



**BREADS**

Bangalore Rural Educational  
and Development Society

Team No. 16

Presents

# DREAM WEB

Innovating Solutions for Drug Addiction from Struggle to Strength

Mentors:

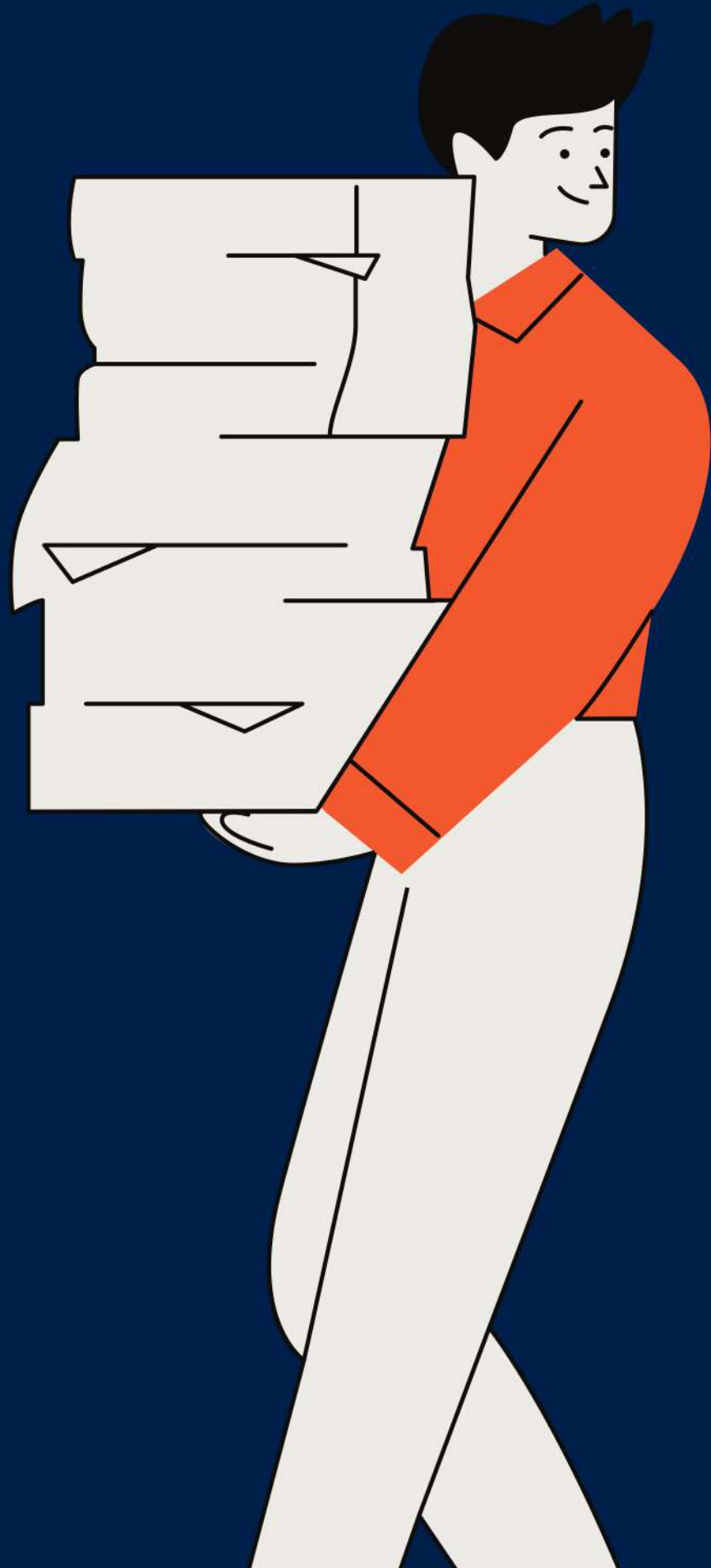
Ankita Mishra  
Poonam Sharma

Members:

Harshit Agarwal  
Digvijay Anand  
Mohneesh Kumar Swami



# Agenda



Team's Approach & Tech Stack

Challenges

Website & the interface

ML/AI & it's Integration

Future Improvements

Citation, Paper & Resources

ThankYou Note





# Team's Approach

## Non-Technical

- Researching for domain knowledge.
- Analysing pain points.
- Exploring features beneficial to Breads & students both.
- Completing MVP of the project.
- Increasing the engagement KPI and data analysis.

## Technical

- Finding perfect tech stack for the project.
- Finding best model for the problem use case.
- Exploring more new tech for extra viable features and additions.

