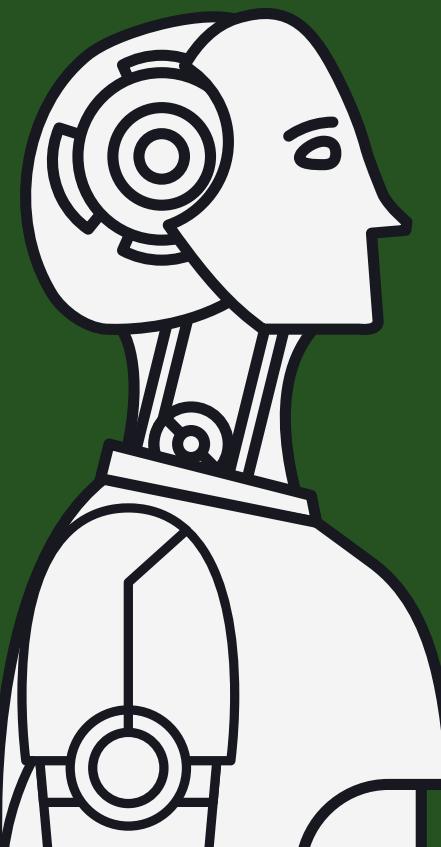


CometVerse

Redefining Campus Support at UTD

Empowering the UTD Community
with Smart, AI-Driven Support

Cohort : Wednesday BUAN 6390.002
Group 4



Business Scope and Context

Objective

Deploy CometVerse, an LLM-powered chatbot at UT Dallas to enhance support with NLP and transformer-based Generative AI.

Current Scope (Phase 1 to 3)

Provide accurate JSOM program, admissions, and academic info while reducing staff workload during peak enrollment.

Future Scope (Phase 4 & 5)

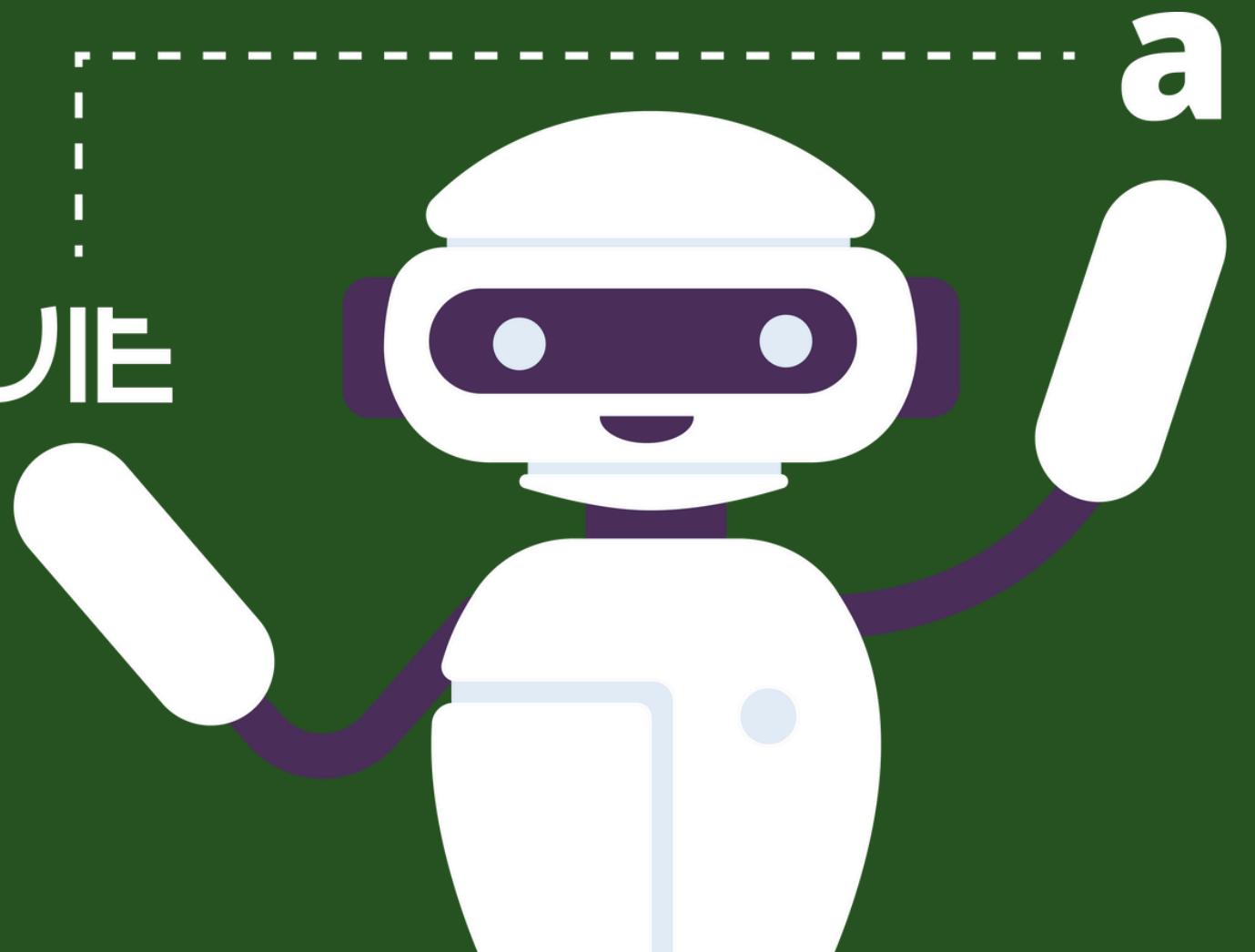
Expanded Scope to all UTD sites, Voice input/output integration, optimization, etc.

