Chat Phase 1

1. Project Overview

Goal:
Create a **command-line Python application** that:

1. Processes a PDF CV as input.
2. Performs **one interesting analysis feature—**defined and documented in collaboration with an LLM.

Important Constraints:

- English language support only.
- Must choose **either NLTK or Gemini LLM** for your NLP/analysis tasks (Gemini has a free limited plan).
- Must clearly document **all relevant LLM interactions** that influenced your decisions.

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2. Submission Guidelines

1. **GitHub Repository**
    - Create a **private GitHub repository** to store all your project artifacts.
    - Add your instructor (GitHub handle: omishali) as a collaborator so they can access it.
    - If your team has more than two students, remember that free private repos allow up to three collaborators. You may need to temporarily remove one collaborator when adding the instructor.
2. **Deadline**
    - The project is due on **Thursday, March 27th**.
3. **Single DOC File Submission**
    - Submit a single **DOC file** via the “Matalot” system.
    - This DOC file must include:
        - Team member names
        - A link to your private GitHub repository

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3. Evaluation Criteria

1. **Following Instructions (10%)**
   Pay attention to all formatting, structure, and submission instructions. Even small deviations can cost points here.

2. **Quality of LLM Conversations (20%)**
    - Apply prompt engineering techniques taught in class.
    - Demonstrate critical thinking:
        - Explore alternative solutions.
        - Show how you leveraged strengths of the LLM.
        - Show how you mitigated weaknesses of the LLM.
3. **Quality of Produced Artifacts (70%)**
    - Code structure, clarity, style (PEP 8).
    - Documentation (README, references to LLM chats).
    - Testing (unit tests and system-level tests).
    - Overall functionality and completeness.

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4. Basic Requirements

- **Command-Line Interface** only (no GUI).
- **One** interesting CV analysis feature (e.g., keyword extraction, skill matching, etc.).
- Must use **NLTK** or **Gemini LLM** for the analysis.
- Submit **all LLM interactions** that influenced your decisions:
    - Copy each LLM chat into a separate .txt file in the chats/ directory.
    - No links to the LLM web interface; actual conversation text must be included.
- For **each project phase**, link to the relevant LLM chats and summarize them briefly in your README.

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5. Project Phases & Required Deliverables

The project is split into phases. In your README.md, create a separate **section** for each phase. You may provide details inline or link to other files, depending on each requirement.

Phase 1: Requirements Engineering

1. **Define the “One Significant and Interesting Analysis Feature”**
    - Brainstorm and refine this feature in collaboration with an LLM.
    - Examples:
        - Extracting specific skills from a CV.
        - Checking CV for missing sections or incomplete information.
        - Summarizing experience in bullet points.

2. **Document Requirements (Inline)**
    - Clearly list the requirements of the feature.
    - Provide acceptance criteria (i.e., how you will verify the feature works).
3. **LLM Interactions (Link)**
    - Place a link in the README that points to the .txt file containing the chat(s) where you consulted the LLM about requirements.

Phase 2: Architecture

1. **Command-Line Interface Specification (Inline)**
    - Show exactly how a user would run the tool from the terminal (e.g., python main.py --pdf <file-path>).
2. **File System Interactions (Inline)**
    - Explain how input/output files are handled.
    - If your feature needs extra input files (like a dictionary or external data), describe them.
3. **Third-Party Libraries (Inline)**
    - List any libraries (e.g., PyPDF2, pandas, spacy, etc.) you will use aside from your chosen NLP library.
4. **Team Member Responsibilities (Inline)**
    - Briefly describe what each team member is primarily responsible for (if working in a group).
5. **LLM Interactions (Link)**
    - Provide the link to the chat transcripts for architecture decisions.

Phase 3: Design

1. **Simple Design Following XP Principles**
    - Keep it minimal and straightforward, focusing on the single analysis feature.
2. **CRC Description (Inline)**
    - Provide a short **Class-Responsibility-Collaborator** outline for key classes.
3. **LLM Interactions (Link)**
    - Link to the LLM chat(s) related to your design decisions.

Phase 4: Coding & Testing

1. **Coding**
    - Code must be clean, well-organized, and follow **PEP 8** guidelines.
    - **Do not** submit any LLM interactions that are purely about coding help.

2. **File Table in README**
    - Create a table with two columns:
      File Name | Description
        - Each file name should be a clickable link to that file in your repo.
        - The description column should briefly state what the file does.
3. **Testing**
    - One **significant automated unit test** with multiple test cases (inline & link).
    - One **meaningful automated system-level functional test** (inline & link).
4. **LLM Interactions (Link)**
    - For any testing strategy or structure discussions with the LLM, link to the chat transcripts.

Phase 5: Documentation

1. **README Structure**
    - **Project Overview**
    - **Installation Guide** (easy, glitch-free, step-by-step)
    - **Usage Examples** (with sample PDF input and any other required files)
    - **Project Phases Documentation** (from above):
        1. Requirements Engineering
        2. Architecture
        3. Design
        4. Coding & Testing
        5. Documentation (this section itself)
2. **Formatting**
    - Use proper Markdown headers, lists, and formatting to keep it organized and scannable.

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6. Key Points for Success

1. **Maintain a Clear Audit Trail** of LLM Interactions
    - Every time you used ChatGPT, Claude, or another LLM to influence a key decision (feature definition, architecture, design, testing strategies, etc.), copy-paste that conversation into a .txt file inside a chats/ folder in your repo.
2. **Focus on a Single Meaningful Analysis Feature**

    - Depth is better than breadth. Make sure you define exactly what your feature does, how it's tested, and why it's interesting.

3. **Keep the README Self-Contained**
    - Reviewers should be able to understand your project's intent, how to run it, and how you arrived at your decisions **just by reading your README** (and linked chat transcripts if they want more detail).
4. **Follow Deadlines and Submission Format**
    - A large chunk of the points is about adhering to instructions, so don't miss the details:
        - Private GitHub repo
        - Single DOC file with the repo link
        - Everything spelled out in the README
5. **Demonstrate Good Software Engineering Practices**
    - Make sure your commits and repository structure reflect thoughtful development.
    - Show that you can break down the problem (requirements → architecture → design → coding/testing → documentation).

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7. Action Checklist

- **Create Private Repo & Add Collaborator** (omishali)
- **Include All Project Artifacts** (code, tests, docs)
- **Gather LLM Chats** (into chats/ folder)
- **Write & Organize README** with required sections:
    - Project Overview
    - Installation Guide
    - Usage Examples
    - Phases (Requirements, Architecture, Design, Coding & Testing, Documentation)
- **Prepare Single DOC File**:
    - Team Names
    - Link to GitHub Repo
- **Submit by March 27th** via Matalot

Final Note

Pay special attention to the instructions for linking LLM chat files. You must show your instructor how the LLM shaped your approach through each phase. This transparency is crucial for earning the 20% allocated to “Quality of conversations with the LLM.”

Good luck with your project! If you follow these instructions carefully, you’ll be set up for success.

You said:

Phase 1: Requirements Engineering 1. Define the “One Significant and Interesting Analysis Feature” Let’s brainstorm this matter agin.

Reasoned for 5 seconds

Crafting an analysis feature

I’m brainstorming a 'One Significant and Interesting Analysis Feature' for the CV Analyzer, such as skill gap analysis or job matching, and exploring Python command line suggestions using NLTK or Gemini.

Focusing on detection

I’m honing in on a 'missing sections detection' feature for the CV Analyzer, ensuring it highlights absent fields like email or education, and includes acceptance criteria for validation.

Below are a few possible directions for a **single significant and interesting CV analysis feature**. Feel free to mix and match ideas or refine them further. The key is to pick *one* that you find interesting and that adds clear, tangible value to a CV review process.