# Tech Stack

## AI/ML

Python

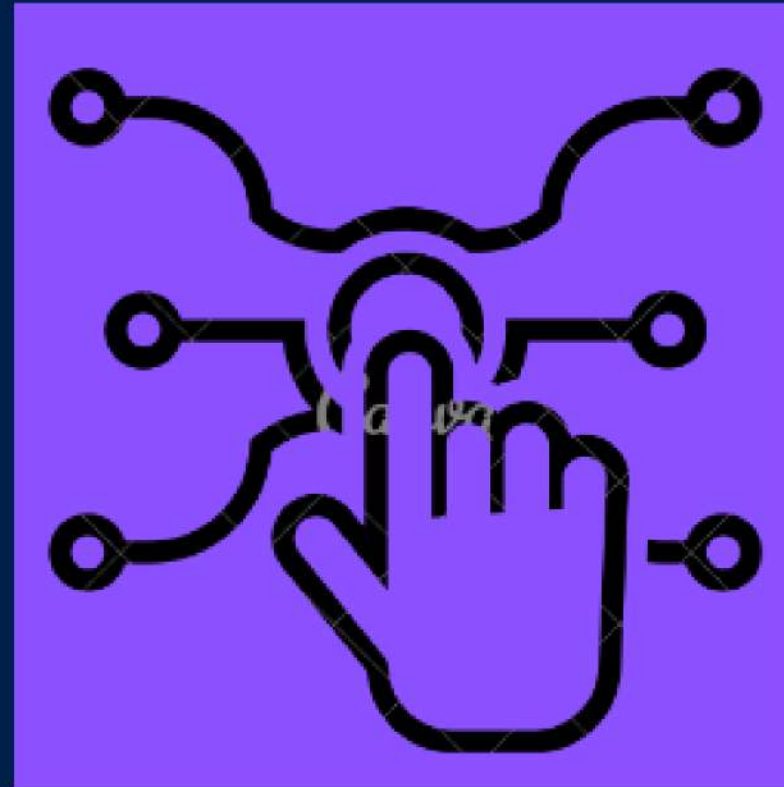
LangChain

Transformers

Tokenizers

Openai

Numpy



## Web

NodeJs

ExpressJs

MongoDb

EJS

ChartJs

Flask

TailwindCSS



# Challenges Faced

## ML-based models

- Fine-tuning prompts and pre-fix messages for optimized output.
- Writing efficient algo to decrease OpenAI API calls requests per minute( RPM).

## Web Interface

- Making the charts as interactive as possible that can be of utmost help to the admin.
- Making the user interface mobile-friendly so that the user experience is enhanced.

The background features abstract, three-dimensional geometric shapes in shades of purple, blue, and pink, creating a modern and dynamic visual effect. The shapes are positioned in the corners, framing the central text.

