

LazyChat-Organizer: AI-powered Multi-platform Chat Summarization System

1. Scope

Problem Statement

With the increasing use of messaging applications like WhatsApp and WeChat for personal and professional communication, users struggle to manage and extract useful information from large volumes of daily messages. Sifting through hundreds of messages manually is time-consuming and inefficient, leading to missed crucial information and reduced productivity.

Objectives

LazyChat-Organizer aims to:

- Automate the extraction, processing, and summarization of WhatsApp and WeChat messages.
- Provide topic-based, structured summaries using the DeepSeek LLM.
- Allow users to customize topics of interest and prioritize specific conversations.
- Offer a user-friendly interface via an Electron-based desktop app and a web dashboard.
- Ensure data privacy with encrypted local storage options.

Boundaries

- The initial version will support WhatsApp Web (via Puppeteer) and WeChat (via itchat API).
- The tool will focus on text message analysis (voice-to-text support as a future enhancement).
- Real-time notification and multi-user support will be implemented progressively.

2. Importance

Real-world Impact

- **Time-saving:** Automates chat processing, reducing manual effort in message review.
- **Productivity boost:** Allows users to focus on valuable conversations and key topics.
- **Multi-platform support:** Seamless integration with both WhatsApp and WeChat.

- **Security & Privacy:** Ensures user data remains encrypted and secure.
- **Business and personal applications:** Benefits professionals managing team communications and individuals handling large group chats.

3. Potential Methodology

Approach & Workflow

1. **Message Extraction:**
 - **WhatsApp:** Uses Puppeteer to extract message metadata from WhatsApp Web.
 - **WeChat:** Leverages the itchat library for API-based data retrieval.
2. **Preprocessing & Analysis:**
 - Clean messages (remove special characters, stopwords, etc.).
 - Apply Named Entity Recognition (NER) for keyword extraction.
 - Detect message language and classify topic relevance.
3. **Summarization & Organization:**
 - DeepSeek LLM generates topic-wise structured summaries.
 - Adjustable summarization granularity for personalized reports.
4. **Storage & Accessibility:**
 - Use PostgreSQL/SQLite for structured metadata storage.
 - Encrypted local storage for privacy protection.
5. **Frontend & User Interaction:**
 - Develop an Electron-based desktop application.
 - Offer a web dashboard using React/Next.js.

Tools & Technologies

- **Automation:** Puppeteer, itchat
- **NLP & LLM:** DeepSeek LLM, SpaCy, NLTK
- **Backend:** FastAPI (Python), Express.js
- **Storage:** PostgreSQL, Firebase/MongoDB
- **Frontend:** Electron.js, React, Next.js

Evaluation Metrics

- **Summarization Accuracy:** Measure coherence, relevance, and precision via NLP metrics (ROUGE, BLEU, human review).
- **Processing Speed:** Track message extraction and summary generation time.
- **User Satisfaction:** Collect qualitative feedback through usability testing.
- **Security Compliance:** Evaluate encryption effectiveness and data protection practices.

By implementing LazyChat-Organizer, we aim to revolutionize how users interact with messaging platforms by transforming chat overload into meaningful, structured insights.