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1. Skill Gap Analysis

What It Does

- Parses the CV to extract a list of relevant skills (e.g., programming languages, frameworks, methodologies).
- Compares extracted skills against a predefined *“desired skill set”* (could be based on a specific role or industry).
- Outputs any *missing skills* or areas needing improvement.

Why It’s Interesting

- It highlights gaps between a candidate’s existing skills and a typical set of required skills for a given job role.
- Helps job seekers understand what they need to learn next.
- Could be extended to suggest resources or relevant courses.

Potential Acceptance Criteria

- **Accuracy**: At least 80% of the candidate’s skills should be correctly identified from the PDF text.

- **Comparison**: The tool highlights at least 3 missing “important” skills if they are indeed missing.
- **Usability**: The skill gap summary is printed in a clear, user-friendly format.

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2. AI-Powered CV Summary

What It Does

- Extracts key sections from the CV (Work Experience, Education, Skills).
- Uses an NLP model (NLTK or Gemini) to generate a short paragraph summarizing the candidate’s background, highlighting top skills, years of experience, and any special achievements.

Why It’s Interesting

- Busy recruiters can quickly scan an *auto-generated* summary.
- Job seekers can see an *“elevator pitch”* for their CV.
- Demonstrates natural language processing capabilities (particularly relevant if you’re using Gemini’s LLM features or advanced NLTK features like chunking and summarization).

Potential Acceptance Criteria

- **Completeness**: The summary should mention at least the candidate’s main field of expertise, years of experience, and highest educational qualification (if present).
- **Readability**: Output text reads naturally, with minimal grammatical errors.
- **Length**: Summary does not exceed ~100 words.

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3. CV Completeness Checker

What It Does

- Detects the presence or absence of critical CV sections (e.g., Education, Work Experience, Skills, Contact Info).
- Alerts the user if any key section is missing or seems incomplete.

Why It’s Interesting

- Users often forget vital details (like contact info or specific skill sections).
- Helps ensure a “minimum standard” before sending the CV out.

Potential Acceptance Criteria

- **Section Detection**: At least four major sections must be correctly identified (Education, Experience, Skills, Contact).

- **Error Reporting**: If a section is missing or extremely sparse (e.g., 1-2 words), the tool prints a warning.
- **Edge Cases**: Properly handles CVs that group multiple experiences under one heading, or have unusual formatting.

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4. Keyword Relevance Score

What It Does

- Compares the CV's text with a set of job-specific keywords (either loaded from a file or provided via CLI arguments).
- Calculates a "keyword coverage" percentage (e.g., 70% coverage of needed keywords for a given role).
- Optionally, suggests synonyms or rephrasing to improve keyword matching.

Why It's Interesting

- Tailoring a CV with the right keywords is crucial for passing Applicant Tracking Systems (ATS).
- Candidates can see how well they match certain job postings.

Potential Acceptance Criteria

- **Detection Rate**: The system can detect at least 80% of listed keywords in a typical CV (accounting for variations in case and tense).
- **Synonym Handling**: If synonyms are considered, the system should identify at least a few common synonyms automatically (like "software engineering" vs. "software development").
- **Relevance Scoring**: Outputs a numeric score (0–100) in the CLI result.

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5. Work Experience Timeline & Gaps

What It Does

- Extracts employment start/end dates from the CV.
- Constructs a timeline of the candidate's work history.
- Identifies potential gaps (e.g., 6+ months not accounted for) and reports them.

Why It's Interesting

- Gaps in employment might raise questions for recruiters, or require further explanation in the CV.
- Gives candidates insight into how their work timeline looks to outsiders.

Potential Acceptance Criteria

- **Date Parsing**: The system should correctly parse 80% of date formats (e.g., "Jan 2020 – Dec 2021").
- **Gap Reporting**: If a gap of more than X months is found, the system highlights it.
- **Edge Cases**: Handles partial date formats (e.g., only years, missing months) gracefully.

Choosing the Right Feature

When deciding on a feature, consider:

- **Complexity vs. Time**: Aim for a feature that's interesting enough to be "significant," but not so complex that you can't implement it properly by the deadline.
- **Available Libraries**: If you choose Gemini LLM, you might leverage advanced NLP tasks (like summarization or semantic similarity). If you choose NLTK, you might keep it more lexical (keyword matching, basic chunk parsing, etc.).
- **Evaluation**: Make sure you can define clear acceptance criteria—this is part of your grade.

Next Steps

1. **Pick one** of the ideas (or combine pieces of multiple) that best aligns with your team's interest and skillset.
2. Define **requirements** (functional and non-functional) and **acceptance criteria** explicitly.
3. Document the **LLM chat** where you refined or finalized this feature (Phase 1 LLM interactions).

Feel free to ask follow-up questions or request deeper detail on any of these ideas!

You said:

Recommend one of the various options, taking into account that we want to get a high score on the assignment.

Reasoned for a couple of seconds

Given the assignment's emphasis on demonstrating interesting **LLM usage** and your own software engineering skills, a strong option is the **"AI-Powered CV Summary."** Here's why:

1. **Demonstrates NLP/LLM Strengths**:
    - Generating a succinct summary of work experience, education, and skills highlights the **core text-processing** and **generative** capabilities of a large language model (e.g., Gemini).
    - It showcases your ability to harness an LLM beyond simple keyword matching.
2. **Clear Requirements and Acceptance Criteria**:

  - You can measure the **completeness** (does it mention the candidate's main field, experience, education?) and **readability** (grammar, length limits).
  - This straightforward but **tangible** scoring system aligns well with "significant and interesting."

3. **High Perceived Value**:
  - Automated summarization is eye-catching—stakeholders (recruiters, candidates) often see immediate value.
  - This helps fulfill the "interesting" analysis requirement better than simpler checks (like completeness only).

4. **Opportunity for Extensibility**:
  - You can enhance or fine-tune the summary based on user-defined focus areas (e.g., "Focus on leadership skills").
  - Provides room to show your **prompt engineering** or **NLP pipeline** design in later phases.

5. **Straightforward Implementation Path**:
  - With a manageable scope (e.g., a 100-word summary), you can reliably test and evaluate your tool.
  - You only need to handle core PDF parsing, text segmentation, and LLM calls—no large data sets or complex domain knowledge required.

Recommendation:

- **Pick the "AI-Powered CV Summary."**
- In **Phase 1**, focus on clarifying the types of summary content (e.g., "Must mention top 3 skills," "State total years of experience," "Include highest degree").
- Ensure your acceptance criteria and test plan are well-defined (e.g., grammar check, length limit, mention of all major CV sections).

This feature is **engaging, moderately challenging, and aligns well** with the assignment's requirements. It should help you score high, as it showcases both **software engineering structure** and **LLM-driven innovation**.

You said:

OK, prepare features requirement

Clarifying requirements

I'm outlining the functional and non-functional requirements for an AI-Powered CV summary feature. The document will detail the main function, extraction methods, parsing techniques, and the minimal content for a structured update.

Below is a sample **Requirements Specification** for the **AI-Powered CV Summary** feature. This includes functional requirements, non-functional requirements, and acceptance criteria. You can adapt the structure to fit your project's format and level of detail.

AI-Powered CV Summary Feature: Requirements

1. Overview

The AI-Powered CV Summary feature will parse a PDF CV, extract relevant sections (e.g., Work Experience, Education, Skills), and use an LLM-based summarization module (either NLTK or Gemini, depending on the team's choice) to generate a concise, human-readable summary of the applicant's background.

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2. Functional Requirements

1. **PDF Parsing**
   1.1 The system **shall** accept a PDF file as input via the command-line interface.
   1.2 The system **shall** extract text from the PDF while preserving basic structure (e.g., headings, bulleted lists) as much as possible.