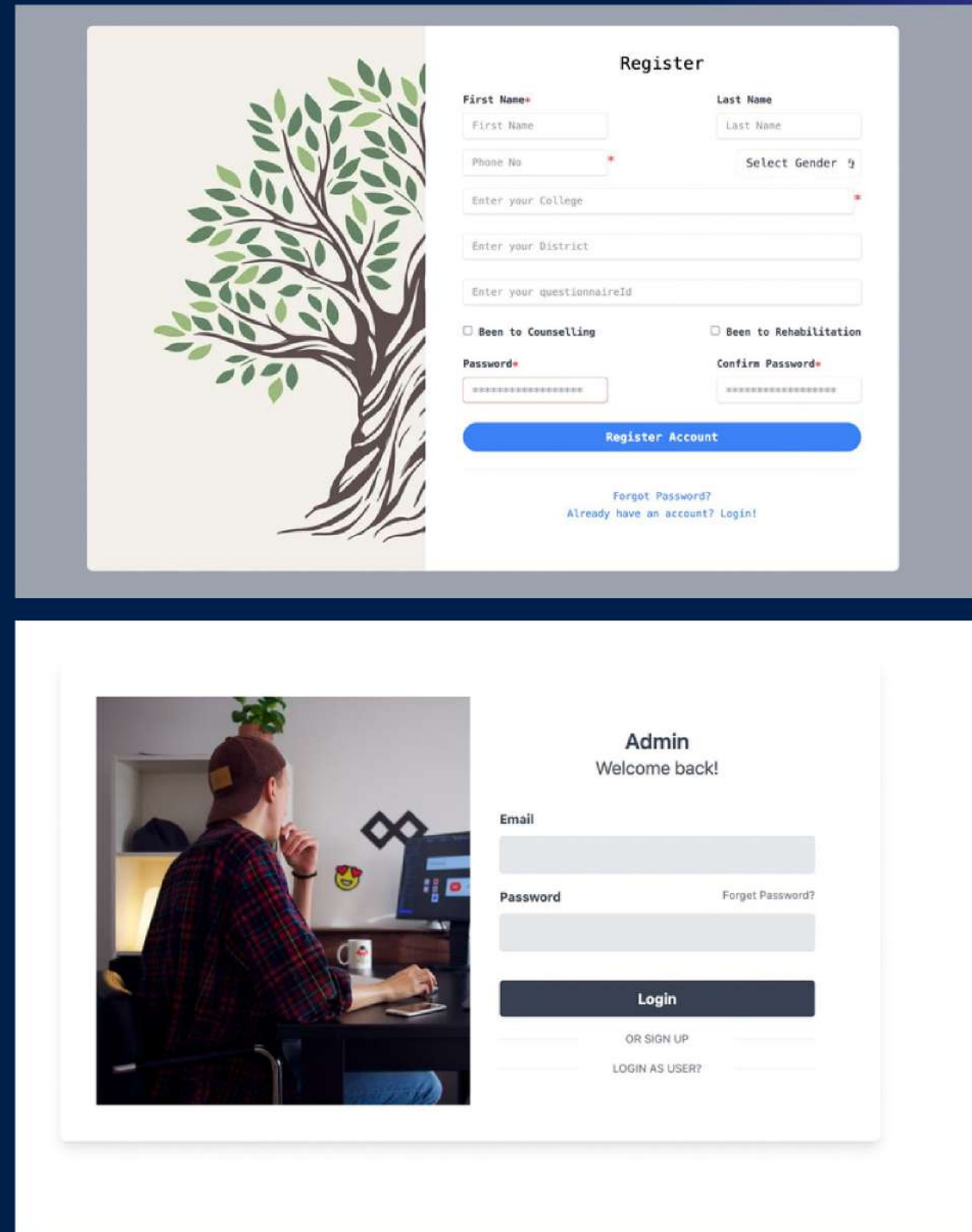
# Website and the Interface



# User Interface

## Home Page

- Mobile first design .
- Completely anonymous questionnaire. No personal information is asked.
- No use of the word 'addiction' anywhere in the survey.
- Can register (enroll) after the survey with the personal details
- Registration can be done even without taking the survey.



The image displays two user interface mockups. The top mockup is a 'Register' form with a tree illustration on the left. The form includes fields for First Name, Last Name, Phone No, Select Gender, Enter your College, Enter your District, and Enter your questionnaireId. It also has checkboxes for 'Been to Counselling' and 'Been to Rehabilitation', and password fields for Password and Confirm Password. A blue 'Register Account' button is at the bottom, with links for 'Forgot Password?' and 'Already have an account? Login!'. The bottom mockup is an 'Admin' login page with a photo of a person at a desk on the left. It features a 'Welcome back!' message, fields for Email and Password, a 'Login' button, and links for 'OR SIGN UP' and 'LOGIN AS USER?'.

**Register**

First Name\* Last Name

First Name Last Name

Phone No\* Select Gender

Enter your College\*

Enter your District

Enter your questionnaireId

☐ Been to Counselling ☐ Been to Rehabilitation

Password\* Confirm Password\*

\*\*\*\*\*

[Register Account](#)

[Forgot Password?](#)  
[Already have an account? Login!](#)

**Admin**  
Welcome back!

Email

\*\*\*\*\*

Password [Forgot Password?](#)

\*\*\*\*\*

[Login](#)

[OR SIGN UP](#)

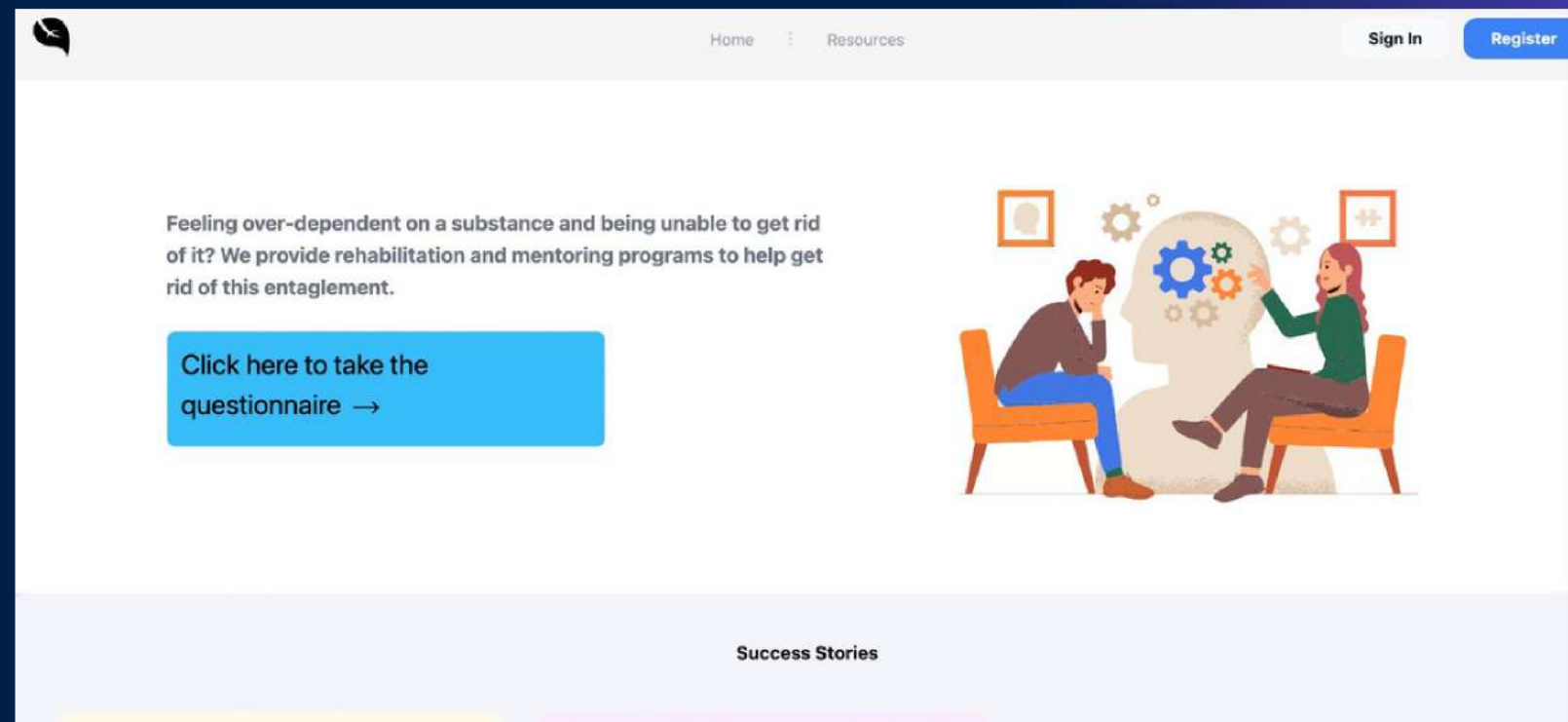
[LOGIN AS USER?](#)



