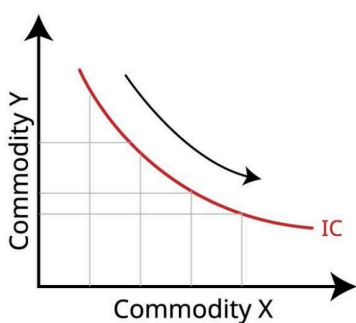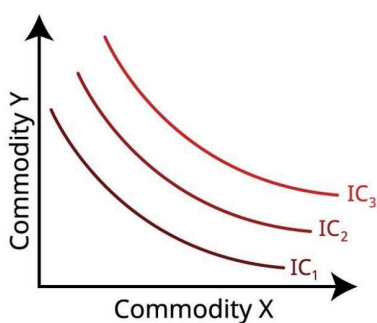# 🧠 LinguaFlow

LinguaFlow is a modern, Progressive Web App (PWA) designed to help Chinese speakers master English vocabulary through context and Spaced Repetition.

Unlike simple flashcards, LinguaFlow focuses on **context-first learning** (definitions, examples, pronunciation) and uses the **SuperMemo-2 (SM-2) algorithm** to schedule reviews at the optimal time to prevent forgetting.
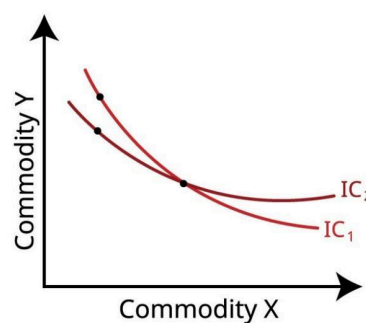
Indifference Curve

Indifference curve slopes downward to the right

Higher level of Indifference curve represents higher level of satisfaction

Indifference curve do not intersect each other

✨ Key Features

- 🚀 **Spaced Repetition System (SRS):** Automatically schedules words for review based on your performance ratings (Easy/Hard/Forgot).
- 📚 **Massive 30k Word Bank:** Built-in support for a 30,000+ word frequency database.
- 🗣️ **Natural Examples:** Uses high-quality sentences from the **Tatoeba Project** (human-translated) instead of robotic dictionary definitions.
- ☁️ **Cross-Platform Sync:** Sync your progress seamlessly between Desktop and Mobile using a free GitHub Gist (no servers required).
- 🔊 **Text-to-Speech:** Native browser audio pronunciation for words and example

sentences.
- 📱 **PWA Support:** Installable on iOS and Android. Works offline and feels like a native app.
- 📊 **Smart Queue:** Intelligently prioritizes overdue reviews before introducing new words.

🛠️ Tech Stack

- **Framework:** React 18 + TypeScript
- **Build Tool:** Vite
- **Styling:** Tailwind CSS
- **Icons:** Lucide React
- **Storage:** LocalStorage (Offline) + GitHub Gist API (Cloud Sync)
- **Deployment:** GitHub Pages

🚀 Getting Started

Prerequisites

- Node.js (v18 or higher)
- npm

Installation

1. **Clone the repository:**
   git clone
   https://github.com/YOUR_USERNAME/lingua-flow.git
   cd lingua-flow

2. **Install dependencies:**
   npm install

3. **Run the development server:**
   npm run dev

   Open http://localhost:5173 in your browser.

📚 Data Setup (The 30k Database)

To enable the massive 30,000 word library with examples, you need to generate the database file locally.

1. Download Source Files

You need two source files in your project root (or scripts/ folder):

- **30k-explained.txt**: The word list.
  - **Source:** high-frequency-vocabulary
- **eng_sentences.tsv**: The example sentences.
  - **Source:** Tatoeba Downloads -> Download "English" sentences (eng_sentences.tsv.tar.bz2) and extract it.

