

Kenshi Resumes: AI-Powered Resume Builder Documentation

- **Project:** Kenshi Resumes (Frontend & Backend)
- **Audience:** Job seekers and general users, Developers, and Recruiters
- **License:** MIT (see *License & Credits*)

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Project Overview

Kenshi Resumes is an **AI-powered resume builder** designed to help **job seekers** create professional, ATS-friendly resumes quickly and easily. Leveraging Google’s cutting-edge **Gemini Flash 2.0** language model API, the application generates tailored resume content in seconds, while offering a live editing interface for users to customize their resume in real time. The project comprises a modern **React** frontend and a **Node.js/Express** backend with a **PostgreSQL** database, making it developer-friendly and scalable.

Purpose & Value: The main goal is to streamline resume creation: job applicants can input basic details (name, email, job title, etc.) and have high-quality resume sections generated by AI. It also provides **ATS (Applicant Tracking System) scoring and recommendations**, helping applicants optimize resumes to pass automated screening. Recruiters and HR professionals benefit indirectly: candidates using Kenshi Resumes will likely submit more polished, keyword-optimized resumes, improving the quality of applications they receive. The Telegram bot integration allows convenient resume delivery via chat.

Intended Users:

- **Job Seekers / End Users:** Those looking to build or improve a resume with AI assistance, using an intuitive web editor and optional ATS feedback.
- **Recruiters / Employers:** Although not direct users of the app, recruiters are addressed through features like ATS scoring (explained below) that ensure incoming resumes meet screening criteria. They can also share Kenshi Resumes with candidates to accelerate application processing.
- **Developers:** Tech-savvy contributors interested in extending or integrating the system. The codebase uses popular technologies (React, Node, Tailwind, PostgreSQL) and includes clear setup instructions (see *Setup & Installation*).

Key Features & Use Cases

- **AI-Generated Content:** Uses Google Gemini Flash 2.0 to write high-quality resume sections (summary, skills, experience, etc.) based on user input. This saves time and brings expertise to resume writing.
- **Live Resume Editor:** A React-powered interface allows users to edit their resume in real time with instant preview. Changes are reflected immediately, making customization easy.
- **Mobile-Responsive Design:** The frontend is built with React and Tailwind CSS, ensuring a clean, responsive layout on all devices (desktops, tablets, phones).
- **Secure & Private:** No third-party sharing of data – all resume data is stored in the user’s own database (PostgreSQL) via the backend. As the README notes, *“Your data stays safe and confidential.”*
- **ATS Checker & Recommendations:** Kenshi Resumes analyzes the resume with ATS in mind. It provides an **ATS score** and suggestions (via the Flash Recommendations API) to improve keyword usage and formatting. An ATS (Applicant Tracking System) is software that *“scans resumes for essentials like contact info, job titles, and keywords”* and filters applications. By highlighting missing keywords or sections, Kenshi Resumes helps job seekers craft resumes that are more likely to pass ATS filtering.
- **Telegram Bot:** An optional companion bot (Kenshi Resumes Bot) is available on Telegram. Users can send their resume to this bot to receive it via chat. The backend includes routes for Telegram integration, so a user can get their generated resume delivered through the messaging app.
- **Resume Storage & Retrieval:** Every generated resume is saved in the database. Users can retrieve previously generated resumes by querying their email, allowing them to save and reuse work.

Example Use Case (Job Seeker): Jane enters her name, email, and a desired job title. Kenshi Resumes calls the AI API to generate sections like a summary and skills. Jane edits the content in the live editor and sees how it will look in the final PDF. She then checks the ATS score; the app suggests adding a few more keywords related to her field to improve the score. Finally, she saves her resume and optionally sends it to her Telegram account via the bot for easy access.

Example Use Case (Recruiter): A recruiter shares Kenshi Resumes with candidates as a recommended tool. Candidates craft resumes tailored to the job description, increasing their fit. The recruiter can trust that submissions generated this way are ATS-optimized, reducing manual filtering. Additionally, recruiters can quickly view recommendations provided by the ATS checker to understand how candidates’ resumes were improved.

Tech Stack

- **Frontend:** React (Vite) for building the interactive resume editor and UI. React is a popular open-source library for creating user interfaces. Vite is used for fast development builds. Tailwind CSS provides utility-first styling, ensuring a polished design and responsive layout.
- **Backend:** Node.js and Express.js. Node.js is an open-source, cross-platform JavaScript runtime for server-side code. Express.js is a minimal and flexible web framework for Node.js that simplifies building APIs and web services.
- **AI Engine:** Google **Gemini Flash 2.0** API (via the AI Engine layer) for generating resume text and analyzing content. Gemini is Google’s latest state-of-the-art multimodal language model (released March 2025) with advanced reasoning abilities. Kenshi Resumes uses Gemini Flash 2.0 to power its AI content creation.
- **Database:** PostgreSQL – a powerful, open-source relational database. It stores user resume records, user info (email, name), and any generated content or metadata.
- **Styling:** Tailwind CSS for design and layout (utility classes enable rapid UI development).
- **Deployment Platforms:** Frontend is designed to be deployed on Vercel (a cloud platform for frontend hosting and deployment). The backend is deployed on Render (a cloud platform for hosting and deploying web services). These platforms offer seamless CI/CD: pushing code to GitHub can trigger automated deployments.

The tech stack balances modern development speed with stability. (E.g., React and Express are widely used in industry, while Gemini provides cutting-edge AI capability.) The diagram below outlines the high-level architecture:

- *User (browser)* → React UI (calls) → Express API → Gemini AI & PostgreSQL → responses to UI.

Architecture & Folder Structure

This section outlines the high-level organization of the code for both frontend and backend.

Frontend Structure

```
kenshi-resumes/
├── src/           # React source files (components, pages, utilities)
├── public/        # Static files (index.html, images, favicon)
├── server/        # Legacy Strapi Backend
├── .env           # Environment variables config (API keys, endpoints)
├── package.json   # Project metadata and scripts
└── README.md      # Documentation
```

- **src/** contains the React application code. Components like the resume editor, form inputs, and preview are implemented here.
- **public/** holds static assets and the base `index.html`.
- **.env** holds configuration values (e.g. `VITE_API_URL` for the backend API, `GEMINI_API_KEY`).
- **Routing and Interactions:** The app likely has a main `App` component that renders pages (e.g., a Home/Editor page). Components communicate via React state or context. On user actions (e.g., “Generate Resume” button), the frontend sends HTTP requests to the backend API. The editor updates the view in real time.
- **Deprecated server/ folder:** The `README.md` mentions a `server/` directory for a Strapi backend, but notes the current backend is a separate Node.js service (the **Kenshi-Resumes-Backend** repo). In practice, the frontend’s `server/` directory is legacy and not used in the new architecture.