# User Interface

## Survey

- Optional Section: Predicting emotion and returning a citation from one of the holy books.
- Mandatory Section: It consists of 4 parts (Behavioral, Screen, Alcohol, Marijuana) with five questions each.
- Four choices for each question – Yes, No, Sometimes, Prefer Not to Say.
- Returns the level of addiction (on a scale of 3)



6485bfc67bb37023890 [+ Copy Text](#)

Please keep the above questionnaire id with you.  
You should fill it in the enrollment form, else you might have to take the survey again!

Type	Dependence	Recommended counseling
Screen	Strong	Yes
Behaviour	-	-
Marijuana	No	No
Alcohol	Mild to Strong	Yes

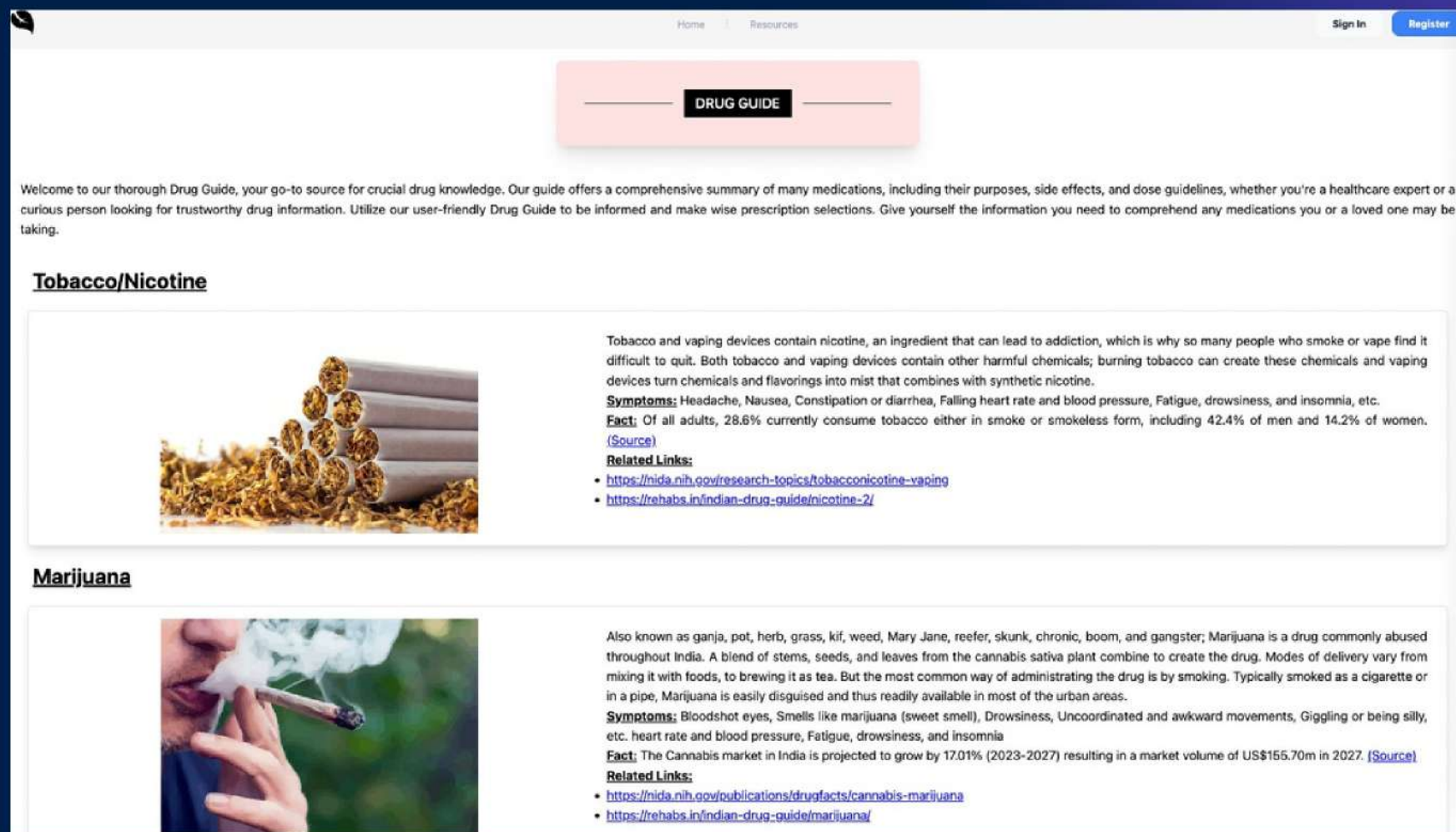
[Click here to register!](#) [Home](#)



# User Interface

## Resources

- Accessible to all, whether enrolled or not.
- A Drug Guide – to educate users about various drugs, their effects, and how to cure them
- Information about other types of addiction –Behavioral, Screen, and Relationship.
- Links to various groups/communities where users can interact with like-minded people.