Timeline

MVP completed in 10 weeks

Target Audience

Current & Prospective Students, respective Parents/Guardians, Staff, Employers



Current Business Overview

1

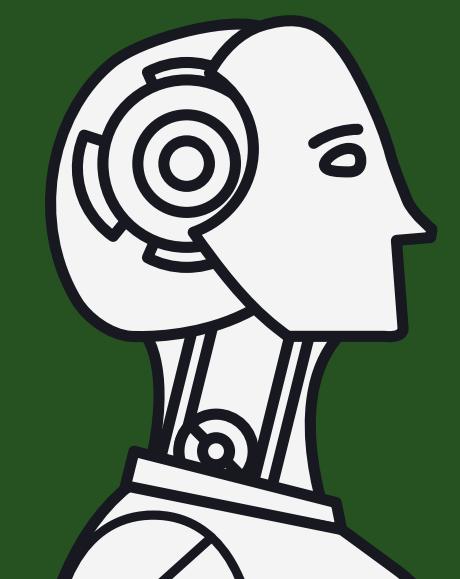
Human-led support (email, phone,
in-person help desks)

2

Limited availability
Inconsistent response times
High staff workload.

3

Automate FAQs and enhance real-
time engagement via an AI-
powered chatbot.



Executive Summary

Strategic Expansion

Deploying a UTD-aligned AI chatbot, starting with JSOM and scaling to other departments.

Growth Potential

With growing enrollments and digital demands, the chatbot ensures long-term scalability—future phases include voice support, research tools, multilingual features, app compatible with Android & iOS.

Resource Allocation

Leverages open-source tools and LLM APIs (e.g., LangChain, GPT-3.5/Gemini) with team roles in NLP, UX, scraping, and QA for streamlined development.