Backend Structure

```
kenshi-resumes-backend/
├── index.js       # Express server entry point
├── flashAI.js     # AI-driven resume generation logic
├── flashRecommendations.js # ATS recommendations logic
├── bot.js         # Telegram bot integration
├── sharedData.js  # Shared constants/helpers
├── queries.sql    # SQL script to create needed tables
├── package.json   # Metadata and scripts
├── steps.txt      # Development & deployment steps (notes)
└── README.md      # Project documentation
```

- **index.js** : Sets up the Express server, routes, middleware (e.g., JSON parsing), and database connection. Defines API endpoints (as documented below).
- **flashAI.js** : Contains functions to call the Gemini API and process the input to generate resume content.
- **flashRecommendations.js** : Implements the logic for ATS scoring and suggestions. It likely parses the resume or uses an AI prompt to identify missing elements.
- **bot.js** : Handles the Telegram bot: receiving commands/requests, fetching resumes from the database, and sending files to the Telegram user.
- **sharedData.js** : Exports constants such as SQL queries, helper functions, or common API keys.
- **queries.sql** : SQL script defining the database schema (tables for users, resumes, etc.) – run once to initialize the PostgreSQL database.
- **steps.txt** : Contains notes on development and deployment process (e.g., connecting to Railway).
- **package.json** : Lists dependencies (Express, pg, etc.) and scripts like `start`.

Backend API Documentation

All API routes are prefixed by `/api`. The backend does **not** enforce user authentication; instead, it uses user-provided identifiers (like email or document ID) to fetch records. (For security, a real deployment might add token-based auth, but it is not implemented here. Instaed on client side, clerk is used.)

API Endpoints-

Base path

All endpoints are rooted at:

```
/api
```

Quick Reference Table

Endpoint	Method	Description
<code>/api/user-resumes/upload/:id:teleUser</code>	POST	Upload a resume file (Telegram user). Expects multipart <code>files</code> .
<code>/api/user-resumes</code>	POST	Create a new resume entry (inserts into DB). Response: fixed <code>{ data: { documentId: 1 } }</code> (see note).
<code>/api/user-resumes?userEmail=<email></code>	GET	Get all resumes for a user.
<code>/api/user-resumes/:id?populate=*</code>	GET	Get a resume and its related sections (experience, education, skills).
<code>/api/user-resumes/:id</code>	PUT	Update a specific resume section (<code>summery</code> , <code>personalDetails</code> , <code>experience</code> , <code>education</code> , <code>skills</code> , or theme color).
<code>/api/user-resumes/:id</code>	DELETE	Delete a resume and related DB rows (resume, experience, education, skills, telegramusers).
<code>/api/user-resumes/ats/:id</code>	POST	Upload a resume file for ATS processing. Expects multipart <code>files</code> .
<code>/api/user-resumes/fetchScore/:id</code>	GET	Return ATS score JSON after <code>flashAI</code> has populated <code>dataForAts</code> .
<code>/api/user-resumes/fetchRecommendations/:id</code>	GET	Return recommendations array after ATS processing and <code>fetchRecommendations()</code> runs.
<code>/api/feedbacks</code>	POST	Submit feedback.
<code>/api/feedbacks</code>	GET	Get all feedbacks (stored in server memory).

Detailed Endpoints

1. Upload Resume (Telegram User)

POST `/api/user-resumes/upload/:id:teleUser`

Description: Uploads a PDF (or other file) for a Telegram user. The route uses `multer` with memory storage and expects the file field named `files`. The file buffer is inserted into the `telegramusers` table. The server also updates `sharedData` (buffer, id, fileName).

Path params:

- `:id` — documentId to store in DB (string)
- `:teleUser` — telegram username (string)

Request headers:

```
Content-Type: multipart/form-data
```

Request body (multipart):

- `files` — file binary (uploaded file)

Behavior & responses (per code):

- If no file is sent:

- **Status:** 400 Bad Request
- **Body (JSON):**

```
{ "error": "No file uploaded" }
```

- If file is received and DB insert succeeds:

- **Status:** 200 OK
- **Body (plain text):** (exact string)

```
File uploaded successfully with id <id>
```

- Example: File uploaded successfully with id 12345

- If DB insertion / other error occurs:

- The code logs the error to console; there is no explicit error `res.status(...)` other than the 400 case — but failures will be visible in server logs.

Notes:

- The code stores the file buffer to DB column `pdf` and filename into `fileName` for `telegramusers` table.
- `sharedData` outer export is updated with buffer, id and `fileName` (server-side).

2. Create Resume entry

POST `/api/user-resumes`

Description: Inserts a row into `resume` table with (`title`, `documentId`, `userEmail`, `userName`) using `req.body.data`. Important: due to how the code is written, the response sent is a fixed object declared before the DB insertion (see below).

Request headers:

```
Content-Type: application/json
```

Request body (expected by insertion):

```
{
  "data": {
    "title": "Software Engineer Resume",
    "documentId": 12345,
    "userEmail": "john@example.com",
    "userName": "John Doe"
  }
}
```

Behavior & responses (per code):

- The server attempts to `INSERT INTO resume (title, "documentId", "userEmail", "userName")` using `req.body.data` values.
- **Response sent by the code:** the function returns the pre-declared `data` object:

```
{
  "data": {
    "documentId": 1
  }
}
```

This is because there is an outer `const data = { data: { documentId: documentId } }` (which is `1`) and an inner `const data = req.body.data` inside the `try` block; the inner one is block-scoped and the `res.send(data)` outside the `try` refers to the outer `data`. Therefore, **the response is always** `{ "data": { "documentId": 1 } }` per the current code, regardless of the inserted values. (The DB insert still runs using `req.body.data`.)

- If DB insertion throws, the code logs the error; no error response is explicitly returned (client will still receive the outer `data` response unless the server crashes).

3. Get All Resumes (by user email)

GET /api/user-resumes?userEmail=<email>

Description: Fetches all rows from `resume` table where `"userEmail" = $1` (value from query param). Response is JSON with `data` key containing DB rows.

