

Group 2 | 06-08-2025

# Student Affairs Chatbot -AI Assistant

Christo Pananjickal Baby - 8989796  
Fasalu Rahman Kottaparambu - 8991782  
Srinu Babu Rai - 8994032

An AI chatbot which can help and  
guide students regarding student  
affairs

# Problem and Solution

## Current Problems:

- Students struggle to get **delay in answers** on college policies, registration, fees, mental health, campus life.
- Traditional support (emails, calls, office visits) is slow, **limited to office hours**, and often confusing.
- Staff are **overwhelmed** by **repetitive questions** - Less time for handling serious or urgent student issues.

## Solutions we put forward:

A smart, easy-to-use virtual assistant that,

- Provides **instant** answers **24/7**
- Supports **multiple languages**
- **Escalates** serious or sensitive issues to **real human** staff when needed



# Data Corpus

The data corpus is the data scraped from a college website

## Implemented Features

- Sentiment Detection & Escalation
- RAG for Interactions
- Next question prediction
- Multilingual Support

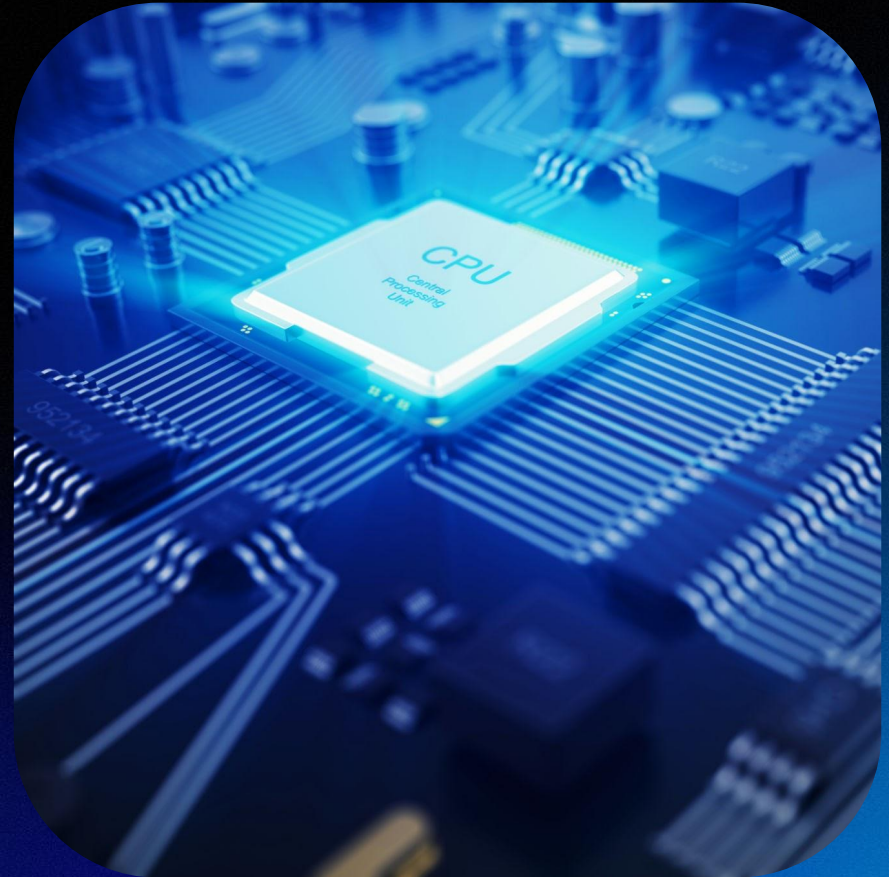
Question	Answer
How can I access a Career Centre?	To access services at Community Career Centres, you can call, visit or email any centre.
I am a college student and I can't access the Student Success Portal, what do I do?	Current college students: contact <a href="mailto:talenthub@collegeec.on.ca">talenthub@collegeec.on.ca</a> if you have forgotten your
I am a college graduate and I can't access the Student Success Portal, what do I do?	Canadian graduates: contact <a href="mailto:waterloocareercentre@collegeec.on.ca">waterloocareercentre@collegeec.on.ca</a> if you have forgotten
How much does a session cost at the Community Career Centre?	Career Centre services are free. link: <a href="https://www.collegeec.on.ca/career-centre/faq">https://www.collegeec.on.ca/career-centre/faq</a>
How can I access funded training?	This is one of the many options to discuss with your Career Work Coach as everyone's
What is the difference between a career, a job, an occupation and work?	A career refers to the total work-related experiences an individual has over the course of

# Stakeholders

- Students
- Student affairs staff
- College

# Tech and Knowledge Vendors

- Open AI
- Google translator
- ABC College Dataset





# Impact

- 24/7 instant support
- Reduces repetitive staff workload
- Multiple languages for inclusivity
- Quick follow-ups with next question suggestions

# NLP Components

We have used different NLP components in our project. These components have helped us to prepare and process the data from training as well as prompting.