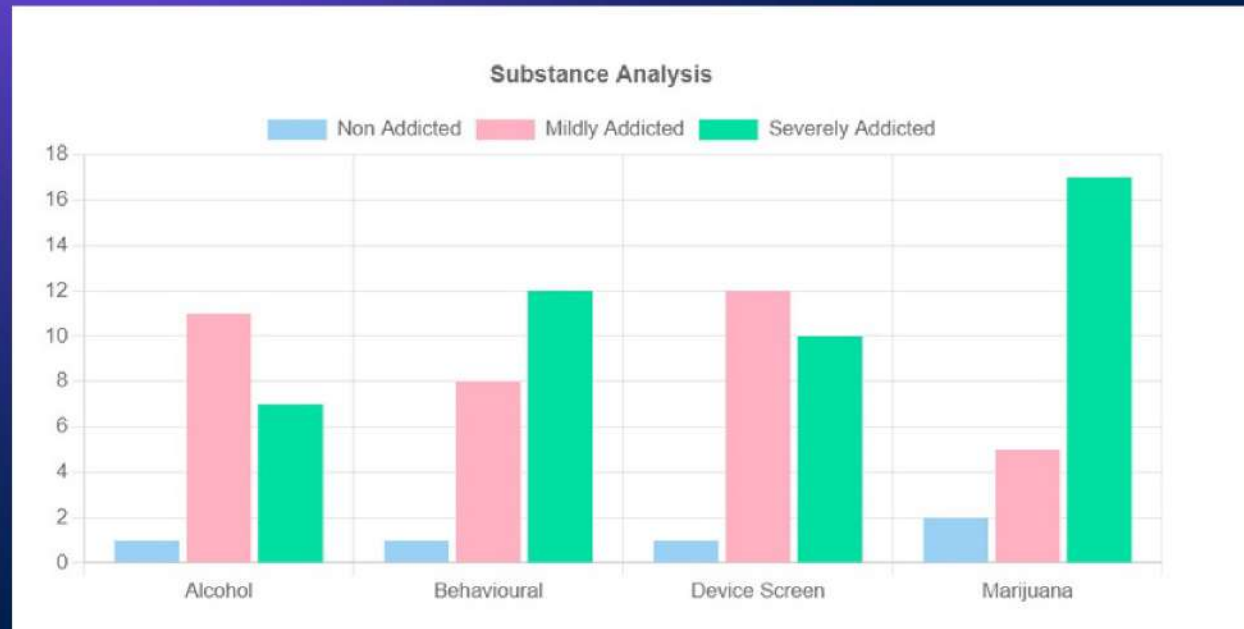


# Admin Interface



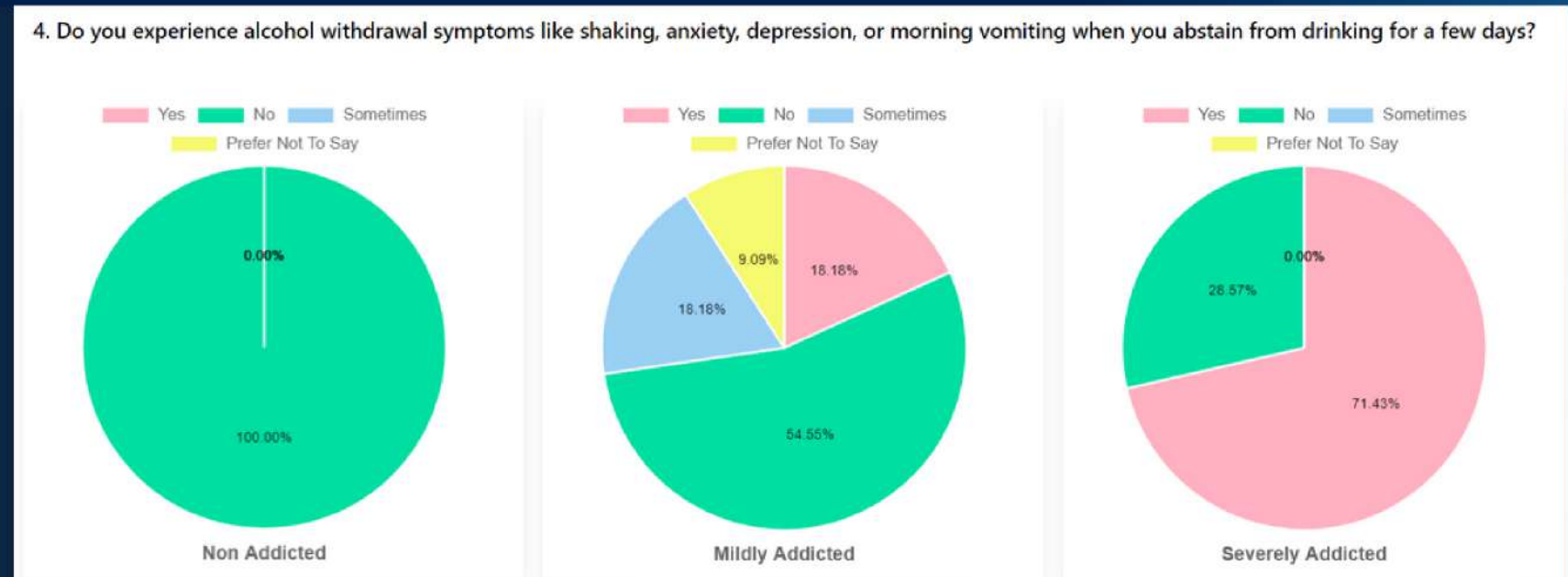


# Charts



## Substance Analysis

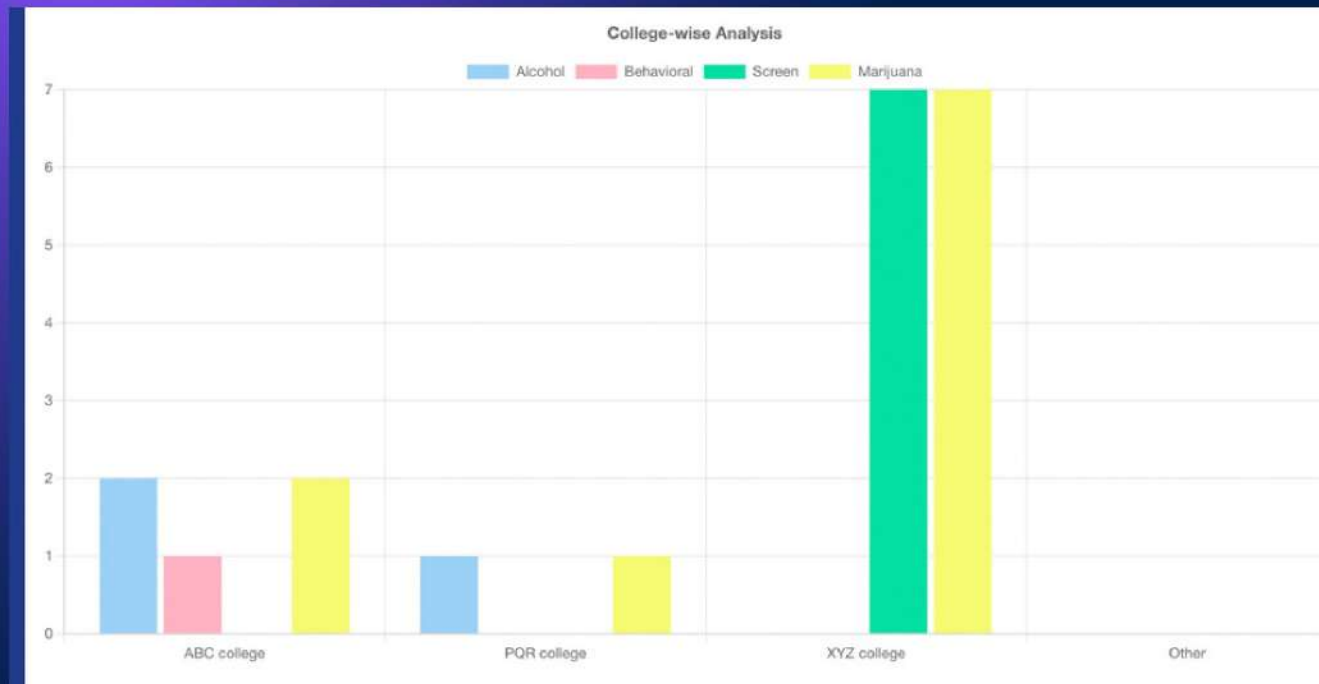
The chart shows the count of addicts per substance (Alcohol, Behavioral, Screen, Marijuana) categorized as Non-Addicted, Mildly Addicted, and Severely Addicted. Hover over the bars to view the category count.



## Question Analysis

This chart analyzes survey questions, determining their impact through pie charts based on responses from non-addicts, mild addicts, and severe addicts.

# Charts



## College Analysis

This Chart Shows the Hotspot Region for different types of Addiction.



## Gender Analysis

This Chart Shows the Analysis of addiction level in different Gender Category.



Abstract geometric shapes in the corners. Top-left: A 3D cube-like shape with blue, purple, and pink faces. Bottom-right: A 3D rectangular prism-like shape with blue, purple, and pink faces.