2. **Section Identification**
   2.1 The system **shall** analyze the extracted text to identify major CV sections (e.g., Education, Work Experience, Skills, Contact Information).
   2.2 The system **may** rely on keyword-based or heuristic-based detection (e.g., look for "Education," "Experience," "Skills," etc.) or a more advanced approach if using an LLM.

3. **Summarization Logic**
   3.1 The system **shall** use an LLM (Gemini or NLTK-based approach) to generate a concise summary of the candidate's background.
   3.2 The summary **shall** emphasize:
   - Top skills or areas of expertise
   - Years of experience or overall experience range
   - Highest level of education
   - Notable achievements or certifications (if mentioned in the CV)

4. **Output**
   4.1 The system **shall** print the final summary to the command line.
   4.2 The system **may** also provide an option to **export** the generated summary to a text file (e.g., summary.txt).

5. **User Configuration/Parameters**
   5.1 The user **should** be able to specify a maximum word count or character count for the summary (e.g., --max-words 100).
   5.2 The user **may** provide a specific focus area (e.g., "leadership," "technical skills") to guide the summarization if desired.

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3. Non-Functional Requirements

1. **Performance**
   1.1 The system **should** handle a typical 2–4 page CV and produce a summary in under 5 seconds on average hardware.
   1.2 Memory usage **should** remain within reasonable bounds (no large-scale in-memory expansions).

2. **Usability**
   2.1 The command-line interface **must** be simple to invoke (e.g., python main.py --pdf candidate_cv.pdf --max-words 100).
   2.2 Error messages **must** be clear and informative (e.g., "File not found," "Unsupported PDF format").

3. **Reliability**
   3.1 The PDF parsing module **should** handle minor formatting issues or unusual layouts without crashing.
   3.2 If the system fails to detect key sections, it **should** still generate a fallback summary (though it may omit missing sections).

4. **Maintainability**
   4.1 The code **shall** adhere to PEP 8 (Python style guide).
   4.2 The code **should** be modular and well-documented, with clear separation of concerns (e.g., PDF parsing, summarization logic, CLI parsing).

5. **Security**
   5.1 No personal user data (beyond the CV itself) **should** be stored or transmitted to external services without explicit user consent.
   5.2 If using an online LLM (e.g., Gemini's API), credentials or tokens **must** be handled securely (not hard-coded in the source).

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4. Acceptance Criteria

1. **Accuracy & Completeness**
   - The generated summary **must** mention at least the candidate's primary field or role, highest educational attainment (if available), and notable skills.
   - The summary **must** avoid including unrelated or erroneous details not found in the CV.
2. **Readability & Style**
   - The summary **must** be written in clear, grammatical English.
   - The summary **must** be limited to the maximum length specified (defaulting to 100 words if no limit is given).
3. **Section Coverage**
   - If sections like Education, Experience, Skills are detected, they **must** be reflected in the summarized content.

   - If a candidate’s CV lacks a particular section, the summary **should** gracefully skip it (not produce an error).

4. **CLI Functionality**
   - Running the CLI command with the required flags **must** produce an output summary within 5 seconds for a 2–4 page CV on typical hardware.
   - Invalid inputs (missing PDF, unreadable file) **should** trigger an informative error message.
5. **Test Cases**
   - At least one automated unit test **must** confirm that the summarizer extracts known sections from a sample CV.
   - At least one system-level test **must** confirm end-to-end functionality (input PDF → output summary).

Next Steps

- **Document** these requirements inline in your README.md under “Phase 1: Requirements Engineering.”
- **Include acceptance criteria** directly in the README.
- **Link** any relevant LLM chat transcripts (in your chats/ folder) where you finalized these requirements.

With this outline, you’ll have clear, measurable targets for design, implementation, and testing, aligning well with the course’s grading criteria.

You said:

What is your suggestion Gemini or NLTK

Reasoned for a couple of seconds

Choosing between **Gemini** and **NLTK** depends primarily on:

1. **Feature Complexity**:
   - If you want **simple keyword extraction** or **basic text processing** (tokenization, part-of-speech tagging, basic chunking), **NLTK** is sufficient.
   - If you want more **human-like text generation**, **advanced summarization**, or **semantic-level** analysis, **Gemini** (as an LLM) will provide richer capabilities out of the box.
2. **Time & Resource Constraints**:
   - **NLTK** is entirely offline and free; installing it and using it requires no additional service or credentials. It’s quite **lightweight**.

    - **Gemini** may require managing **API access** or subscription/keys (depending on their free plan rules). You'll need to ensure your environment can connect to their service and handle potential usage limitations.

3. **Demonstrating LLM Proficiency**:
    - The assignment places **20%** emphasis on the "quality of conversations with the LLM" and **70%** on the artifacts. If you want to strongly showcase **advanced LLM-driven features** (like generating near-human-quality summaries or understanding context deeply), **Gemini** may be the more impressive choice.
    - Using **NLTK** doesn't really demonstrate LLM-based conversation or reasoning; it's more about classic NLP libraries.
4. **Grading & Presentation Value**:
    - An **LLM approach** to summarization will often feel more sophisticated. If you carefully document how you prompt Gemini, handle edge cases, and compare outputs, that effort can look stronger for grading, especially in the "interesting analysis feature" category.
    - NLTK is robust for "classic" NLP tasks, but your summarization might be more template-based or rely on simpler heuristics, which is less flashy than an LLM-based summary.

Recommendation

Given this is a **Software Engineering course** with a focus on advanced **LLM interactions** and "one interesting feature," **Gemini** is likely the better choice. It will allow you to:

- **Demonstrate advanced text summarization** (highlighting how well the LLM handles complex or nuanced CV text).
- **Leverage prompts and prompt engineering** to refine the summarization style and scope (which directly ties into the class's emphasis on LLM usage).
- Potentially earn higher marks in both the "Quality of Conversations with the LLM" and "Interesting Analysis" criteria.

If, however, you face **technical or availability constraints** with Gemini, **NLTK** is still a solid fallback. It just means you'll need to show more classical NLP approaches (like extracting bullet points, counting frequencies, or writing your own summarization heuristics). That can still be a good project, but might require more manual design of the summarization logic rather than an end-to-end LLM approach.

Final Tip

If you do choose Gemini, make sure to:

- **Manage your tokens/usage** carefully (track quotas).

- **Clearly log** your LLM conversations and how they influenced design decisions (for the 20% LLM conversation grade).
- Provide fallback or graceful error handling if the API is unreachable or rate-limited.

You said:

I chose Gemini api

Reasoned for a second

Great choice! Below is a **high-level plan** for integrating the **Gemini API** into your CV Analyzer. You can adapt the details based on Gemini's specific documentation and your project's workflow.

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1. Gemini Integration Overview

1. **Obtain API Access**:
   - Sign up for Gemini's free limited plan (or whichever plan you have).
   - Retrieve your **API key** or credentials.
2. **Install/Import Dependencies**:
   - Typically, you'll be using either a **Gemini-provided Python library** (if available) or a generic HTTP client (e.g., requests in Python) to make calls to their API.
3. **Add Configuration Files/ENV Variables**:
   - Store your **API key** in a **.env file** or environment variable for security (avoid hard-coding in your source).
4. **API Usage**:
   - Depending on Gemini's documentation, you'll likely format a **prompt** and send it via a POST request to the Gemini endpoint.
   - You'll get back a **JSON** containing the summarization result (and potentially other metadata).

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2. Basic Workflow for Summarization

1. **Parse PDF**
   - Use a library like PyPDF2, pdfplumber, or similar to **extract text**.
   - Clean or preprocess the text (remove headers/footers, fix spacing, etc.).
2. **Chunk or Segment Text** (Optional)
   - For very large CVs, you might want to separate sections (like Education, Experience, Skills) before calling the API.

    - Alternatively, you can just pass the entire text if it’s short enough to fit within Gemini’s token limit.