## 01

### **Normalization, Stopword filtering, Stemming**

Converting to lowercase, removing stopwords, words stemming

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## 02

### **Tokenization**

Splitting data and prompt into individual words using NLTK

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## 03

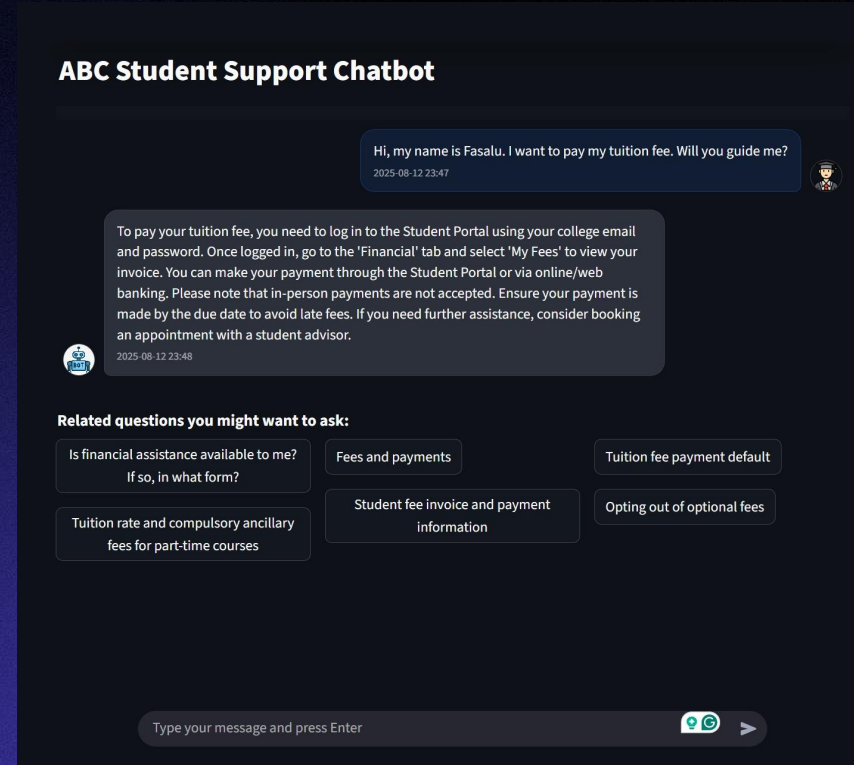
### **Vectorization**

Tokens are transformed into a numerical vector space from which correlated data can be found out using cosine similarity



# Prediction

- ❑ Predicts related questions at end of a conversation
- ❑ Uses Logistic Regression with re-ranking (sorting)
- ❑ Model trained once and saved
- ❑ Faster navigation