Global Reach

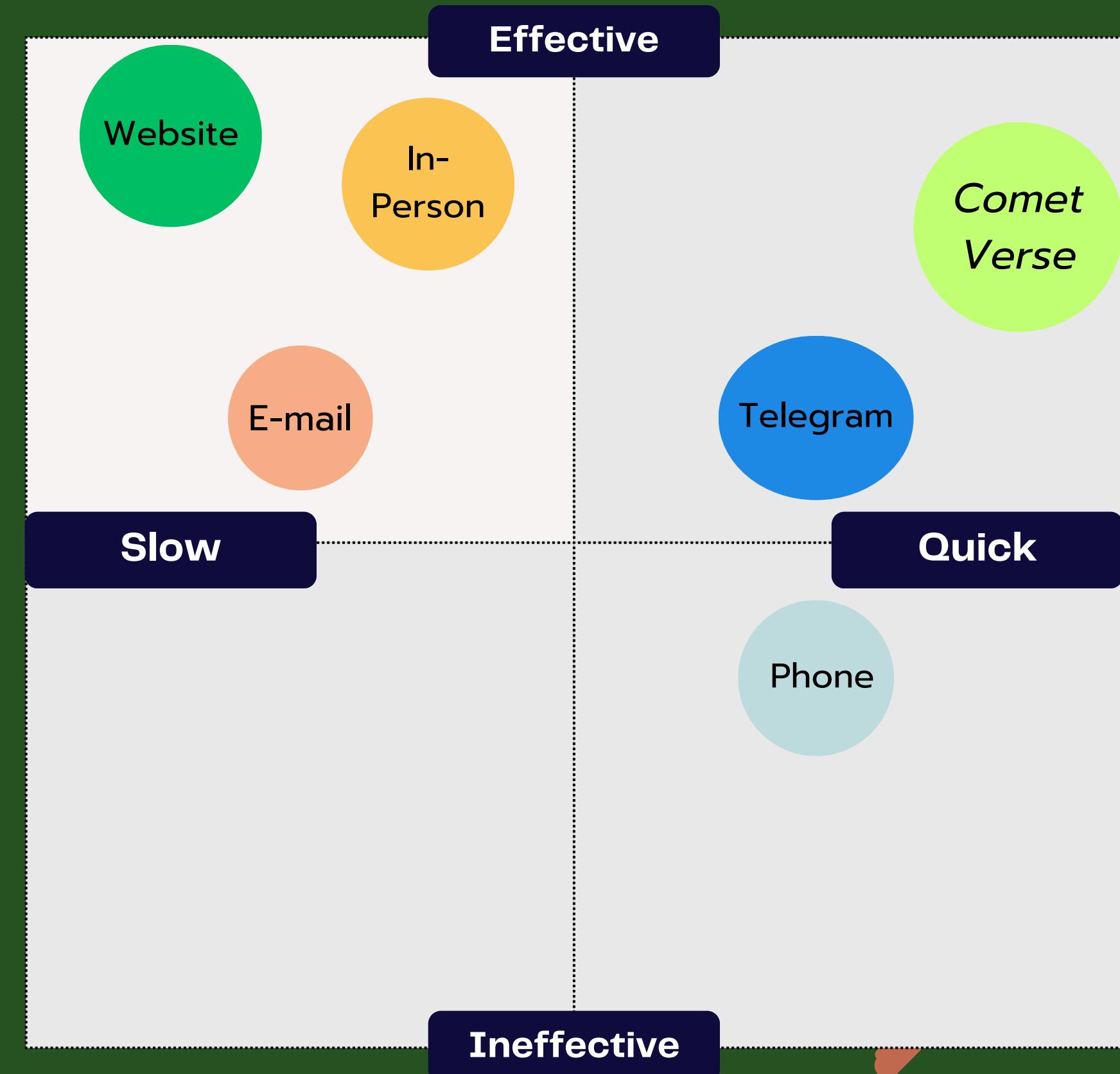
Sets a benchmark for AI in higher education, positioning UTD as a leader and enabling adoption by other universities.



Market Analysis

Target Users

- Current & Prospective Students
- Parents & Guardians
- Faculty & Staff
- Alumni & Donor
- Corporates



Positioning Map





SARAH

- Age: 22
- Occupation: Undergraduate Student at UT Dallas
- Location: Richardson, Texas

DESCRIPTION

Sarah is a tech-savvy student juggling academics, part-time work, and extracurricular activities. She frequently uses the university website to find course details, deadlines, advisor contacts, event info, and campus resources. She values speed and clarity when seeking information.