Query params:

- `userEmail` — the email used to filter resumes (required)

Response (success): 200 OK with JSON:

```
{
  "data": [
    {
      "id": <db id>,
      "title": "...",
      "documentId": ...,
      "userEmail": "...",
      "userName": "...",
      // other columns present in the resume table row
    }
    // ...more rows
  ]
}
```

Failure: On DB error, server logs error and responds:

- **Status:** 500 Internal Server Error
- **Body (plain text):** Error fetching data from database

4. Get Resume with Details (experience, education, skills)

GET /api/user-resumes/:id?populate=*

Description: When `populate=*` query is present exactly, the route fetches the `resume` row for given `documentId` and then loads related `experience`, `education`, and `skills` rows for that `documentId`. It transforms DB columns that are arrays (in the DB) into structured arrays of objects in the response.

Path params:

- `:id` — the `documentId` to fetch

Query params:

- `populate` — must be exactly `*` to return populated data; otherwise the handler responds with an error (see below).

Response (success) — structure produced by code:

```

{
  "data": {
    // fields from the resume row (as returned by DB), for example:
    "documentId": 12345,
    "title": "Software Engineer Resume",
    "summery": "Experienced dev...",
    // plus three populated arrays:
    "Experience": [
      {
        "title": "...",
        "companyName": "...",
        "city": "...",
        "state": "...",
        "startDate": "...",
        "endDate": "...",
        "workSummery": "..."
      }
      // ... for each experience entry
    ],
    "education": [
      {
        "degree": "...",
        "university": "...",
        "major": "...",
        "startDate": "...",
        "endDate": "...",
        "description": "..."
      }
      // ... for each education entry
    ],
    "skills": [
      {
        "name": "...",
        "rating": "..."
      }
      // ... for each skill entry
    ]
  }
}

```

Failure cases:

- If `populate` query is missing or not exactly `*`:
 - **Status:** 500 Internal Server Error
 - **Body (plain text):** No populate query found
- If DB fetching fails for any query, code logs the error and sends:
 - **Status:** 500 Internal Server Error
 - **Body (plain text):** Error fetching data from database

Notes about transformation logic:

- `experience`, `education`, and `skills` rows are expected to have array columns (`title`, `companyName`, `startDate`, etc.). The code iterates the arrays and builds a list of objects per entry.

5. Update Resume Section

PUT `/api/user-resumes/:id`

Description: Updates one of several sections of a resume based on `req.body.section`. The handler expects `req.body.data` containing the data for that section and `req.params.id` for `documentId`. After performing DB updates/inserts, the handler responds by echoing the entire `req.body`.

Request headers:

Content-Type: application/json

Request body – required fields:

```
{
  "section": "<one of: summery, personalDetails, experience, education, skills, (otherwise theme color)>",
  "data": { ... }
}
```

Supported section values and required data shapes (as used by code):

- summery
 - data object must contain summery string.
 - DB query: `UPDATE resume SET "summery" = $1 WHERE "documentId" = $2`

Example request body:

```
{
  "section": "summery",
  "data": { "summery": "Experienced full-stack developer..." }
}
```

- personalDetails
 - data must contain firstName, lastName, jobTitle, address, phone, email.
 - DB query updates corresponding columns in resume table.

Example:

```
{
  "section": "personalDetails",
  "data": {
    "firstName": "John",
    "lastName": "Doe",
    "jobTitle": "Software Engineer",
    "address": "Lucknow, India",
    "phone": "+91 9876543210",
    "email": "john@example.com"
  }
}
```

- experience
 - data shape per code: `{ "Experience": [{ title, companyName, city, state, startDate, endDate, workSummery }, ...] }`
 - The handler extracts arrays from the provided Experience array and writes them into the experience table as array columns. It either UPDATE s an existing experience row for the documentId or INSERT s a new row and then updates it.

Example:

```
{
  "section": "experience",
  "data": {
    "Experience": [
      {
        "title": "Software Engineer",
        "companyName": "Tech Corp",
        "city": "Mumbai",
        "state": "MH",
        "startDate": "2022-06-01",
        "endDate": "2024-06-01",
        "workSummery": "Worked on APIs..."
      }
    ]
  }
}
```

- education
 - data shape: `{ "education": [{ degree, university, major, startDate, endDate, description }, ...] }`
 - The handler converts these into parallel arrays and updates/inserts into education table.

Example:

```
{
  "section": "education",
  "data": {
    "education": [
      {
        "degree": "B.Tech",
        "university": "Amity University",
        "major": "CSE",
        "startDate": "2022",
        "endDate": "2026",
        "description": "High GPA"
      }
    ]
  }
}
```

- **skills**
 - data shape: { "skills": [{ name, rating }, ...] }
 - Handler converts to name[] and rating[] arrays and updates/inserts into skills table.

Example:

```
{
  "section": "skills",
  "data": {
    "skills": [
      { "name": "JavaScript", "rating": 5 },
      { "name": "React", "rating": 4 }
    ]
  }
}
```

- **Fallback (theme color)**
 - If section is none of the above, code treats the request as themeColor update. It expects data.themeColor and runs:
UPDATE resume SET "themeColor" = \$1 WHERE "documentId" = \$2

Example:

```
{
  "section": "theme",
  "data": { "themeColor": "#6EE7B7" }
}
```

Response (per code): server returns the exact req.body as-is:

- **Status:** 200 OK (implied)
- **Body:** the same JSON object sent in the request (echo).
Example echo response for a skills update will be the same JSON as the request body above.

Errors: On DB error the code logs error; no explicit error payload is returned by the handler (it still ends with res.send(req.body) irrespective of success/failure).

6. Delete Resume and related rows

DELETE /api/user-resumes/:id

Description: Deletes rows matching documentId from resume, experience, education, skills, and telegramusers tables.

Path params:

- :id — documentId to delete

Success response:

- **Status:** 200 OK
- **Body (plain text):** (exact string)

```
Document deleted successfully with id <id>
```

Failure: If any DB error occurs:

- **Status:** 500 Internal Server Error
- **Body (plain text):** Error deleting data from database

7. Upload Resume for ATS processing

POST `/api/user-resumes/ats/:id`

Description: Uploads file (field `files`), stores buffer into shared data via `setBuffer()` and calls `fetchATS()` (imported from `flashAI.js`). After calling `fetchATS()` the route responds with a plain-text message.

Request headers:

```
Content-Type: multipart/form-data
```

Request body (multipart):

- `files` — uploaded file

Response:

- **Status:** 200 OK
- **Body (plain text):**

```
ATS score fetched successfully with id <id>
```

Note: `fetchATS()` runs asynchronously and the route does not wait for a separate result besides awaiting the function call — the actual ATS results are later available via `GET /api/user-resumes/fetchScore/:id` which reads `dataForAts` exported from `sharedData.js`.

8. Fetch ATS Score

GET `/api/user-resumes/fetchScore/:id`

Description: Waits until `dataForAts.fetched` becomes truthy, then returns the `score` and `fetched` flags from `dataForAts` object (imported from `sharedData.js`). The route polls every 3 seconds while waiting.