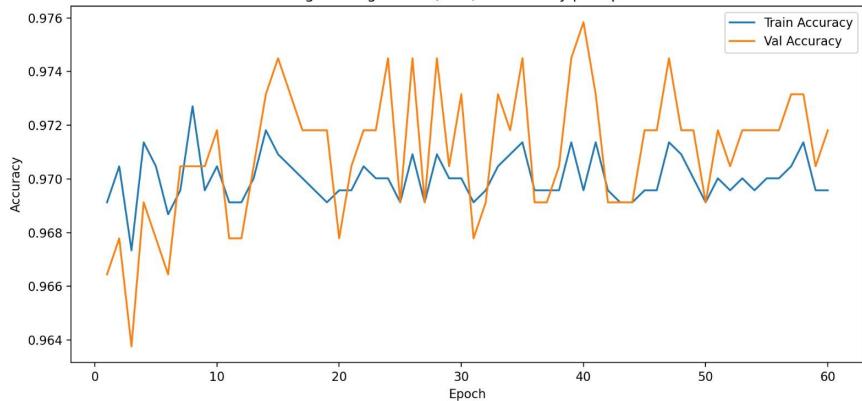


Chat bot user interface

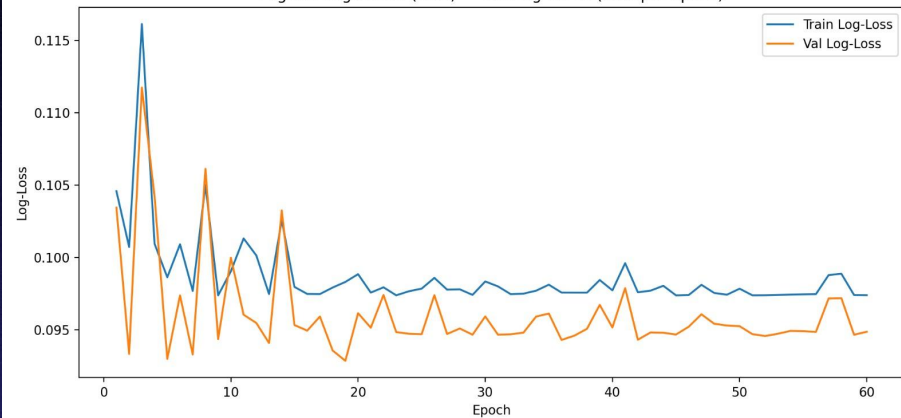
The above is the user interface of our chat bot that we have developed.

# Prediction Training Results

Logistic Regression (SGD) — Accuracy per Epoch



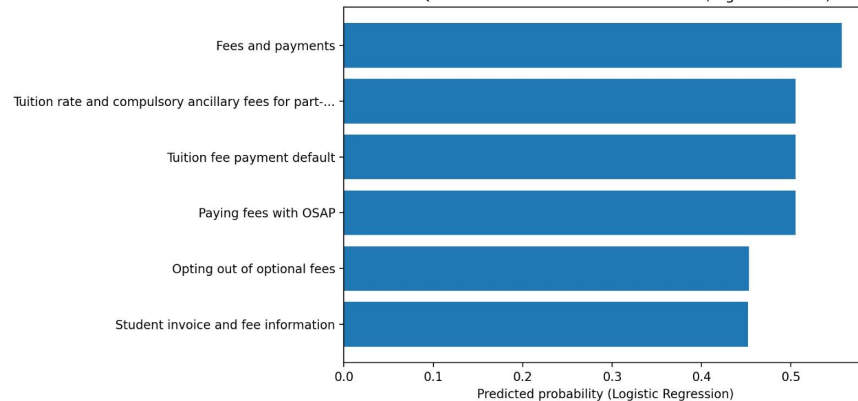
Logistic Regression (SGD) — Training Curve (Loss per Epoch)



## Evaluation Metrics

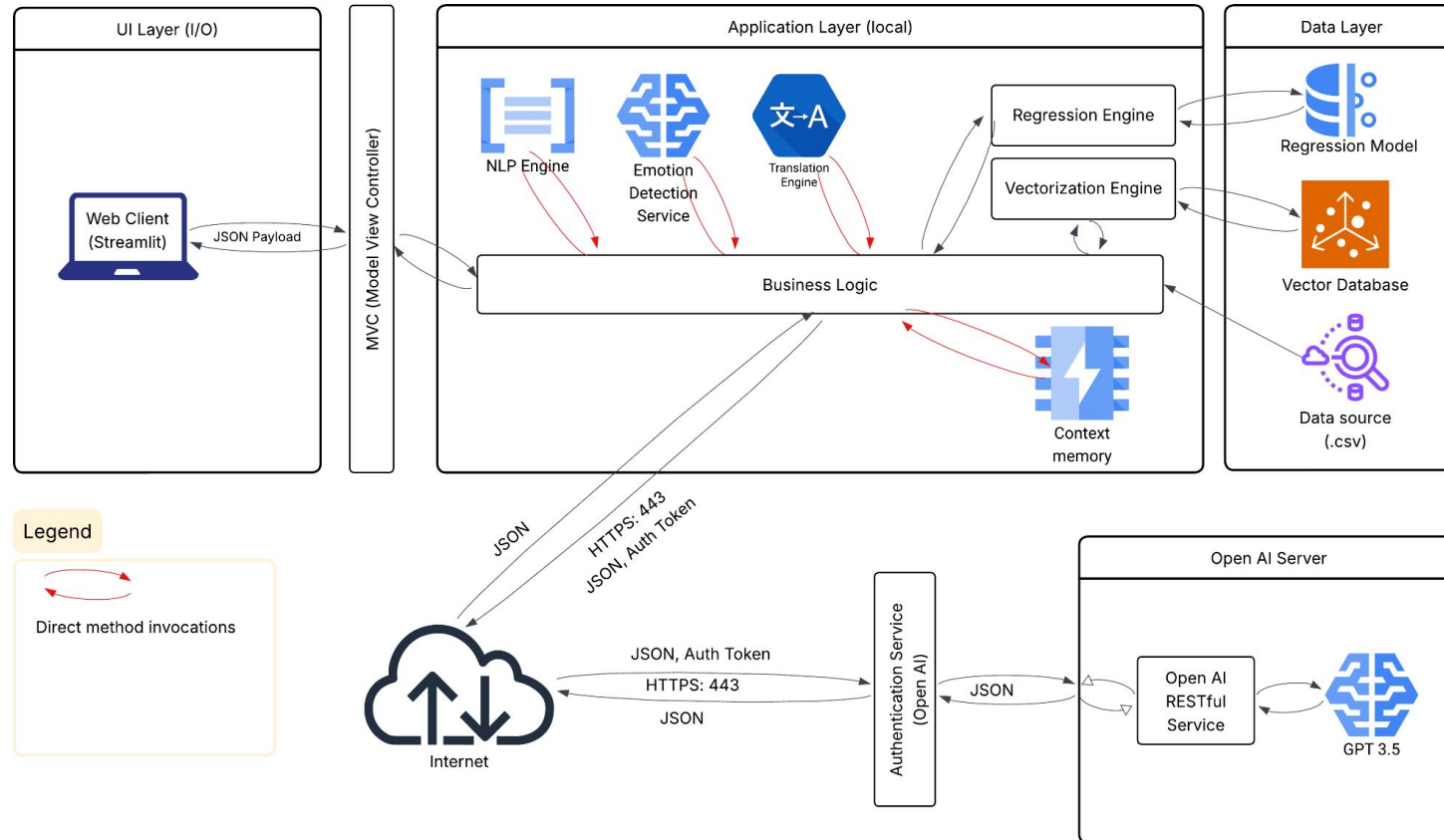
Metric	Value
Accuracy	97.18%
Precision	86.30%
Recall	85.13%
F1 Score	85.71%