**ML/AI**

**&**

**it's Integration**

ML/AI



NLP

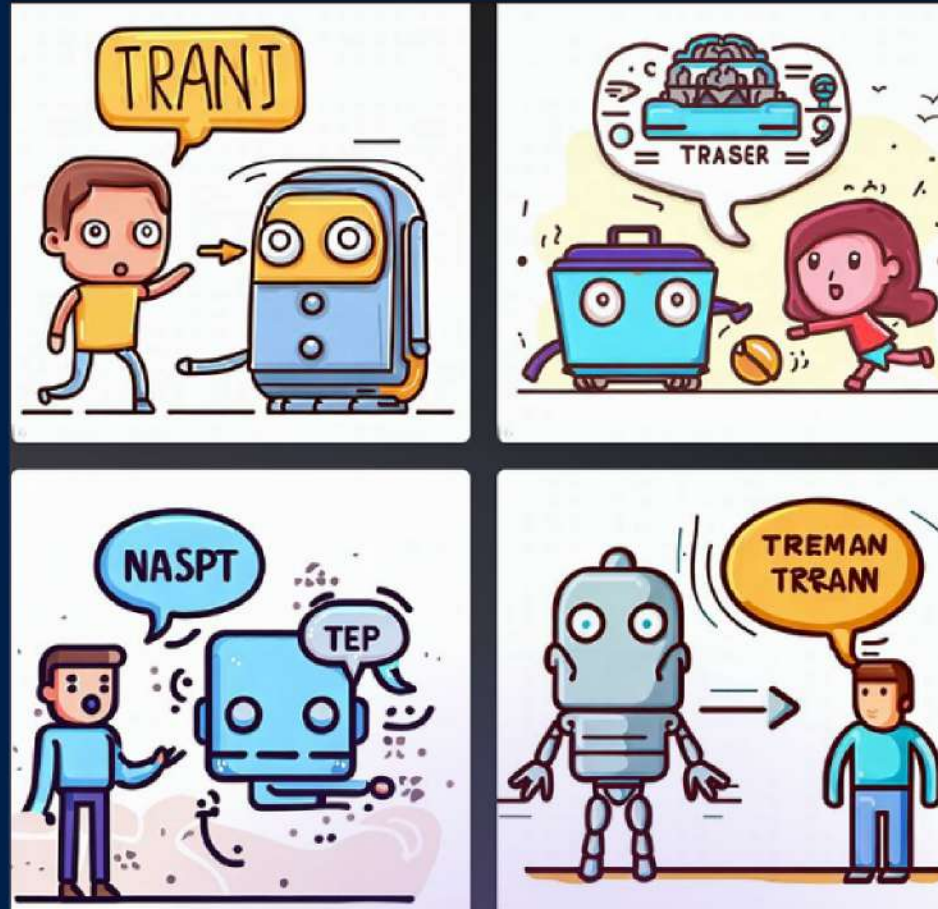


LLM

Fine Tuned Google's T5



HUGGING FACE



OpenAI's GPT-3.5-Turbo



LangChain

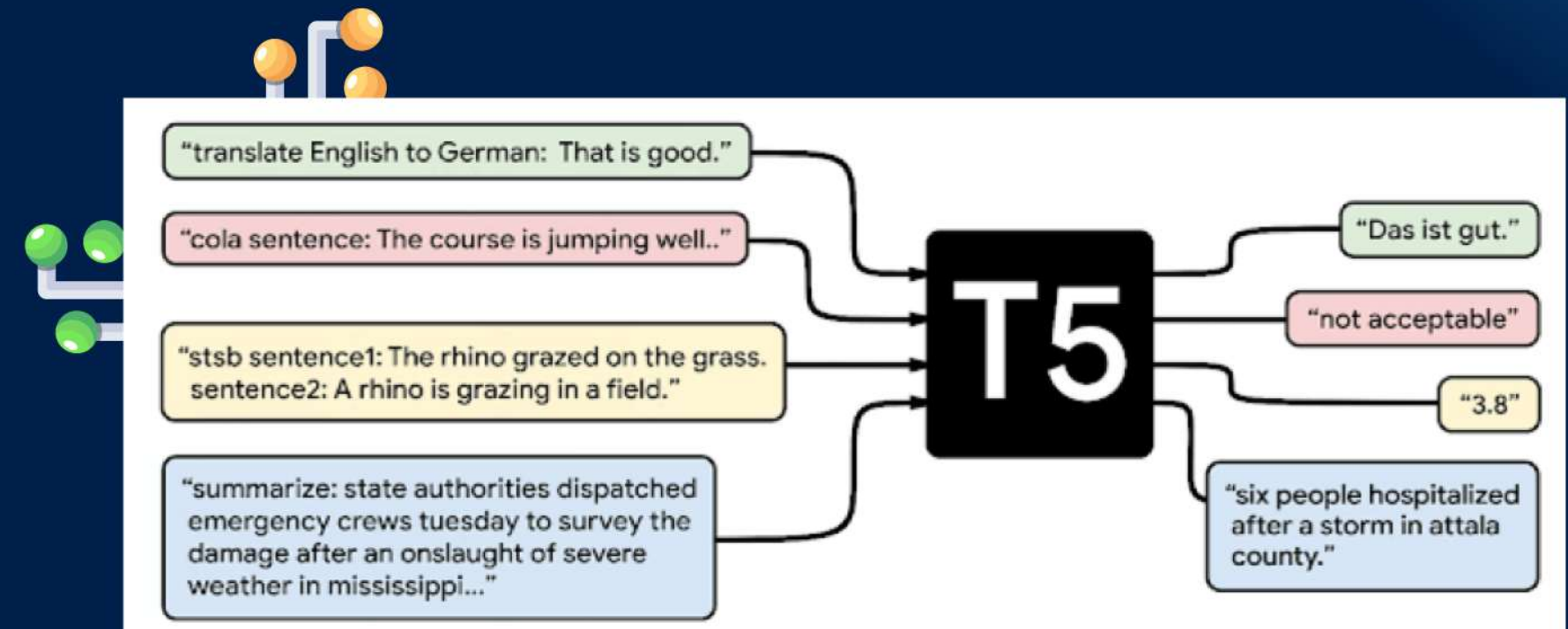




# Google's T5 + Hugging Face

## Why this Model?

- Transfer Learning on Emotion Recognition dataset for Sadness 😞 Joy 😊 Love ❤️ Anger 😡 Fear 😱 Surprise 😲
- High Recall ~90% and balanced precision for emotion.