Path params:

- `:id` — passed but not used to index the stored `dataForAts` in code; response uses global `dataForAts` object.

Response (per code):

- **Status:** 200 OK
- **Body (JSON):**

```
{
  "score": <dataForAts.score>,
  "fetched": <dataForAts.fetched>
}
```

Example if `dataForAts.score` is 78 and `fetched` is true:

```
{ "score": 78, "fetched": true }
```

Notes: The code polls until `dataForAts.fetched` is `true`. There is no timeout in the handler; a long wait will keep the request open until the flag changes.

9. Fetch Recommendations

GET `/api/user-resumes/fetchRecommendations/:id`

Description: Waits until `dataForAts.fetched` is true, then calls `fetchRecommendations()` (which populates the exported `recommendations` variable from `flashRecommendations.js`) and returns that `recommendations` array in JSON.

Path params:

- `:id` — accepted but not used to select which recommendations to return; the handler returns the module-level `recommendations` value.

Response:

- **Status:** 200 OK
- **Body (JSON):**

```
{
  "recommendations": [ /* contents of imported `recommendations` array */ ]
}
```

Notes: The endpoint calls `await fetchRecommendations()` after waiting for `dataForAts.fetched`, so it triggers generation/refresh of `recommendations` before returning them.

🔗 Submit Feedback

POST /api/feedbacks

Description: Pushes req.body into the server in-memory feedback array (exported) if present, and responds with a plain text confirmation.

Request headers:

```
Content-Type: application/json
```

Request body: any JSON object representing feedback. Example:

```
{
  "rating": 5,
  "feedback": "Amazing resume builder!"
}
```

Response (per code):

- **Status:** 200 OK
- **Body (plain text):**

```
Feedback received successfully
```

Notes: feedback array begins with a default entry:

```
[
  {
    "rating": -1,
    "feedback": "No ratings given yet!"
  }
]
```

New feedback items are pushed into that array in memory (not persisted to DB).

🔗 Get All Feedbacks

GET /api/feedbacks

Description: Returns the server in-memory feedback array as JSON.

Response:

- **Status:** 200 OK
- **Body (JSON):** current feedback array, e.g.

```
[
  { "rating": -1, "feedback": "No ratings given yet!" },
  { "rating": 5, "feedback": "Amazing resume builder!" }
]
```

Root / Static route

GET / (no /api prefix) — Serves public/index.html using res.sendFile(__dirname + "/public/index.html") .

Implementation notes & future improvement-(AFTER REVIEW BY DEVELOPERS)

- Several handlers return plain text strings (e.g. upload success, delete success, ATS upload success, feedback confirmation) — they are **not JSON** unless explicitly using res.json . Keep that in mind if a client expects JSON.
- POST /api/user-resumes responds with a fixed { "data": { "documentId": 1 } } due to how variables are scoped in the handler (outer data object is sent). This behavior is faithful to the provided code.
- GET /api/user-resumes/fetchScore/:id and /fetchRecommendations/:id rely on module-level state (dataForAts and recommendations) — the routes wait (poll) until dataForAts.fetched is true. There is no per-user documentId mapping in these handlers: they return the module-level values.

- Error paths often just log and return generic text or HTTP 500; consider adding consistent JSON error payloads in future for API clarity.

AI Model Modules

This document describes the AI-related modules implemented in the backend logic.

Environment

- **Required environment variable:** `GOOGLE_API_KEY`
The code instantiates `new GoogleGenAI({ apiKey: process.env.GOOGLE_API_KEY })`. If this variable is missing or invalid, the Google GenAI client will not authenticate correctly.
-

Files & Modules Covered

- `flashAI.js` — Generates an ATS score using Google GenAI and sets it via `setScore`.
 - `flashRecommendations.js` — Generates resume improvement recommendations using Google GenAI and exports `recommendations`.
 - `sharedData.js` — Shared state between modules: `dataForAts`, `setBuffer(buffer)`, `setScore(score)`.
-

1) `flashAI.js` (AI ATS scorer)

Exports / API

- **Default export:** `async function main()` — when invoked it:
 - reads `dataForAts.buffer`
 - if buffer is null -> logs error and returns
 - otherwise constructs `contents` for `ai.models.generateContent()` and calls the Google GenAI client
 - cleans the returned `response.text`, parses it as JSON, reads `ats_score`, and calls `setScore(score)`.

Important code behavior

- `const ai = new GoogleGenAI({ apiKey: process.env.GOOGLE_API_KEY });`
- `const pdfResp = dataForAts.buffer;`
 - If `pdfResp === null`, the function logs "Buffer is null. Buffer not initialized yet." and returns.
- `contents` is an array with two elements:
 1. A `text` item containing the instruction:

```
Give ats score for the resume returning a json(not markdown) as follows and do not say anything else.
{
  "ats_score": ats score in percentage
}
```

2. An `inlineData` object:

```
{
  inlineData: {
    mimeType: 'application/pdf',
    data: Buffer.from(pdfResp).toString("base64")
  }
}
```

- The code calls:

```
const response = await ai.models.generateContent({
  model: "gemini-2.0-flash",
  contents: contents
});
```

- Post-processing:
 - `response.text` is cleaned by removing any occurrences of "json" or " " via `response.text.replace(/``json|``/g, '').trim();`
 - The function uses `JSON.parse(cleaned)` (exactly) and expects the result to be an object with an `ats_score` property.
 - It logs `JSON.parse(cleaned)` and then `console.log("ATS score:", score.ats_score);`
 - Finally calls `setScore(score.ats_score);`

Expected AI output format (required by the code)

The AI `response.text` must contain valid JSON (possibly wrapped in code fences). After removing code fences the string must parse to:

```
{
  "ats_score": <number>
}
```

The code will parse this and pass the numeric `ats_score` value to `setScore()` .

Error handling & notes for future improvements (AFTER REVIEW BY DEVELOPERS)

- If the AI returns malformed JSON that cannot be parsed by `JSON.parse` , the code will throw and crash unless the exception is caught elsewhere. The code does not wrap `JSON.parse` in a `try/catch` in the snippet you provided.
- The `main()` function is **not** invoked automatically in the file (it's commented out). It must be imported and called by another module (e.g., the server) to run.

2) flashRecommendations.js (AI recommendations generator)

Exports / API

- **Default export:** `async function main()` – when invoked:
 - reads `dataForAts.buffer`
 - if buffer is null -> logs error and returns
 - otherwise constructs `contents` for `ai.models.generateContent()` and calls the Google GenAI client
 - processes `response.text` into a cleaned `recommendations` string (module-level)
- **Named export:** `export { recommendations }` – `recommendations` is a module-level `let` that holds the cleaned `response.text` .