PERSONAL CHARACTERISTICS

- Comfortable with digital tools
- Prefers fast, intuitive interfaces
- Impatient with slow or clunky systems
- Values accuracy and clear language

HOBBIES AND INTERESTS

- Student clubs and hackathons
- Social media browsing
- Gaming and tech podcasts
- Exploring food spots around Dallas

BUYING ROLES

- Primary Role: End User of the chatbot
- Influencer: May recommend it to friends
- Decision-Maker: Chooses whether to engage with the chatbot or use traditional website navigation

GOALS

- Quickly access specific university information
- Avoid long website navigation paths
- Use a mobile-friendly, accessible tool

CHALLENGES

- Website overload: Too many links and dense menus
- Uncertainty about where to find up-to-date information
- Frustration with delayed human responses from departments

BUYER'S JOURNEY

- Awareness: Notices the chatbot while trying to find academic calendar dates
- Consideration: Tests it for quick answers vs. manually searching the site
- Decision: Continues using it if it saves time and gives accurate results

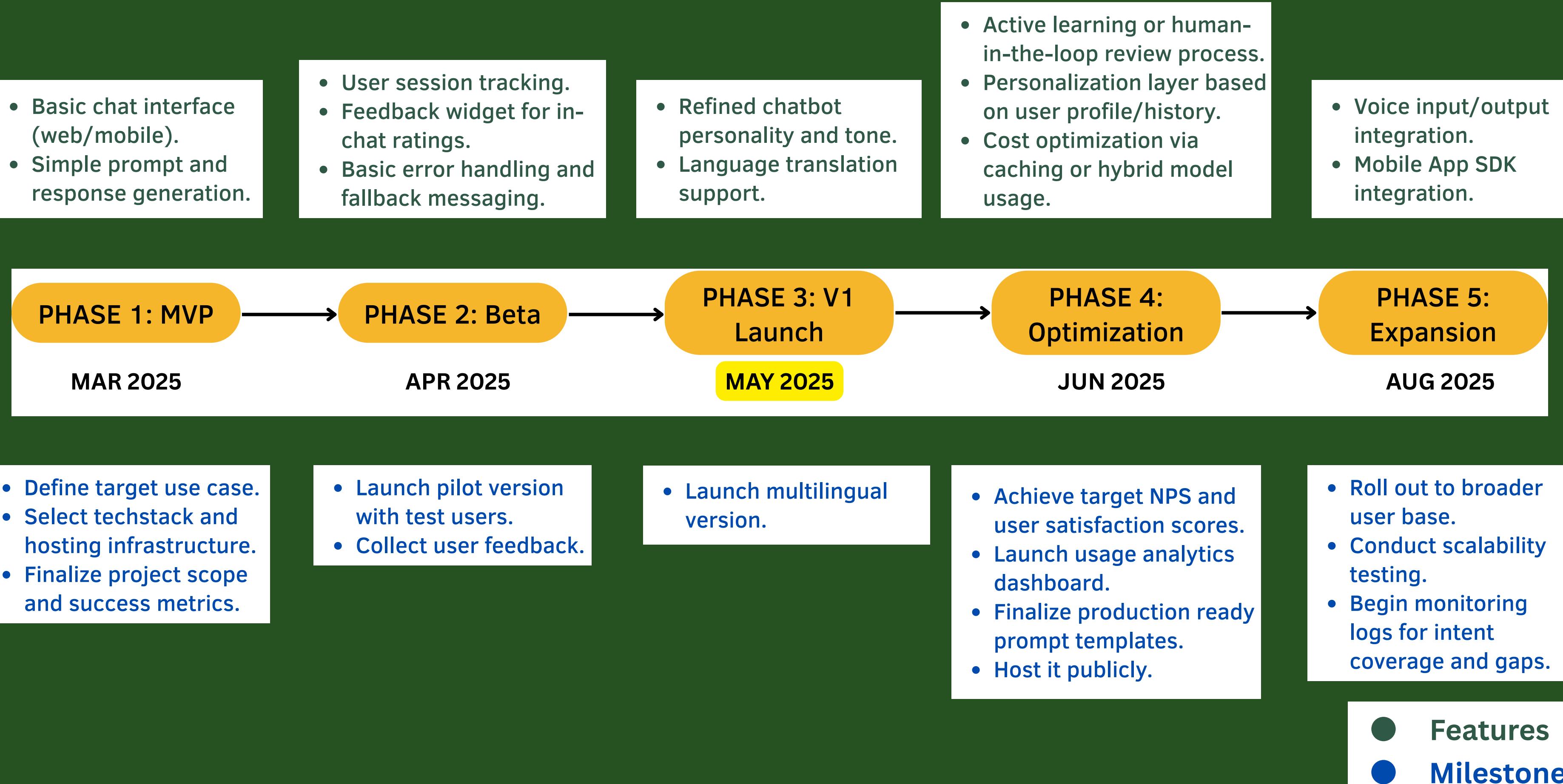
NEEDS

- Accurate and fast responses
- 24/7 availability for late-night research and planning
- Simple UI/UX.

CUSTOMER JOURNEY MAP

| | AWARENESS | CONSIDERATION | DECISION | RETENTION |
|---------------------|---|---|---|--|
| ACTIONS | Navigates JSON sites to locate information and struggles to do so. | Considers using the chatbot with some skepticism. | Tests the chatbot with a specific question. | Uses chatbot regularly and recommends it to others. |
| TOUCHPOINTS | The Chatbot will appear as a pop-up on relevant web pages. | Visit the chatbot's UI or hear about it from a peer in class. | <ul style="list-style-type: none"> Embedded chatbot widget. Feedback prompt asking if the response was helpful. | User scans the site for the Chatbot widget during every site visit. |