3. **Construct Prompt**
    - Craft a **system message** or prompt that tells Gemini:
        - The text you’ve extracted from the CV.
        - The style, tone, and length constraints of the summary.
        - Any special instructions (e.g., “Focus on main skills and highest education. Limit to 100 words.”).
4. **Send API Request**
    - Use an HTTP POST to the **Gemini Summarization** (or general chat) endpoint, including your prompt.
    - Example skeleton (if no official Gemini Python library is provided):

python

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```
import requests


GEMINI_API_KEY = os.getenv("GEMINI_API_KEY")
GEMINI_ENDPOINT = "https://api.gemini.com/v1/summarize"  # Example, adapt to real endpoint


def get_summary_from_gemini(cv_text, max_words=100):
  headers = {
    "Authorization": f"Bearer {GEMINI_API_KEY}",
    "Content-Type": "application/json"
  }
  payload = {
    "prompt": f"Summarize this CV: {cv_text}\n Please keep it under {max_words} words.",
    # If Gemini uses a different structure, adapt accordingly
  }
  response = requests.post(GEMINI_ENDPOINT, headers=headers, json=payload)
  # Check for success:
  response.raise_for_status()
```

```
data = response.json()

return data["summary"]  # or however Gemini returns the text
```

5. **Process Output**
    - Parse the **JSON** response.
    - Extract the **summary** text.
    - (Optional) Apply **post-processing** if needed (trimming, minimal text cleanup).
6. **CLI Output**
    - Print the final summary in the console or store it in a summary.txt file.
    - If you have a --max-words parameter in your CLI, honor that by adjusting the prompt or post-processing the result.

3. Prompt Engineering Tips

- **Contextual Prompting**:
    - Provide **explicit instructions**: “You are a helpful assistant. Summarize the person’s background highlighting major skills, years of experience, highest education, and significant achievements.”
    - Include any **constraints** like word count, formality of tone, or specific formats.
- **Format Handling**:
    - If you need bullet points, specify that in the prompt (e.g., “Return the summary in bullet points.”).
- **Iterative Refinement**:
    - If the output is too verbose or lacks detail, adjust your prompt.
    - Document these **prompt adjustments** (this is useful for your project’s demonstration of “LLM conversation quality”).

4. Error Handling & Edge Cases

1. **API Errors**:
    - If Gemini is unreachable or your API quota is exceeded, you should handle that gracefully.
    - Provide a fallback or at least an explanatory error message.
2. **Token/Content Limits**:
    - Gemini likely enforces input size (token) limits. For lengthy CVs, chunk the text or trim it.

3. **Minimal or No Data**:
    - If the CV is too short or missing sections, your code should still handle it (the summary might be short or just mention missing sections).
4. **PDF Extraction Issues**:
    - Corrupted or scanned PDFs might yield incomplete text. In these cases, your summarizer might produce suboptimal results.
    - Log or gracefully degrade in these scenarios.

5. Documenting LLM Interactions

Remember to:

- **Copy-Paste** your relevant Gemini prompt-and-response sessions into .txt files under a chats/ directory.
- Provide links in your README.md referencing these files, so the grader can see how you iterated on prompts and how Gemini influenced your design.

6. Example CLI Flow

Command:

bash

CopyEdit

```
python main.py --pdf myCV.pdf --max-words 80
```

Expected Steps:

1. main.py parses myCV.pdf to text.
2. Calls get_summary_from_gemini(cv_text, max_words=80).
3. Receives a summarized text from Gemini.
4. Prints or saves the summary.

Final Recommendations

- Start with a **prototype** to ensure your API calls work:
    1. Hard-code a small piece of text (like “John Smith has 5 years of experience in software development...”).
    2. Make a test request to Gemini.
    3. Confirm you get the summary as expected.
- Once the API call works, **integrate** it into your PDF processing flow.

- Write **unit tests** for:
    - PDF parsing function (to ensure text extraction works).
    - Summarization function (e.g., mock the Gemini API if needed, or test with a real key if feasible).

With Gemini in place and your team focusing on prompt engineering and end-to-end documentation, you'll have a robust and **interesting** feature that should impress in grading.

You said:

command forcreate conda env name CV Analyzer. Python 3.9+

Reasoned for 4 seconds

Below is an example command to create a new Conda environment named **CV_Analyzer** with Python 3.9. By convention, it's best to avoid spaces in environment names, so using an underscore (or camelCase) is common practice:

bash

CopyEdit

```
conda create --name CV_Analyzer python=3.9
```

Once the environment is created, activate it:

bash

CopyEdit

```
conda activate CV_Analyzer
```

You can then install any additional libraries (e.g., PyPDF2, requests, etc.) into this environment:

bash

CopyEdit

```
conda install PyPDF2 requests
```

Or, if you have a requirements.txt file, you can install everything at once:

bash

CopyEdit

```
conda install --file requirements.txt
```

You said:

```
PS C:\Users\amito\OneDrive\שולחן העבודה\CV Analyzer> pip install -q -U google-generativeai PS C:\Users\amito\OneDrive\שולחן העבודה\CV Analyzer> !pip install -q -U google-generativeai !pip : The term '!pip' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the spelling of the name, or if a path was included, verify that the path is correct and try again. At line:1 char:1 + !pip install -q -U google-generativeai + ~~~~ + CategoryInfo :
```

```
ObjectNotFound: (!pip:String) [], CommandNotFoundException + FullyQualifiedErrorId :
CommandNotFoundException
```

Reasoned for 7 seconds

Navigating installation commands

I’m figuring out that the !pip command isn’t valid in Windows Powershell. The correct approach is to use pip install google-generativeai or adjust based on the environment specifics, like Jupyter or conda.

In **PowerShell** or **Command Prompt**, you typically don’t prepend an exclamation mark to run pip. The syntax !pip install ... is used inside **Jupyter notebooks** or IPython, not in your standard terminal. Here’s how you can fix the issue:

1. **Make sure your conda environment is activated** (if you’re using one):

bash

CopyEdit

```
conda activate CV_Analyzer
```

or, if you’re using a virtual environment:

bash

CopyEdit

```
source venv/bin/activate   # On macOS/Linux
venv\Scripts\activate      # On Windows
```

2. **Run pip install without the “!”**:

bash

CopyEdit

```
pip install -U google-generativeai
```

or more explicitly:

bash

CopyEdit

```
python -m pip install -U google-generativeai
```

3. **Verify the installation**:

bash

CopyEdit

```
pip show google-generativeai
```

It should display the installed version and location.

If You’re Actually in a Jupyter Environment

- If you’re inside a Jupyter notebook and want to install from a cell, you can use:

python

CopyEdit

```
!pip install -U google-generativeai
```

- Or the newer “magic” command:

python

CopyEdit

```
%pip install -U google-generativeai
```

But when you’re at a **Windows PowerShell** prompt (as shown in your screenshot), you should **not** use the exclamation mark.

You said:

```
import pathlib import textwrap import google.generativeai as genai from IPython.display import display from IPython.display import Markdown from google import genai GOOGLE_API_KEY = "ccccgZ5efk" client = genai.Client(api_key=GOOGLE_API_KEY) response = client.models.generate_content( model="gemini-2.0-flash", contents="Explain how AI works", ) print(response.text)
```

Reasoned for 7 seconds

Identifying potential conflicts

OK, let me see. The code imports google.generativeai as genai and then again imports genai from google. This could lead to module conflicts or overshadowing, causing errors like ModuleNotFoundError or AttributeError.

You said:

```
PS C:\Users\amito\OneDrive\שולחן העבודה\CV Analyzer> & C:/Users/amito/anaconda3/envs/CV_Analyzer/python.exe "c:/Users/amito/OneDrive/שולחן העבודה/CV Analyzer/main.py" Traceback (most recent call last): File "c:\Users\amito\OneDrive\שולחן העבודה\CV Analyzer\main.py", line 8, in <module> from google import genai ImportError: cannot import name 'genai' from 'google' (unknown location) PS C:\Users\amito\OneDrive\שולחן העבודה\CV Analyzer>
```

Reasoned for 13 seconds

Identifying potential conflicts

I’m mapping out the issues with the import statement and noticing conflicts between the "google" top-level module and the "google-generativeai" library, as well as "google-api-core" or "google-cloud" packages.

Recommending correct usage

I'm thinking through the best practice of using import google.generativeai as genai to avoid conflicts with the top-level google package and ensure smooth integration.

Realizing the need for adjustment

Interestingly enough, the correct import statement is import google.generativeai as palm instead of from google import genai, to ensure proper functionality without conflicts.

This error occurs because the line from google import genai is incorrect for the google-generativeai library. The google namespace is used by various Google libraries, and there is no module named genai directly under google. Instead, you should import directly from google.generativeai.

Below is a simplified example of **how to properly import and call** the library:

python

CopyEdit

```
import google.generativeai as genai


GOOGLE_API_KEY = "YOUR_API_KEY_HERE"


# Configure your API key

genai.configure(api_key=GOOGLE_API_KEY)


# Generate text using one of Google's PaLM models

response = genai.generate_text(

  model="models/text-bison-001",

  prompt="Explain how AI works"

)


print(response.result)
```

Step-by-Step Fix

1. **Remove** or **comment out** this line:

python

CopyEdit

```
from google import genai
```

2. **Keep** (or add) this import instead:

python

CopyEdit

```
import google.generativeai as genai
```

3. **Configure** the library with your API key:

python

CopyEdit

```
genai.configure(api_key=GOOGLE_API_KEY)
```

4. **Use** the generate_text() method to create a prompt and get a response. For example:

python

CopyEdit

```
response = genai.generate_text(
    model="models/text-bison-001",
    prompt="Explain how AI works"
)
print(response.result)
```

5. **Run** your script:

bash

CopyEdit

```
python main.py
```

(Or however you normally invoke Python in your Conda environment.)

Why This Works

- The google.generativeai library must be accessed through its full path.
- from google import genai would only work if there were a folder named genai directly inside the google package, which does not exist. Instead, the official google-generativeai library's entrypoint is google.generativeai.

Further Reference

- [Official google-generativeai GitHub]
- [PyPI Documentation]

Following the above steps will resolve the ImportError and let you use the Gemini (PaLM) API for text generation.

You said:

```
Traceback (most recent call last): File "c:\Users\amito\OneDrive\שולחן העבודה\CV
Analyzer\main.py", line 14, in <module> response = genai.generate_text( AttributeError: module
```

'google.generativeai' has no attribute 'generate_text' PS C:\Users\amito\OneDrive\שולחן העבודה\CV Analyzer>

Reasoned for 20 seconds

Investigating library version

I'm noting a user's issue with "google.generativeai" missing "generate_text." This might stem from using an outdated or misconfigured version, or the library being installed incorrectly.

Ensuring correct installation

The user likely installed an outdated version or configured it improperly. I'll advise fetching the current library version via "pip freeze" or "pip show google-generativeai".

Confirming function availability

I'm verifying if "generate_text" exists in the installed version. It seems the absence might indicate the library is outdated, potentially requiring reinstallation or an upgrade.

Ensuring proper installation

I'm thinking about reinstating the "google-generativeai" library to its latest version and conducting a thorough check of the installation. This involves confirming the correct environment setup.

Clarifying function names

I'm noting the need to update the "google-generativeai" library and use "palm" as the import name. This helps to ensure correct function names, especially for advanced LLM interactions.

That error usually means one of two things:

1. You're using an older version of the **google-generativeai** library that doesn't have the generate_text method yet.
2. You're using the **wrong function name** or **wrong model** for the version you have installed.

Below is a step-by-step guide to fix it.

---

1) Upgrade the Library

First, ensure you have the latest **google-generativeai** version. In your **Conda or virtual environment**, run:

bash

CopyEdit

```
pip install --upgrade google-generativeai
```

Then verify the version:

bash

CopyEdit

```
pip show google-generativeai
```

You should see something like **0.3.x** or higher.

---

2) Check the Official Usage

According to the google-generativeai GitHub repo, the current usage pattern is:

python

CopyEdit

```
import google.generativeai as palm


# Configure your API key

palm.configure(api_key="YOUR_API_KEY")


# Use generate_text to get a text completion

response = palm.generate_text(

    model="models/text-bison-001",    # or another valid model

    prompt="Explain how AI works"

)


print(response.result)
```

Why google.generativeai as palm?

- The library's official docs show examples using palm as the import alias, but you can name it whatever you like:

python

CopyEdit

```
import google.generativeai as genai

genai.configure(api_key="YOUR_API_KEY")

response = genai.generate_text(...)
```

That's fine too, as long as the library version supports generate_text.

---

3) Model Availability

- **Text Models**:
    - model="models/text-bison-001" is commonly used for text completions.
- **Chat Models**:
    - model="models/chat-bison-001" for conversational chat.

If you're using **Gemini** (e.g., "gemini-2.0-..."), that model may be in preview or require special access. Ensure that:

- You actually have access to the Gemini model.
- You're using the **exact** model ID from the documentation or console.

If the Gemini model ID isn't recognized, try text-bison-001 or chat-bison-001 to confirm your setup works.

---

4) Example Working Script

Put this in your main.py:

python

CopyEdit

```python
import google.generativeai as palm

# Replace with your real API key
GOOGLE_API_KEY = "YOUR_API_KEY"
palm.configure(api_key=GOOGLE_API_KEY)

# Try a public model like text-bison-001
response = palm.generate_text(
  model="models/text-bison-001",
  prompt="Explain how AI works"
)

print(response.result)
```

Run It

bash

CopyEdit

```bash
python main.py
```

You should see a text explanation about AI.

---

5) If You Still See AttributeError

1. **Confirm you're in the right environment**:
   - which python or where python (Windows)
   - pip show google-generativeai
     Make sure it's the same Python/pip location you're running main.py with.
2. **Check for Typos**:
   - Make sure you're importing google.generativeai exactly, not from google import generativeai.
3. **Try Another Method**:
   - If you only see generate_content or chat in your IDE's autocomplete, the version installed might not match the new docs. Use whichever method is documented in your version.
   - Or explicitly uninstall and reinstall:

bash

CopyEdit

```
pip uninstall google-generativeai

pip install google-generativeai
```

Summary

- **Update** the library.
- **Use** the correct import and function call as shown in the official docs.
- **Verify** you're calling a valid model name that your account can access.

Following these steps will resolve the AttributeError and ensure you can generate text with Google's Generative AI library.

You said:

```
PS C:\Users\amito\OneDrive\שולחן העבודה\CV Analyzer> pip show google-generativeai Name:
google-generativeai Version: 0.8.4 Summary: Google Generative AI High level API client library
and tools. Home-page: https://github.com/google/generative-ai-python Author: Google LLC
Author-email: googleapis-packages@google.com License: Apache 2.0 Location:
c:\users\amito\anaconda3\envs\cv_analyzer\lib\site-packages Requires: google-ai-
generativelanguage, google-api-core, google-api-python-client, google-auth, protobuf, pydantic,
tqdm, typing-extensions Required-by: PS C:\Users\amito\OneDrive\שולחן העבודה\CV Analyzer>
```

Verify API Access:

Mapping function names

I'm noting discrepancies in the function name "generate_text" and comparing it with "generate_message". Official docs might be outdated. Checking imports and model names is crucial for accuracy.

Investigating potential shadowing

I'm examining if a local file named google.py is overshadowing the google generative AI library, causing attribute errors. Also, considering conflicts with the "gemini" model.

Identifying model needs

I'm noting that "palm.generate_text" is for "text-bison-001" and "palm.chat" for "chat-bison-001". For "gemini-2.0", "generate_message" or "generate_discussion" might be necessary.

Taking a closer look

Testing "palm.generate_text" with "models/text-bison-001" and checking for "gemini". Addressing name conflicts and verifying function availability in the library.

The **AttributeError: module 'google.generativeai' has no attribute 'generate_text'** typically indicates one of the following:

1. **Naming Conflicts** (local file/folder named google or generativeai).
2. **Using the Wrong Method** (e.g., trying to use generate_text for a chat-style model).
3. **Path Issues** (installing in one environment but running in another).
4. **Outdated or Incompatible Code** (but you already have version 0.8.4, which should include generate_text).

Below are steps to troubleshoot and fix each possibility.

---

1) Check for Local Folder Conflicts

If you have a **folder** or **file** named google.py or generativeai.py in your project, it can overshadow the installed library. Python will try to import from your local file instead of the actual google.generativeai.

- **Look** in your project's directory (CV Analyzer/) for any file or folder named google, generativeai, or anything that conflicts with the library name.
- If found, **rename** or **remove** it.

---

2) Ensure You're Using the Right Method for the Right Model

If You're Using "Text" Models (e.g., text-bison-001)

- **generate_text** is correct for text-completion models such as models/text-bison-001.
- Example snippet:

python

CopyEdit

```
import google.generativeai as palm


palm.configure(api_key="YOUR_API_KEY")


response = palm.generate_text(
  model="models/text-bison-001",
  prompt="Explain how AI works"
)
print(response.result)   # or response.generations[0].text in older versions
```

If You're Using a "Chat" or "Gemini" Model

- Some Gemini models (e.g., gemini-2.0-*) might require **generate_message** (the chat method) rather than generate_text, depending on how Google has exposed them.
- For chat-based models, do:

python

CopyEdit

```
response = palm.generate_message(
  model="models/chat-bison-001",
  messages="Explain how AI works"
)
print(response.last)
```

(Gemini is in preview and may behave more like a chat model. Check the official docs or palm.list_models() to confirm which method to use.)

---

3) Verify You're Running in the Correct Environment

It's easy to have multiple Python/Conda environments. Make sure:

1. **Conda Environment Activated**:

bash

CopyEdit

```
conda activate CV_Analyzer
```

2. **Same Python/Pip**:

bash

CopyEdit

```
which python

pip show google-generativeai
```

Both should point to your CV_Analyzer environment path.

3. **No Conflicting Installs**:
    - If you see the correct version 0.8.4, you're good.
    - If you see a different version outside your environment, you might be accidentally using the wrong Python.

---

4) Inspect the Installed Module Directly

You can also open a **Python REPL** in the same environment and do:

python

CopyEdit

```
import google.generativeai as palm


help(palm)   # or dir(palm)
```

- **Look** for generate_text or generate_message in the list of attributes.
- If generate_text is missing, it means there's a name-shadowing conflict or you're still not importing the correct library.

---

5) Try a Minimal Working Example

Create a **fresh** file, say test_palm.py, with this content (no extra imports):

python

CopyEdit

```
import google.generativeai as palm


palm.configure(api_key="YOUR_KEY_HERE")


response = palm.generate_text(
   model="models/text-bison-001",
   prompt="Hello from Python!"
)


print(response.result)
```

Then run:

bash

CopyEdit

```
python test_palm.py
```

If it **works** here but **not** in your main project, you almost certainly have a local file conflict in your project folder.

6) Use a Supported Model

- Some newly released models might only be available to certain accounts or require special permission.
- Run:

python

CopyEdit

```
models = palm.list_models()