Important code behavior

- `const ai = new GoogleGenAI({ apiKey: process.env.GOOGLE_API_KEY });`
- `let recommendations = '';` (module-level variable)
- The function constructs `contents` :
 1. A text item: "Give recommendations to improve this resume's ATS Scores."
 2. An `inlineData` object with the PDF buffer base64 identical to `flashAI.js` .
- Calls:

```
const response = await ai.models.generateContent({
  model: "gemini-2.0-flash",
  contents: contents
});
```

- Post-processing of `response.text` (exact sequence):
 1. `console.log(response.text);`
 2. `recommendations = response.text`
 - `.replace(/*(.*?)*/g, (_, text) => text.toUpperCase())`
 - `.replace(/\(.*?)*/g, (_, text) => text)`
 - `.replace(/ ?{2,}/g, ' ')`

) - .replace(/[^\#_>~]/g, "") - .trim();`

- The `recommendations` variable holds the final cleaned string and is exported.

Expected AI output format

- The code treats the AI reply as plain text (not JSON). The reply can be in Markdown or plain text; the code attempts to clean Markdown-like characters and normalize spacing. The final exported `recommendations` is a string.

Error handling & notes for future improvements(AFTER REVIEW BY DEVELOPERS)

- If `dataForAts.buffer` is `null`, the function logs "Buffer is null for recommendations. Buffer not intialized yet." and returns.
- The `main()` function is **not** invoked automatically (commented out). Another module must import and call it.
- The code does not validate or parse the AI text into structured JSON – it leaves `recommendations` as a cleaned string.

3) sharedData.js (shared state)

Exports / API (exact)

- **Exported object:** `export let dataForAts = { buffer: null, score: 0, fetched: false };`
- **Exported function:** `export function setBuffer(buffer)`
 - Sets `dataForAts.buffer = buffer;`
 - Resets `dataForAts.score = 0;`
 - Sets `dataForAts.fetched = false;`
- **Exported function:** `export function setScore(score)`
 - Sets `dataForAts.score = score;`
 - Sets `dataForAts.fetched = true;`

Behavior

- `dataForAts` is a shared module-level object used by both AI modules and the server.
- Typical flow intended by the code:
 1. Some code (e.g., server route) calls `setBuffer()` with a PDF buffer (from upload).
 2. `flashAI.main()` reads `dataForAts.buffer`, generates an ATS score, and calls `setScore()`.
 3. `dataForAts.fetched` becomes `true` and `dataForAts.score` holds the ATS numeric score.
 4. Other parts of the server poll or read `dataForAts` (for example `GET /api/user-resumes/fetchScore/:id` waits for `dataForAts.fetched`).

Notes & caveats (AFTER REVIEW BY DEVELOPERS)

- `dataForAts` is process-global per Node process. It is **not** persisted across restarts.
- No concurrency locks or queuing are implemented — if multiple buffers are set concurrently, the last one wins.
- `setBuffer()` resets `score` and `fetched` to initial values; callers must wait for `setScore()` to be called to see `fetched: true`.

Usage summary

- The server sets the PDF buffer via `setBuffer(req.file.buffer)` (server code does this in `/api/user-resumes/ats/:id`).
- After `setBuffer()` the server calls `await fetchATS()` (which is the default export of `flashAI.js`) — this triggers the GenAI call and eventually `setScore()`.
 - In your server code:

```
setBuffer(req.file.buffer);
await fetchATS();
```

- Later, server route `GET /api/user-resumes/fetchScore/:id` polls `dataForAts.fetched` and returns `dataForAts.score` and `dataForAts.fetched` as JSON (server code handles this).
- For recommendations, the server calls `await fetchRecommendations()` (default export of `flashRecommendations.js`) and then returns the exported `recommendations` array/string.

Implementation caveats & exact behavior to be aware of (AFTER REVIEW BY DEVELOPERS)

- **AI response parsing is strict in `flashAI.js`:** the code expects JSON text that parses to an object with `ats_score`. The code will `JSON.parse` without `try/catch`.
- **`flashRecommendations.js` returns a plain string:** the server returns `recommendations` as whatever cleaned text the AI returned — there is no structure enforced.
- **No per-document mapping in `sharedData`:** `dataForAts` is a single global buffer/score. The `:id` path params in server endpoints are not used to index multiple `dataForAts` objects.
- **Both `main()` functions are not auto-executed** (their `main()` calls are commented out in the provided snippets). They must be invoked by the server or another orchestrator to run.

Exact strings logged / expected messages

- "Buffer is null. Buffer not intialized yet." — from `flashAI.js` when buffer is null
- "Buffer is null for recommendations. Buffer not intialized yet." — from `flashRecommendations.js` when buffer is null
- The server code prints "ATS score:" and the numeric value after parsing in `flashAI.js`.

Telegram Bot

This document describes the Telegram bot module implemented in the backend logic.

Environment

- **Required environment variable:** `TELEGRAM_BOT_TOKEN`

The bot is instantiated with:

```
const token = process.env.TELEGRAM_BOT_TOKEN;
const bot = new TelegramBot(token, { polling: true });
```

Main behavior & listeners

1) `bot.onText(/greet/, (msg, match) => { ... })`

Description:

- The code registers an `onText` handler using the regular expression literal `/greet/`.
- Inside the handler:
 - `const chatId = msg.chat.id;`
 - `const resp = match[1];` // `match[1]` is used
 - Sends a reply:

```
bot.sendMessage(chatId, "Hello, I am your bot! How can I assist you today?
Answered to:" + resp);
```

Notes & caveats (AFTER REVIEW BY DEVELOPERS):

- The regex `/greet/` does not contain a capture group (i.e., there is no `(...)` group), so `match[1]` will be `undefined` unless the regex engine or `node-telegram-bot-api` provides a different `match` shape. The code uses `match[1]` directly — the resulting `resp` may therefore be `undefined`.
- The regex literal includes a backslash before `g` (`\g`) which is not a standard escape sequence; depending on JS engine it may be interpreted as `g` or cause unexpected behavior. This is a factual observation of the code — the code does not alter the regex.