| EXPERIENCE/EMOTIONS | Intrigued | Indecisive | Eager and optimistic | Satisfied |
| PAIN POINTS | Unaware of the existence of the chatbot. | Concerned about chatbot accuracy and relevancy. | Unclear answers or chatbot does not have enough context to respond. | Redirect to a human to answer the query. |
| SOLUTIONS | Use friendly pop-ups or "Need help?" nudges to draw attention to the bot. | Emphasize that it's trained specifically on Jindal School of Management data. | Mention clearly if the chatbot is unsure of the answer. | <ul style="list-style-type: none"> Use student feedback to retrain and improve the chatbot. Clearly escalate complex issues to a live chat or advisor contact. |

PRODUCT ROADMAP

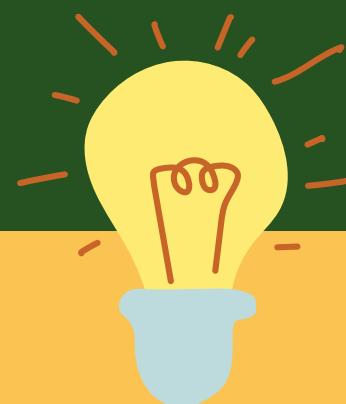


Project Milestone & Schedule

| Teams | 12 th Feb | 22 th Feb | 4 th March | 14 th March | 24 th March | 3 rd April | 13 th April | 23 rd April | 3 rd May |
|-------|----------------------|-----------------------|-----------------------------|----------------------------|------------------------|-----------------------|------------------------|------------------------|---------------------|
| MS 1 | Project Intiation | | | | | | | | |
| MS 2 | | Requirement finalized | | | | | | | |
| MS 3 | | | Web Scraping completed | | | | | | |
| MS 4 | | | Creating Embeddings | | | | | | |
| MS 5 | | | NLU model creation & tuning | | | | | | |
| MS 6 | | | | NLG Model training | | | | | |
| MS 7 | | | | Integration with Vector DB | | | | | |
| MS 8 | | | | | ChatBot UI Creation | | | | |
| MS 9 | | | | | | Testing | | | |
| MS 10 | | | | | | | Model deployment | | |