print(models)
```

See which models are available to your account. Then pick one from that list for generate_text or generate_message.

Summary of the Fix

1. **Rename** any local google/ or generativeai/ folders.
2. **Use** the correct method:
    - palm.generate_text() for text-bison-like models.
    - palm.generate_message() for chat or gemini-like models.
3. **Confirm** you're in the environment with google-generativeai==0.8.4.
4. **Test** a minimal working script outside your main codebase to ensure no local shadowing.

Following these steps should eliminate the AttributeError and get you successfully calling **Google Generative AI** methods.

You said:

Rewrite AI-Powered CV Summary Feature: Requirements doc based on Gemini All types of requirements must be listed in organized tables. text: AI-Powered CV Summary Feature: Requirements Overview The AI-Powered CV Summary feature will parse a PDF CV, extract relevant sections (e.g., Work Experience, Education, Skills), and use an LLM-based summarization module (either NLTK or Gemini, depending on the team's choice) to generate a concise, human-readable summary of the applicant's background. Functional Requirements 1. PDF Parsing 1.1 The system shall accept a PDF file as input via the command-line interface. 1.2 The system shall extract text from the PDF while preserving basic structure (e.g., headings, bulleted lists) as much as possible. 2. Section Identification 2.1 The system shall analyze the extracted text to identify major CV sections (e.g., Education, Work Experience, Skills, Contact Information). 2.2 The system may rely on keyword-based or heuristic-based detection (e.g., look for "Education," "Experience," "Skills," etc.) or a more advanced approach if using an LLM. 3. Summarization Logic 3.1 The system shall use an LLM (Gemini or NLTK-based approach) to generate a concise summary of the candidate's background. 3.2 The summary shall emphasize: o Top skills or areas of expertise o Years of experience or overall experience range o Highest level of education o Notable achievements or certifications (if mentioned in the CV) 4. Output 4.1 The system shall print the final summary to the command line. 4.2 The system may also provide an option to export the generated summary to a text file (e.g., summary.txt). 5. User Configuration/Parameters 5.1 The user should be able to specify a maximum word count or character count for the summary (e.g., --max-words 100). 5.2 The user may provide a specific focus area (e.g., "leadership," "technical skills") to guide the summarization if desired. ____ Non-Functional Requirements 1. Performance 1.1 The system should handle a typical 2–4 page CV and produce a summary in under 5 seconds on average hardware. 1.2 Memory usage should remain within reasonable bounds (no large-scale in-memory expansions). 2. Usability 2.1 The command-line interface must be simple to invoke (e.g., python main.py --pdf candidate_cv.pdf --max-words 100). 2.2 Error messages must be clear and informative (e.g., "File not found," "Unsupported PDF format"). 3. Reliability 3.1 The PDF parsing module should handle minor formatting issues or unusual layouts without crashing. 3.2 If the system fails to detect key sections, it should still generate a fallback summary (though it may omit missing sections). 4. Maintainability 4.1 The code shall adhere to PEP 8 (Python style guide). 4.2 The code should be modular and well-documented, with clear separation of concerns (e.g., PDF parsing, summarization logic, CLI parsing). 5. Security 5.1 No personal user data (beyond the CV itself) should be stored or transmitted to external services without explicit user consent. 5.2 If using an online LLM (e.g., Gemini's API), credentials or tokens must be handled securely (not hard-coded in the source). ____ 4. Acceptance Criteria 1. Accuracy & Completeness o The generated summary must mention at least the candidate's primary field or role, highest educational attainment (if available), and notable skills. o The summary must avoid including unrelated or erroneous details not found in the CV. 2. Readability & Style o The summary must be written in clear, grammatical English. o The summary must be limited to the maximum length specified (defaulting to 100 words if no limit is given). 3. Section Coverage o If sections like Education, Experience, and Skills are detected, they must be reflected in the summarized content. o If a candidate's CV lacks a particular section, the summary should gracefully skip it (not produce an error). 4. CLI Functionality o Running the CLI command with the required flags must produce an output summary within 5 seconds for a 2–4 page CV on typical hardware. o Invalid inputs (missing PDF, unreadable file) should trigger an informative error message. 5. Test Cases o At least one automated unit test must confirm that the summarizer extracts known sections from a sample CV. o At least one system-level test must confirm end-to-end functionality (input PDF → output summary).

Reasoned for 12 seconds

Piecing together the framework

I'm thinking through the restructured document with organized tables for functional, non-functional, and acceptance criteria. Incorporating "Gemini" for the AI-Powered CV Summary Feature.

Piecing together the pieces

I'm crafting the tables by integrating "Gemini" into the Summarization logic. Each functional requirement has dedicated rows with detailed descriptions for clarity. This method ensures thorough coverage and organization.

Below is a **Gemini-focused** rewrite of the AI-Powered CV Summary feature requirements, presented in organized tables for clarity. All functional, non-functional, and acceptance criteria are grouped and labeled accordingly.

AI-Powered CV Summary (Gemini-Based)

Overview

The AI-Powered CV Summary feature parses a PDF CV, identifies major sections (e.g., Work Experience, Education, Skills), and leverages **Gemini** (an LLM-based summarization service) to generate a concise, human-readable summary of the applicant's background.

---

1. Functional Requirements

ID	Requirement
FR 1.1	The system shall accept a PDF file as input via the command-line interface.
FR 1.2	The system shall extract text from the PDF while preserving basic structure (e.g., headings, bulleted lists) as much as possible.
FR 2.1	The system shall analyze the extracted text to identify major CV sections (e.g., Education, Work Experience, Skills, Contact Info).
FR 2.2	The system may rely on keyword- or heuristic-based detection (e.g., matching "Education," "Experience," etc.) to locate key sections.
FR 3.1	The system shall use the **Gemini LLM** to generate a concise summary of the candidate's background.
FR 3.2	The summary shall emphasize: top skills/areas of expertise, years of experience, highest level of education, and notable achievements.

ID	Requirement
FR 4.1	The system shall print the final summary to the command line.
FR 4.2	The system may provide an option to export the generated summary to a text file (e.g., summary.txt).
FR 5.1	The user should be able to specify a maximum word/character count for the summary (e.g., --max-words 100).
FR 5.2	The user may provide a specific focus area (e.g., “leadership,” “technical skills”) to guide the Gemini-based summarization if needed.

---

2. Non-Functional Requirements

ID	Requirement
NFR 1.1	**Performance**: The system should handle a typical 2–4 page CV and produce a summary in under 5 seconds on average hardware.
NFR 1.2	**Performance**: Memory usage should remain within reasonable bounds (no excessive in-memory expansions).
NFR 2.1	**Usability**: The command-line interface must be simple to invoke (e.g., python main.py --pdf candidate_cv.pdf --max-words 100).
NFR 2.2	**Usability**: Error messages must be clear and informative (e.g., “File not found,” “Unsupported PDF format”).
NFR 3.1	**Reliability**: The PDF parsing module should handle minor formatting issues or unusual layouts without crashing.
NFR 3.2	**Reliability**: If the system fails to detect key sections, it should still generate a fallback summary (though it may omit missing sections).
NFR 4.1	**Maintainability**: The code shall adhere to PEP 8 (Python style guide).
NFR 4.2	**Maintainability**: The code should be modular and well-documented, with clear separation of concerns (e.g., PDF parsing, Gemini integration, CLI parsing).
NFR 5.1	**Security**: No personal user data (beyond the CV itself) should be stored or transmitted without explicit user consent.
NFR 5.2	**Security**: If using Gemini’s API, credentials or tokens must be handled securely (e.g., environment variables), not hard-coded in the source.

---

3. Acceptance Criteria

ID	Criterion
AC 1.1	**Accuracy & Completeness**: The summary must mention the candidate's primary field/role, highest educational attainment (if available), and notable skills. It must avoid unrelated or incorrect details.
AC 1.2	**Accuracy & Completeness**: If the candidate has achievements or certifications listed, these should be reflected or referenced in the summary (if space allows).
AC 2.1	**Readability & Style**: The summary must be written in clear, grammatical English.
AC 2.2	**Readability & Style**: The summary must be limited to the maximum length specified (defaulting to 100 words if no limit is provided).
AC 3.1	**Section Coverage**: If sections like Education, Experience, and Skills are detected, they must be referenced in the generated summary. Missing sections should be skipped gracefully.
AC 4.1	**CLI Functionality**: Running the CLI with correct flags must produce an output summary within 5 seconds for a 2–4 page CV on typical hardware.
AC 4.2	**CLI Functionality**: Invalid inputs (e.g., missing PDF, unreadable file) should produce an informative error message rather than cause a crash.
AC 5.1	**Test Cases**: At least one automated **unit test** must confirm that the summarizer extracts known sections from a sample CV.
AC 5.2	**Test Cases**: At least one **system-level test** must confirm end-to-end functionality (PDF → Gemini Summarization → CLI output).

How to Use This Document

1. **Implementation Reference**: Use the tables above to guide your PDF parsing, Gemini API integration, and CLI design.
2. **Testing & Validation**: Each acceptance criterion should map to specific test cases to ensure all requirements are met.
3. **Project Milestones**: Track progress by checking off functional and non-functional requirements as you implement and test them.

This table-based format ensures clarity in roles, responsibilities, and success metrics for each requirement tied to the **Gemini-based** summarization feature.

You said:

Write the README Project Phases Each phase must be documented in the README as its own section. The documentation should be included directly in the README (marked below as "inline"), or with links to other parts of the project ("link"). Note that the project phases may not necessarily be executed in the order presented. Phase 1: Requirements Engineering - Consult with an LLM to define ONE significant and interesting CV analysis feature. - Document the feature's requirements clearly (inline). - Include acceptance criteria (inline). - Document LLM interactions (link).

Reasoned for a few seconds

Drafting the README

I’m creating a detailed README for Phase 1 of the project, focusing on AI-Powered CV Summarization using Gemini. Include sections on title, project overview, installation, usage, Phase 1 requirements, acceptance criteria, and LLM interactions link.

CV Analyzer

Welcome to the **CV Analyzer** project! This command-line application processes a PDF CV, identifies key sections, and generates a concise summary using the **Gemini** LLM. The goal is to make CV screening and review more efficient for both candidates and recruiters.

Table of Contents

1. Project Overview
2. Installation
3. Usage
4. Phase 1: Requirements Engineering

Project Overview

This project is designed to:

- Parse a CV in PDF format.
- Identify major sections (Education, Work Experience, Skills).
- Generate a concise summary using Gemini, focusing on top skills, years of experience, and highest education.

You’ll find details about the **design, architecture, and testing** in subsequent phases. For now, we’re documenting Phase 1 (Requirements Engineering).

Installation

1. **Clone the Repository** (private):

bash

CopyEdit

```
git clone <your-private-repo-link>.git
```

2. **Create & Activate Conda Environment** (example):

bash

CopyEdit

```
conda create --name CV_Analyzer python=3.9
conda activate CV_Analyzer
```

3. **Install Dependencies**:

bash

CopyEdit

```
pip install -r requirements.txt
```

Make sure you have google-generativeai installed if you plan on using Gemini.

Usage

Below is a **preview** of how to run the tool (detailed usage comes in later phases):

bash

CopyEdit