2) `bot.onText(/\sendpdf/, async (msg, match) => { ... })`

Description:

- Handler activated when incoming text matches `/\sendpdf/` (a literal `/sendpdf` command).
- Steps performed (per code):
 1. `const chatId = msg.chat.id;`
 2. `const userName = msg.from.username;`
 3. Logs `sharedData`.
 4. Executes DB query:

```
const result = await db.query(`SELECT * FROM telegramusers WHERE "userName" = $1`, [userName]);
```

5. If `result.rows.length > 0`, the code iterates `result.rows.forEach((row) => { ... })` and for each `row`:
 - `const pdfData = row.pdf;` (assigned as `const`)
 - Checks:

```
if (!Buffer.isBuffer(pdfData)) {
  console.log("pdfData is not a buffer. Converting...");
  pdfData = Buffer.from(pdfData, 'binary');
}
```

- Sends document:

```
bot.sendDocument(chatId, pdfData, {
  caption: 'Here is your AI-generated Resume!',
}, {
  filename: row.fileName,
  contentType: 'application/pdf',
})
.catch((error) => {
  console.error('Error sending document:', error);
  bot.sendMessage(chatId, 'Sorry, there was an error sending the PDF.');
```

6. If no rows found, sends:

```
bot.sendMessage(chatId, 'Sorry, no records found!');
```

7. If DB query throws, `catch` block logs error and sends:

```
bot.sendMessage(chatId, 'Sorry, you are not authorized to access this document.');
```

Notes & exact caveats visible in code:(AFTER REVIEW BY DEVELOPERS)

- `pdfData` is declared with `const pdfData = row.pdf;` and later reassigned with `pdfData = Buffer.from(...)` inside the `if` block. Reassigning a `const` will throw a runtime `TypeError (Assignment to constant variable)` – this would crash the handler at runtime unless changed to `let`. The code as written performs this reassignment.
- The `Buffer.isBuffer(pdfData)` check is present; if `row.pdf` is not a Buffer (for example a binary string), the code attempts to convert it to a Buffer (but due to `const` it will error as described).
- `bot.sendDocument` is called with four arguments in the code: `(chatId, pdfData, { caption }, { filename, contentType })`. The node-telegram-bot-api `sendDocument` signature usually expects `(chatId, doc, options)` where `options` may include `caption` and `filename`. The code supplies two separate option objects – the code will pass these literally to the library as written; behavior depends on the library's parameter handling.
- The database query uses `userName` taken from `msg.from.username`. If `username` is `undefined` (user hasn't set a Telegram username), the query will run with `[undefined]` and likely return no rows.

3) `bot.on('message', (msg) => { ... })`

Description (exact):

- Listens for any incoming message.
- Inside handler:
 - `const chatId = msg.chat.id;`
 - Logs the message: `console.log("Response from user", msg);`
 - Sends a fixed reply:

```
bot.sendMessage(chatId, 'Hello,Kenshin Commander reporting! Have a pathetic day baby!');
```

Notes:

- The reply string is exactly as in code and will be sent for every message received (including commands) unless other handlers intercept earlier. The string contains wording that may be considered informal; documentation records the exact text.

Permissions & setup notes

- Bot uses **polling** (not webhooks):

```
const bot = new TelegramBot(token, { polling: true });
```

- Ensure `TELEGRAM_BOT_TOKEN` is set in environment before running.

Potential runtime issues – exact observations from code(AFTER REVIEW BY DEVELOPERS)

- Reassigning `const pdfData` will throw at runtime when `row.pdf` is not already a Buffer and the conversion code attempts `pdfData = Buffer.from(...)`.
- `bot.onText(/greet/, ...)` uses `match[1]` though the regex has no capture group – `resp` will likely be `undefined`.
- `bot.sendDocument` invocation uses two option objects; depending on the bot library's implementation this may or may not behave as intended.
- The DB query and document send assume `userName` exists in `msg.from.username`; if absent, the query may find no rows.

Exact strings logged / sent by the bot

- Logged: `console.log("received data--->", sharedData);` (in `sendpdf` handler)
- Sent as reply in `greet` handler:

```
Hello, I am your bot! How can I assist you today?
Answered to: <resp>
```

(where `<resp>` equals `match[1]` per code; possibly `undefined`.)

- Sent when sending a PDF: caption `'Here is your AI-generated Resume!'`
- Sent on DB error or no records: `'Sorry, no records found!'` or `'Sorry, you are not authorized to access this document.'`
- Default message for any message:

```
Hello,Kenshin Commander reporting! Have a pathetic day baby!
```

Recommendation (code-level) — purely informational(AFTER REVIEW BY DEVELOPERS)

The following suggestions are *observations* based on the exact code and are provided only to help avoid runtime errors if you decide to modify the code:

- Change `const pdfData = row.pdf;` to `let pdfData = row.pdf;` before attempting to reassign it.
- Use a regex with a capture group when you intend to access `match[1]`, for example `/\/greet (.+)/` (if you actually want a captured parameter), or use the provided `msg.text` directly.
- Consolidate `sendDocument` options into a single options object as the library expects, for example:

```
bot.sendDocument(chatId, pdfData, { caption: '...', filename: row.fileName, contentType: 'application/pdf' })
```

These changes may be applied to the current code in future — only suggestions after review are mentioned.

Frontend Components & Interactions

The React frontend is structured around user interaction with resume data. While the exact component file names may vary, the logical flow is:

1. **Landing / Editor Page:** When a user visits Kenshi Resumes, they see a form with fields (Name, Email, Job Title, etc.) and a “Generate Resume” button. This is likely implemented as a React component (e.g. `EditorPage`).
2. **State Management:** As the user fills form fields, state (probably using `React useState`) is updated.
3. **Generate Action:** On clicking “Generate,” the app sends a `POST /api/user-resumes` request (via `fetch` or `Axios`) with the user’s data.
4. **Loading/Feedback:** The UI shows a spinner or message while the AI content is being generated.
5. **Display Resume:** Once the response arrives, the generated resume content (probably returned in the API response or fetched via another call) is displayed in a live preview pane. This could be done with a component like `ResumePreview` that takes JSON data and renders formatted resume sections.
6. **Editing:** The user can edit any part of the resume in a rich text editor (e.g. `contentEditable` fields or separate input fields) and see changes in real-time. Components for each section (e.g. `ExperienceSection`, `EducationSection`) allow inline editing.
7. **ATS Score & Recommendations:** The user can click “Check ATS Score.” This triggers a request to `/api/user-resumes/fetchRecommendations/:id` which returns tips. The app displays these tips, perhaps highlighting missing keywords.
8. **Save/Download:** The user can save the resume to their browser (e.g. download a PDF) or send it via Telegram. The “Send to Telegram” button might instruct the bot to send the resume to the user’s Telegram account, using the `POST /upload` route behind the scenes.
9. **Navigation/Routes:** The frontend may use `React Router` (or a single-page layout) for navigation. For example, there might be routes for `/editor`, `/preview`, `/about`, etc. However, since the repo is a single application, it might just be one page with conditional rendering.

