select one of the following options so that I can assist you better:

1. This is my first time here, can you please register me as a user?
2. I am looking for a specific medicine.
3. I am feeling unwell and would like to know what medicine I should take.
4. I would like to place an order for some medicine.
5. I would like to know the closest JC Pharma store to me.
6. I would like to refill my prescription.

Note: Please type 'quit' to exit the program at any time 😊

2|

Please enter the medicine you are searching for 🔎 :

augmentin

We found the following matches for your search:

augmentin 625 duo tablet  
augmentin duo oral suspension  
augmentin dds suspension  
augmentin 1000 duo tablet  
augmentin 375 tablet  
augmentin 1.2gm injection  
augmentin es oral suspension  
augmentin 375 duo tablet  
augmentin 500mg/100mg injection  
augmentin 250mg/50mg injection

Please select the medicine you are searching for from the list above:

augmentin 375 tablet

augmentin 375 tablet is available at atleast one of our stores. Would you like to place an order for home delivery?

yes

Great! You are now being redirected to enter your delivery information and make the payment.

## Alternate Flow:

- *The chatbot cannot find the medicine in stock*
  - *Recommend alternate substitutes to the medicine*
- *Jean Coutu does not sell the medicine searched by the user*
  - *Return to console*

# Use Case Scenario 2b: Order Placement

Please enter your login details for verification before placing an order:

Please enter your email address:

avi10malhotra@gmail.com

Please enter your registration id number:

12345679

Please enter the details of your order, type 'Done' to finish placing your order:

Please enter the full name of the product you want to order:

augmentin 375 tablet

Please enter the order quantity for augmentin 375 tablet:

3

Please enter the full name of the product you want to order:

done

Thank you for your order!

A representative will contact you to verify the details of your PillPal prescription and you can then proceed with the payment.

Note:

- This use case can also be evoked separately by choosing option 4 from the home screen menu.
- It produces a txt file containing the order details.

# Use Case Scenario 3: Medicine Recommendation

Hello, I am PillPal - The Pharma Bot for Jean Coutu. I am here to help you with your needs.

Please select one of the following options so that I can assist you better:

1. This is my first time here, can you please register me as a user?
2. I am looking for a specific medicine.
3. I am feeling unwell and would like to know what medicine I should take.
4. I would like to place an order for some medicine.
5. I would like to know the closest JC Pharma store to me.
6. I would like to refill my prescription.

Note: Please type 'quit' to exit the program at any time 😊

3

I am sorry to hear that! 😢 Please describe your symptoms or specify the kind of medicine you are looking for :

I have some dry cough

We have the following medicines available :

Name: ascoril d plus syrup sugar free

Usage: treatment of dry cough

Potential Side Effect: Nausea

Chemical Class: nan

Habit Forming: No

Therapeutic Class: RESPIRATORY

Name: alex syrup

Usage: treatment of dry cough

Potential Side Effect: Nausea

Chemical Class: nan

Habit Forming: No

Therapeutic Class: RESPIRATORY

Name: asthakind-dx syrup sugar free

Usage: treatment of dry cough

Potential Side Effect: Nausea

Chemical Class: nan

Habit Forming: No

Therapeutic Class: RESPIRATORY

## Alternate Flow:

- *The symptoms/ user query is too complicated to extract information*
  - *Prompt the user to search using keywords*
  - *Prompt the user to speak to a pharmacist for correct diagnosis*

# Use Case Scenario 4: Nearest Store Locator

Hello, I am PillPal - The Pharma Bot for Jean Coutu. I am here to help you with your needs.

Please select one of the following options so that I can assist you better:

1. This is my first time here, can you please register me as a user?
2. I am looking for a specific medicine.
3. I am feeling unwell and would like to know what medicine I should take.
4. I would like to place an order for some medicine.
5. I would like to know the closest JC Pharma store to me.
6. I would like to refill my prescription.

Note: Please type 'quit' to exit the program at any time 😊

5

Do you want me to recommend the closest JC Pharma store to your home address? (yes/no)

yes

Please enter your login details for verification:

Please enter your email address:

avi10malhotra@gmail.com

Please enter your identification number:

12345679

The closest JC Pharma store to you is located at H3B 1E5 980 Saint-Catherine St

## Alternate Flow:

- The user wants to find a JC store closest to their current location
  - Prompt the user to enter their current zipcode and find the closest store

# Use Case Scenario 6: Prescription Refill

Hello, I am PillPal - The Pharma Bot for Jean Coutu. I am here to help you with your needs.

Please select one of the following options so that I can assist you better:

1. This is my first time here, can you please register me as a user?
2. I am looking for a specific medicine.
3. I am feeling unwell and would like to know what medicine I should take.
4. I would like to place an order for some medicine.
5. I would like to know the closest JC Pharma store to me.
6. I would like to refill my prescription.

Note: Please type 'quit' to exit the program at any time 😊

6

Please enter your prescription ID: 12345

For security, please verify some details.

Enter your full name: John Doe

Enter your birthdate (DD-MM-YYYY): 15-03-2000

Your refill request for Aspirin 100mg has been processed. You now have 1 refills left.

Would you like the medication delivered to your address? (yes/no): yes

Great! Your medication will be delivered to your address.

Would you like a reminder for your next refill? (yes/no): no

# Thank You