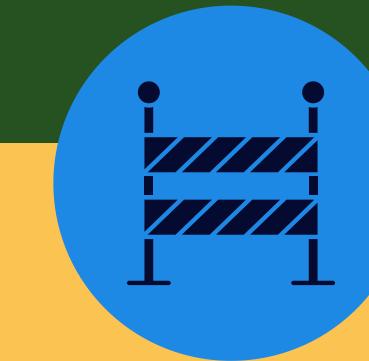


Project Assumptions, Constraints & Risks



ASSUMPTIONS

- The extracted data will be accurate and up-to-date, with continuous website accessibility.
- Users will communicate in English and have basic chatbot experience. University IT support will handle necessary integrations.



CONSTRAINTS

- In-Scope: Data from the website only, no human agent or multi-language support.
- Dependencies: API stability and access to UTD data for accuracy.
- Known Limitations: Handling complex or ambiguous queries.
- Unknown Limitations: LLM accuracy for complex queries, and scalability limits.



RISKS

- LLM Accuracy: Inaccurate responses may reduce trust; improve with human feedback.
- API Downtime: API disruptions may halt responses; local NLP model as a solution.
- Voice Input Variability: Diverse accents may limit accessibility; opportunity to enhance inclusivity.



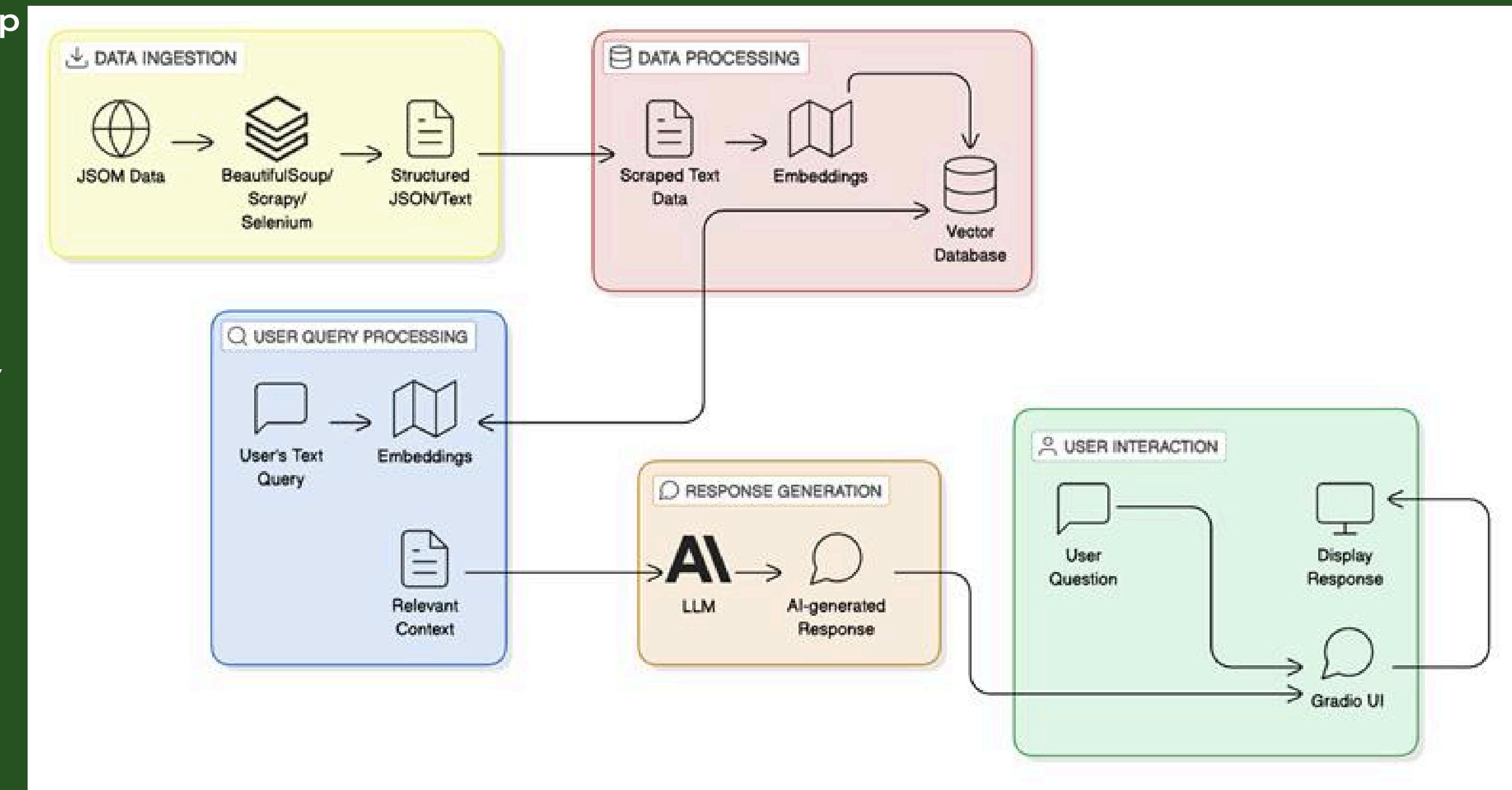
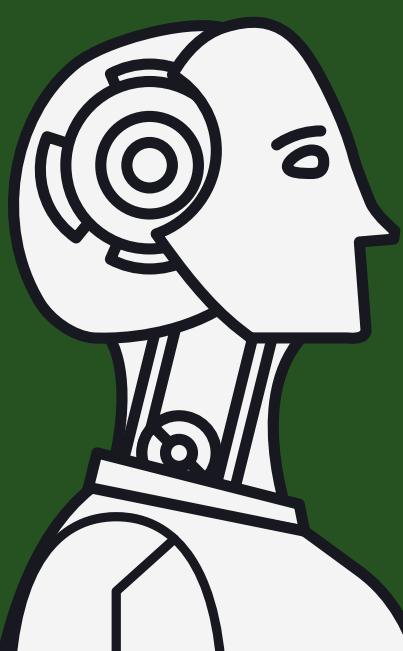
Why OpenAI GPT 3.5?