Interactions Summary: Components communicate via props/state. Key interactions are form submission (to backend), content editing (in the browser), and the dynamic preview. All UI actions that require data (like generating or getting recommendations) are implemented with `fetch` calls to the backend API routes listed above.

Setup & Installation

Follow these steps to set up the project locally for development (each repo must be set up separately):

1. **Prerequisites:** Ensure you have Node.js (v16 or later) and PostgreSQL (v12+) installed. If deploying on Railway, you can use their PostgreSQL add-on.
2. **Clone the Repositories:**

- Frontend: `git clone https://github.com/Kenshi2727/Kenshi-Resumes-AI-Powered.git`
- Backend: `git clone https://github.com/Kenshi2727/Kenshi-Resumes-Backend.git`

3. **Install Dependencies:** For each project folder, run:

```
cd kenshi-resumes-ai-powered # frontend directory
npm install
cd ../Kenshi-Resumes-Backend # backend directory
npm install
```

4. **Configure Environment Variables:**

- In **frontend**, create a `.env` in the root (you may copy from `.env.example` if available). Set `VITE_API_URL` to point to your backend (e.g. `http://localhost:5000`).
- In **backend**, create a `.env` file with the following keys:

```
PORT=5000
DATABASE_URL=postgresql://<user>:<password>@<host>:<port>/<database>
GEMINI_API_KEY=<your_google_gemini_api_key>
TELEGRAM_BOT_TOKEN=<your_telegram_bot_token> # optional, if using Telegram
```

Replace `<user>`, `<password>`, etc., with your PostgreSQL credentials. `GEMINI_API_KEY` is required to call the Gemini API.

5. **Initialize the Database:** Using your PostgreSQL client (psql or a GUI), run the SQL script provided:

```
psql $DATABASE_URL -f queries.sql
```

This creates the necessary tables for users, resumes, etc.

6. Run the Servers:

- **Backend:** In the `Kenshi-Resumes-Backend` folder, start the server:

```
npm start
```

The Express API should now be listening (e.g. on `http://localhost:5000`).

- **Frontend:** In the `Kenshi-Resumes-AI-Powered` folder, start the development server:

```
npm run dev
```

Vite will host the React app (commonly on `http://localhost:5173`). Open this in your browser.

Now you can use the app locally. When you click “Generate,” the frontend will call the local backend and populate the resume.

Deployment

Frontend (Vercel)

Kenshi Resumes frontend is designed for deployment on **Vercel**, an end-to-end platform for hosting and deploying web applications. To deploy:

1. Push your frontend code to a GitHub repository.
2. Create a Vercel account (free tier available).
3. Import the GitHub repo into Vercel. It will auto-detect the React/Vite setup and create a production build.
4. Set environment variables in the Vercel dashboard: e.g. `VITE_API_URL` (pointing to your backend URL) and `GEMINI_API_KEY`.
5. Deploy. Vercel will provide a URL (like `https://kenshi-resumes-ai-powered.vercel.app`) where the app is live.

Vercel supports real-time previews for pull requests and handles HTTPS certificates automatically. It can be configured via the [vercel.json](#) file included in the repo.

Backend (Render)

Render Deployment & CORS Patch —

Part A — CORS patch (ready to paste)

Below is a small code patch you can paste into your backend entry file (the file that contains your Express `app` and `app.use(cors(...))` call). It adds your Render service URL via an environment variable `RENDER_URL` while keeping existing allowed origins. Paste the replacement block **in place of** the existing `app.use(cors({ ... })))` block in your code.

```

--- original
+app.use(cors({
-   origin: ['https://kenshi-resumes-ai-powered.vercel.app', 'https://www.kenshi-res.app'],
-   // origin: 'http://localhost:5173', // origins for development
-   methods: ['GET', 'POST', 'PUT', 'DELETE', 'OPTIONS'],
-   allowedHeaders: ['Content-Type', 'Authorization'],
-   //   credentials: true, // if using cookies/auth headers
-})); // Allow cross-origin requests
+// Allow CORS from known frontends and the Render backend URL (if provided)
+// Add RENDER_URL as an environment variable on Render (e.g. https://your-backend.onrender.com)
+const allowedOrigins = [
+  process.env.RENDER_URL, // Render service URL (set this in Render's Environment settings)
+  'https://kenshi-resumes-ai-powered.vercel.app',
+  'https://www.kenshi-res.app'
+].filter(Boolean); // remove any undefined/empty values
+
+app.use(cors({
+  origin: allowedOrigins,
+  // origin: 'http://localhost:5173', // uncomment during local development if needed
+  methods: ['GET', 'POST', 'PUT', 'DELETE', 'OPTIONS'],
+  allowedHeaders: ['Content-Type', 'Authorization'],
+  // credentials: true, // enable if you use cookies/auth headers
+})); // Allow cross-origin requests

```

Notes:

- Set an environment variable `RENDER_URL` in Render to your service URL (e.g. `https://your-backend.onrender.com`). The patch reads `process.env.RENDER_URL` at runtime.
- The `.filter(Boolean)` ensures `undefined` or empty values are removed so CORS doesn't get `[""]` as an origin.
- After pasting, redeploy on Render so the new CORS origins take effect.
- If your code file uses `app.use(express.static('public'))` and other middleware order matters, keep this replacement in the same place as the original `app.use(cors(...))` line (do not move it above `app.use(express.static())` if you relied on the previous order).

Part B – Render deployment checklist (fill secrets in Render dashboard)

This checklist helps you deploy or update the Kenshi Resumes backend on **Render**, and includes exact environment variable names your code expects.

1. Repo & Service

- Push your backend code to GitHub (branch you want to deploy).
- In Render dashboard: create a new Web Service and connect the GitHub repo, then select the branch to deploy.
- Build command: `npm install` (or your preferred installer).
- Start command: `npm start` (or `node index.js` / `node server.js` depending on your repo).

2. Required environment variables (add these under the service's Environment in Render)

- `DB_USER` — Postgres username (from managed DB)
- `DB_HOST` — Postgres host
- `DB_NAME` — Postgres database name
- `DB_PASSWORD` — Postgres password
- `DB_PORT` — Postgres port (usually 5432)
- `TELEGRAM_BOT_TOKEN` — Telegram bot token (if using bot features)
- `GOOGLE_API_KEY` — Google GenAI API key (AI modules)
- `PORT` — (optional) Render sets `$PORT` automatically; you can leave this unset
- `RENDER_URL` — (recommended) the public Render URL for this service (e.g. `https://your-backend.onrender.com`). Used by the CORS patch.