Next-Question Prediction — LR Probabilities (Higher is Better)

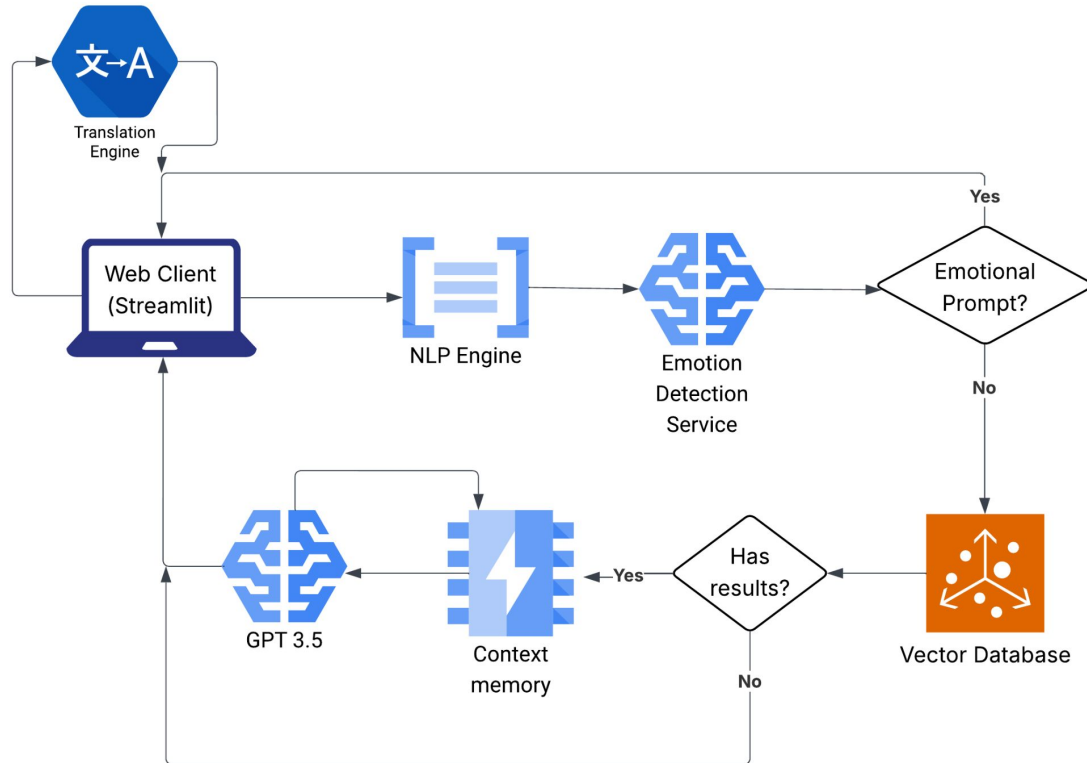




# Software Architecture



# Data Flow Diagram





# LIVE DEMO

# Future Plans

- Add analytics dashboard - top rated questions, usage, prediction performance, response efficiency, find areas to improve
- Expand multilingual support
- Integrate with college student portal



Thank you!  
- Group 2