2. Generate the JSON

Run the included script to merge these files into a format the app can read:
Make sure you are in the root folder
python3 scripts/enrich_vocab.py

3. Move to Public

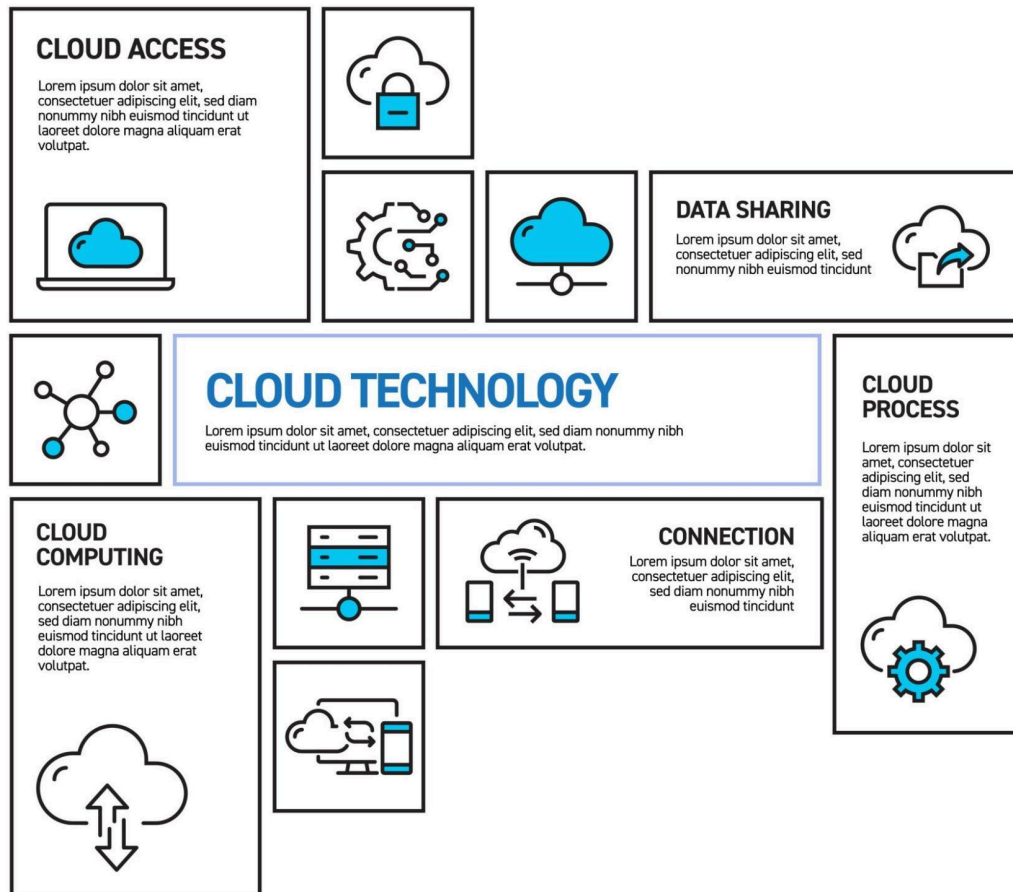The script generates vocab_30k.json. Move this file to your public/ folder:
mv vocab_30k.json public/

Now, when you open the app and go to **Library**, click "Download" on the 30k pack to load it instantly!

☁️ How to Sync Data (Multi-Device)

LinguaFlow uses **GitHub Gists** as a free, private cloud database.

Getty Images

Step 1: Get a GitHub Token

1. Log in to [GitHub](#).
2. Go to **Settings** -> **Developer settings** -> **Personal access tokens** -> **Tokens (classic)**.
3. Click **Generate new token (classic)**.
4. **Note:** "LinguaFlow Sync".
5. **Scopes:** Check **only** the gist box.
6. Copy the generated token (starts with ghp_...).

Step 2: Syncing

1. Open LinguaFlow and go to **Settings**.
2. Paste your Token into the **GitHub Token** field.
3. **Device A (Source):** Click **Save**. This creates a Gist ID.

4. **Device B (Target):**
    - Paste the **same Token**.
    - Paste the **Gist ID** (from Device A) into the "Connected Gist ID" field.
    - Click **Load**.

📦 Deployment

This project is configured for **GitHub Pages**.

1. Configure Base URL:
   Open vite.config.ts and ensure the base property matches your repo name:
   export default defineConfig({
     base: '/lingua-flow/', // Must match
   https://user.github.io/lingua-flow/
     // ...
   })

2. Deploy Script:
   Run the following command to build and deploy to the gh-pages branch automatically:
   npm run deploy