## Why Emotion Detection?

- To assign a specialized counselor
- Enhanced empathy and support
- To correlate emotion with addiction





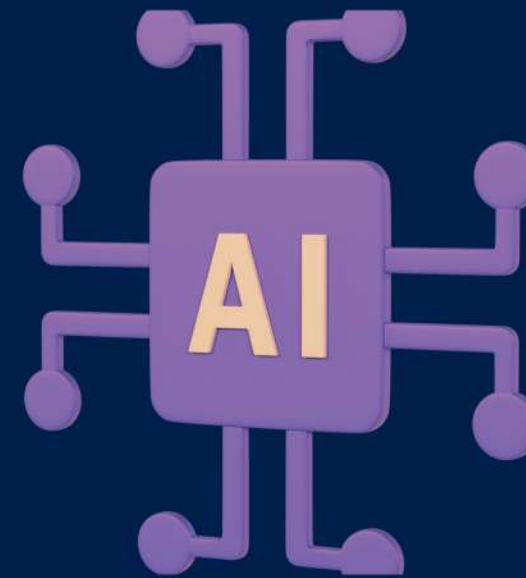
# OpenAI's GPT-3.5-Turbo + LangChain

## Why this Model?

- Developer-Friendly open source model and api.
- Can understand and generate natural language or code
- GPT 4 still in limited beta phase

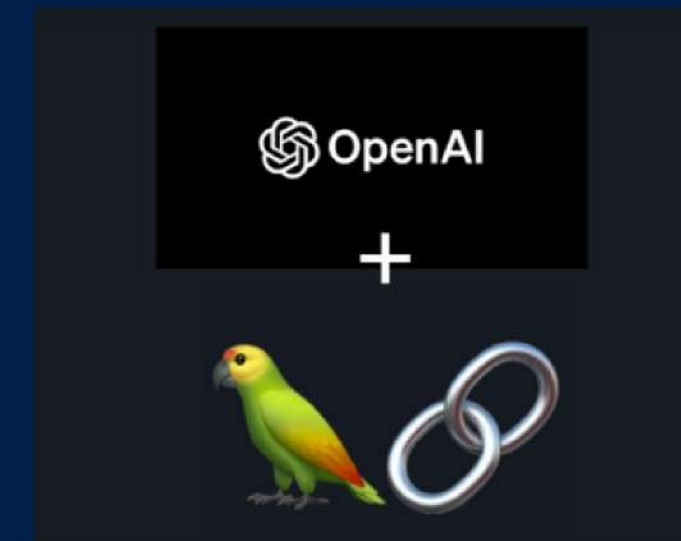
## Why Langchain?

- Framework built around LLMs
- Trending library in 2023, used by various rising startup.
- LLM + "Chain" = LangChain



## Why 3.5-turbo version?

- optimized for chat but works well for traditional completions tasks as well
- Lowest token process cost.



- Worked on creating an algorithm to leverage both the model use.
- Wrote and optimized the best prompt template, pre-fix message, and best llm efficient input and output.
- Optimized temperature and max token limit according to use case.



# Model in Use

## 1) Emotion Detection Use Case



## 2) Questionnaire Use Case



- Use 1) Temperature = 0.70, max\_token= 100
- Use 2) Temperature = 0.30, max\_token= 30

Data from both the models are stored and gets processed for data analysis and graphs.



# Future Plans

- Creating a Progressive Web App (PWA)
  - A Feedback page where all the enrollees can submit their feedback after their rehabilitation program. Some can also be shared as success stories on the home page.
  - Give admin access to add/remove questions.
  - OTP feature for verification.
- 
- Leveraging LLM to generate different Mongodb queries using Langchain agent.
  - Work on a Memory buffer, conversational tools, and agents of LangChain.
  - Exploring and updating on future healthcare bots like x2ai.
  - Adding continuous features for regression analysis and better insights of data for admin.
  - Implementing statistical analysis tools like Chi-Square tests, Correlation tests, Cointegration, Proportion analysis, etc.



# Citations, Research Papers and Resources used

- Exploring the Limits of Transfer Learning with a Unified Text-to-Text Transformer <https://arxiv.org/pdf/1910.10683.pdf>
- Study on Addiction Treatment Success.
- NIDA: <https://nida.nih.gov/>
- RIHAB Centre Info: <https://rehabs.in/services/free-treatment/>
- <https://www.addictioncenter.com/drugs/>
- <https://www.x2ai.com/>





# Thank You



It was wonderful working on this project.

Hope our small contribution  
will able to transform lives.