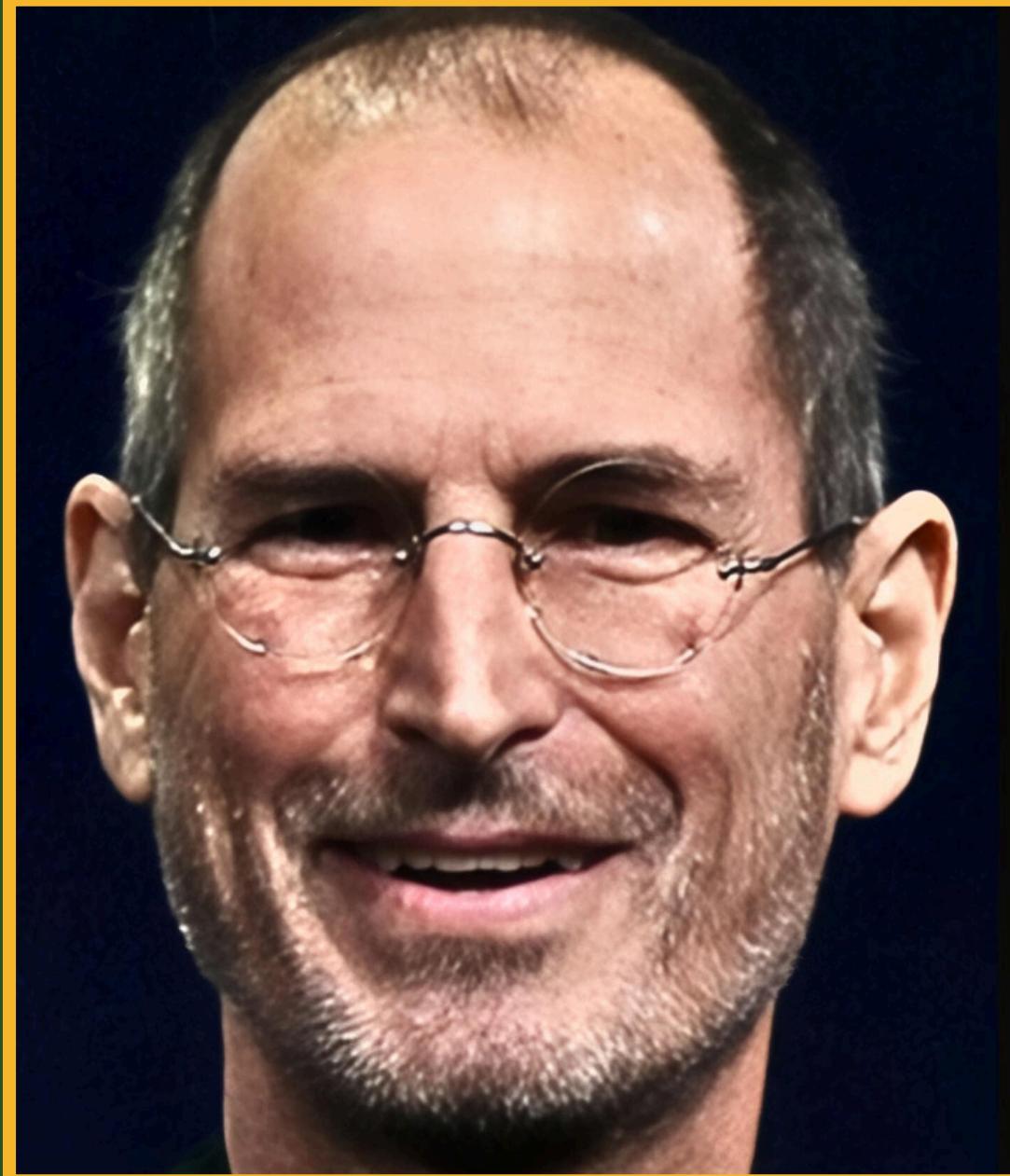
| CRITERIA | ChatGPT | Gemini | Claude | Mistral | LlaMA |
|--------------------|---|--|--|---|--|
| DEVELOPER | OpenAI | Google | Anthropic | Mistral AI | Meta |
| RELEASE DATE | Nov. 2022 | Dec. 2023 | Mar. 2023 | Sept. 2023 | Feb. 2023 |
| LANGUAGE MODEL | GPT 4o | Gemini 1.5 Pro | Claude 3 Opus | Mixtral 8x22B | Llama 3 (8B) |
| OUTPUT TOKEN PRICE | \$15.00 per 1M Tokens | \$21 per 1M Tokens | \$75.00 per 1M Tokens | \$1 per 1M Tokens | \$0.1 per 1M Tokens |
| SPEED | 74 Tokens per Second | 55 Tokens per Second | 32 Tokens per Second | 82 Tokens per Second | 866 Tokens per Second |
| QUALITY INDEX | 100 | 88 | 94 | 63 | 65 |
| KEY FEATURE | Generates human-like response in real time based on user-input. | Understand different types of information, including text, images, audio video & code. | Generates various forms of text content like summary, creative works & code. | It can grasp the nuances of language, context, and even emotions. | It has advanced NLP capabilities that can handle complex queries easily. |

Source: [https://futureskillsacademy.com/
blog/top-langs-comparison/](https://futureskillsacademy.com/blog/top-langs-comparison/)

Technical Architecture

- Web Scraping: Selenium, BeautifulSoup
- Embedding Model: text-embedding-ada-002
- Vector Database: ChromaDB
- LLM Integration: OpenAI GPT 3.5
- NLP (Transformers): Used for query understanding and semantic analysis
- Backend: Python (Flask) – RESTful API
- Frontend: Gradio interface with HTML, CSS, JavaScript
- Architecture: RAG (Retrieval-Augmented Generation)





If you define the problem correctly,
you almost have the solution.

— *Steve Jobs* —

Product Demo



Thank You.