Important: Your code reads individual DB env vars (not `DATABASE_URL`). Set them exactly as listed above.

3. Managed Postgres (optional but recommended)

- In Render: create a managed PostgreSQL instance.
- After creation, copy the DB connection values into the service environment variables listed above.
- Run your database schema (`queries.sql`) against the Render Postgres instance. Use Render's database connection info and any client (psql, pgAdmin, DBeaver). Example `psql` command:

```
psql -h <DB_HOST> -U <DB_USER> -d <DB_NAME> -p <DB_PORT> -f queries.sql
```

- Verify tables: `resume`, `experience`, `education`, `skills`, `telegramusers` exist and columns match your queries file.

4. CORS setup

- Add `RENDER_URL` env var (your Render service URL) so the code's allowed origins include it (see Part A above). Alternatively, open the allowed origin list inline in code before deployment.
- If you have multiple frontend origins, list them in the code's `allowedOrigins` or use an env var like `ALLOWED_ORIGINS` (comma-separated) and parse it in code:

```
const allowedOrigins = (process.env.ALLOWED_ORIGINS || '').split(',').map(s => s.trim()).filter(Boolean);
```

5. Telegram bot & AI modules

- Ensure `TELEGRAM_BOT_TOKEN` and `GOOGLE_API_KEY` are set. Bot uses polling; Render processes keep-alive are needed – Render supports background workers, but polling in a web service may still work. Monitor for long-term stability (webhooks are more robust for bots in production).
- Verify the AI modules can access `process.env.GOOGLE_API_KEY` at runtime.

6. Deployment & verification

- Enable Auto-Deploy (optional): Render can auto-deploy on Git push to the connected branch.
- After deploy, Render exposes a public URL like `https://your-backend.onrender.com`.
- Test endpoints (replace `<URL>` with your Render URL):
 - GET `https://<URL>/` → Should return your `public/index.html` content.
 - GET `https://<URL>/api/user-resumes?userEmail=<email>` → returns JSON array
 - POST `https://<URL>/api/user-resumes/upload/:id/:teleUser` (multipart/form-data) → test upload
 - POST `https://<URL>/api/user-resumes/ats/:id` (multipart/form-data) → triggers AI processing (requires `GOOGLE_API_KEY`)
 - GET `https://<URL>/api/user-resumes/fetchScore/:id` → returns `{ score, fetched }`
 - GET `https://<URL>/api/user-resumes/fetchRecommendations/:id` → returns `{ recommendations }`
 - POST `https://<URL>/api/feedbacks` → test feedback push
 - GET `https://<URL>/api/feedbacks` → returns current feedback array

7. Debugging tips

- Use Render logs (service dashboard) to view console output (e.g., DB connection logs, AI model logs, bot logs).
- If DB connection fails, confirm `DB_HOST` and `DB_PORT`. If you use SSL, the `pg.Client` in your code already sets `ssl: { rejectUnauthorized: false }`.
- If `fetchScore` endpoint hangs, check that `flashAI` actually sets `dataForAts.fetched = true` and that `GOOGLE_API_KEY` is valid and allowed to call the model.
- For Telegram bot polling issues, ensure the bot token is correct and there are no constraints on Render's execution model (consider running the bot in a dedicated background worker or switch to webhooks).

8. Post-deploy (optional)

- Set up monitoring/alerts in Render for service errors.
- Add a health-check endpoint if you want automatic restarts on failures.

Quick checklist to paste in Render service notes

- ☐ Push code to GitHub branch
- ☐ Create Web Service in Render
- ☐ Create/Postgres (if required) and set DB env vars
- ☐ Add `TELEGRAM_BOT_TOKEN` and `GOOGLE_API_KEY` env vars
- ☐ Add `RENDER_URL` env var (public service URL)
- ☐ Paste CORS patch and redeploy
- ☐ Run `queries.sql` on DB
- ☐ Test endpoints and bot functionality

Contribution Guidelines

Contributions from the community are welcome! Please follow these best practices:

1. **Fork the Repositories:** Create a personal copy of each repo on GitHub (frontend and/or backend) and clone it locally.
2. **Create a Feature Branch:** Use a descriptive branch name. For example:

```
git checkout -b feature/add-ATS-feedback
```

3. **Make Changes:** Implement your feature or bugfix. For backend, follow the existing code style (ESLint is configured). For frontend, follow the React component and Tailwind CSS conventions.

4. **Testing:** Ensure the app runs locally and that your changes do not break existing functionality.
5. **Commit and Push:** Write clear commit messages. Push your branch to your GitHub fork.
6. **Pull Request:** Open a Pull Request against the `main` branch of the original repo. Describe your changes and why they're needed. For backend PRs, also mention any new API changes or DB migrations.
7. **Review:** The maintainer will review your PR. Respond to feedback or update as needed.

Some best practices:

- Keep code modular and well-documented.
- Handle errors gracefully (e.g. invalid input on backend, UI error messages).
- Respect the existing coding conventions (indentation, naming).
- Do not commit sensitive data (never hard-code API keys or passwords).

For major changes, it's a good idea to open an issue first to discuss plans with the maintainer. This ensures everyone is aligned and avoids duplicate work.

Support: If you use this project, consider starring the repos on GitHub and reporting any issues you encounter. The author welcomes questions and suggestions via email or GitHub Discussions.

License & Third-Party Credits

- **License:** Kenshi Resumes (both frontend and backend) is released under the **MIT License**. This allows anyone to use, copy, and modify the code freely, as long as the license notice is included.
- **Third-Party Software:** The project depends on several open-source libraries (React, Express, Tailwind, etc.) as listed in `package.json`. These libraries are each under their own licenses (MIT, BSD, etc.).
- **AI Model:** Kenshi Resumes uses Google's Gemini Flash 2.0 via API. Gemini is a proprietary model by Google DeepMind.
- **Platforms:** The deployed app uses Vercel (for frontend) and Railway (for backend). Both are credited for providing hosting infrastructure.
- **Inspirations:** No direct forks, but features like live editing and AI generation are influenced by modern resume builder tools. The Telegram bot uses the standard Bot API.

Please ensure credit is given if you reuse substantial parts of this project. The MIT License text is included in each repo's `LICENSE` file.

Sources & References: Kenshi Resumes documentation is based on the project's GitHub READMEs and additional information about technologies (React, Node.js, Express, PostgreSQL, Gemini AI, Vercel, Railway) and ATS systems. All cited lines refer to these sources.