```
python main.py --pdf path/to/candidate_cv.pdf --max-words 100
```

- --pdf <file> : Path to the candidate's PDF CV.
- --max-words <int> : Limits the summary length (optional).

Output: A concise summary of the CV in your terminal (and optionally saved to summary.txt).

Phase 1: Requirements Engineering

1. Consult with an LLM

We decided on **one significant and interesting feature**: **AI-Powered CV Summary** using the Gemini LLM. Our rationale:

- Advanced text generation for a recruiter-friendly summary.
- Showcases the power of an LLM to handle complex or nuanced CV data.

(See LLM Interactions section for conversation logs.)

2. Feature Requirements (Inline)

ID	Requirement
FR 1.1	The system shall accept a PDF file as input via the command-line interface.

ID	Requirement
FR 1.2	The system shall extract text from the PDF while preserving basic structure (e.g., headings, bulleted lists) as much as possible.
FR 2.1	The system shall analyze the extracted text to identify major CV sections (e.g., Education, Work Experience, Skills, Contact Info).
FR 2.2	The system may rely on keyword- or heuristic-based detection to locate key sections.
FR 3.1	The system shall use the **Gemini** LLM to generate a concise summary of the candidate's background.
FR 3.2	The summary shall emphasize top skills, years of experience, highest education, and notable achievements.
FR 4.1	The system shall print the final summary to the command line.
FR 4.2	The system may provide an option to export the generated summary to a text file (e.g., summary.txt).
FR 5.1	The user should be able to specify a maximum word/character count for the summary.
FR 5.2	The user may provide a specific focus area (e.g., "leadership skills") to guide the summarization.

Non-Functional Requirements (Excerpt)

ID	Requirement
NFR 1.1	**Performance**: The system should handle a typical 2–4 page CV and produce a summary in under 5 seconds.
NFR 1.2	**Usability**: The CLI must be simple to invoke (e.g., python main.py --pdf cv.pdf --max-words 100).
NFR 1.3	**Security**: If using Gemini, credentials must be stored securely (e.g., .env file).

3. Acceptance Criteria (Inline)

ID	Criterion
AC 1.1	**Accuracy & Completeness**: Summary mentions candidate's main field, education, and skills.
AC 1.2	**Readability & Style**: Summary must be in clear English; limit to --max-words if provided.

ID	Criterion
AC 1.3	**CLI Functionality**: Must produce a summary within 5 seconds for a 2–4 page CV on average hardware.
AC 1.4	**Error Handling**: Invalid inputs trigger informative errors (e.g., “File not found”).

4. LLM Interactions (Link)

- Phase 1 LLM Chat Transcript
  A conversation log detailing how we brainstormed and refined the AI-Powered CV Summary feature.

Note: Future phases (Architecture, Design, Coding & Testing, Documentation) will be added to this README with additional links and inline documentation, in line with the project requirements.

Next Steps

- Proceed to **Phase 2: Architecture** where we’ll define the command-line interface, file system interactions, and third-party library dependencies in more detail.
- Continue capturing all relevant LLM conversations in the chats/ directory.

You said:

write in .md format

Reasoned for a couple of seconds

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# CV Analyzer

Welcome to the **CV Analyzer** project! This command-line application processes a PDF CV, identifies key sections, and generates a concise summary using the **Gemini** LLM. The goal is to make CV screening and review more efficient for both candidates and recruiters.

## Table of Contents

1. [Project Overview](#project-overview)

2. [Installation](#installation)

3. [Usage](#usage)

4. [Phase 1: Requirements Engineering](#phase-1-requirements-engineering)

## Project Overview

This project is designed to:

- Parse a CV in PDF format.
- Identify major sections (Education, Work Experience, Skills).
- Generate a concise summary using Gemini, focusing on top skills, years of experience, and highest education.

You'll find details about the **design, architecture, and testing** in subsequent phases. For now, we're documenting Phase 1 (Requirements Engineering).

## Installation

1. **Clone the Repository** (private):

~~~
  ```bash
  git clone <your-private-repo-link>.git
~~~

2. **Create & Activate Conda Environment** (example):

bash

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```
conda create --name CV_Analyzer python=3.9
conda activate CV_Analyzer
```

3. **Install Dependencies**:

bash

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```
pip install -r requirements.txt
```

Make sure you have google-generativeai installed if you plan on using Gemini.

Usage

Below is a **preview** of how to run the tool (detailed usage comes in later phases):

bash

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```
python main.py --pdf path/to/candidate_cv.pdf --max-words 100
```

- --pdf <file> : Path to the candidate's PDF CV.
- --max-words <int> : Limits the summary length (optional).

Output: A concise summary of the CV in your terminal (and optionally saved to summary.txt).

Phase 1: Requirements Engineering

1. Consult with an LLM

We decided on **one significant and interesting feature**: **AI-Powered CV Summary** using the Gemini LLM. Our rationale:

- Advanced text generation for a recruiter-friendly summary.
- Showcases the power of an LLM to handle complex or nuanced CV data.

(See LLM Interactions below for conversation logs.)

2. Feature Requirements (Inline)

ID	Requirement
FR 1.1	The system shall accept a PDF file as input via the command-line interface.
FR 1.2	The system shall extract text from the PDF while preserving basic structure (e.g., headings, bulleted lists) as much as possible.
FR 2.1	The system shall analyze the extracted text to identify major CV sections (e.g., Education, Work Experience, Skills, Contact Info).
FR 2.2	The system may rely on keyword- or heuristic-based detection (e.g., matching "Education," "Experience," "Skills," etc.).
FR 3.1	The system shall use the **Gemini** LLM to generate a concise summary of the candidate's background.
FR 3.2	The summary shall emphasize top skills, years of experience, highest education, and notable achievements or certifications.

ID	Requirement
FR 4.1	The system shall print the final summary to the command line.
FR 4.2	The system may provide an option to export the generated summary to a text file (e.g., summary.txt).
FR 5.1	The user should be able to specify a maximum word or character count for the summary (e.g., --max-words 100).
FR 5.2	The user may provide a specific focus area (e.g., “leadership skills”) to guide the summarization if desired.

Non-Functional Requirements (Excerpt)

ID	Requirement
NFR 1.1	**Performance**: The system should handle a typical 2–4 page CV and produce a summary in under 5 seconds on average hardware.
NFR 1.2	**Usability**: The CLI must be simple to invoke (e.g., python main.py --pdf candidate_cv.pdf --max-words 100).
NFR 1.3	**Security**: If using Gemini’s API, credentials must be stored securely (e.g., in .env, not hard-coded).

3. Acceptance Criteria (Inline)

ID	Criterion
AC 1.1	**Accuracy & Completeness**: The summary must mention the candidate’s main field/role, education, and skills.
AC 1.2	**Readability & Style**: The summary must be written in clear English; limit to --max-words if specified.
AC 1.3	**CLI Functionality**: Must produce a summary within 5 seconds for a 2–4 page CV on average hardware.
AC 1.4	**Error Handling**: Invalid inputs (missing PDF, etc.) must return an informative error message.

4. LLM Interactions (Link)

- Phase 1 LLM Chat Transcript
  Describes how we brainstormed and refined the AI-Powered CV Summary feature using Gemini.

Note: Future phases—**Architecture, Design, Coding & Testing, Documentation**—will appear in updates to this README. Stay tuned!

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You said:

rewrite with the help of this template # CV Analyzer AI Powered CV Summary ## Getting started Welcome to the **CV Analyzer** project! This command-line application processes a PDF CV, identifies key sections, and generates a concise summary using the **Gemini** LLM. The goal is to make CV screening and review more efficient for both candidates and recruiters. --- ## Table of Contents 1. [Project Overview](#project-overview) 2. [Installation](#installation) 3. [Usage](#usage) 4. [Phase 1: Requirements Engineering](#phase-1-requirements-engineering) ## Project Overview This project is designed to: - Parse a CV in PDF format. - Identify major sections (Education, Work Experience, Skills). - Generate a concise summary using Gemini, focusing on top skills, years of experience, and highest education. You'll find details about the **design, architecture, and testing** in subsequent phases. For now, we're documenting Phase 1 (Requirements Engineering). ## Installation

```
cd existing_repo

git remote add origin https://gitlab.com/svision1/cv-analyzer-ai-powered-cv-summary.git

git branch -M main

git push -uf origin main
```

## Add your files ## Integrate with your tools - [ ] [Set up project integrations](https://gitlab.com/svision1/cv-analyzer-ai-powered-cv-summary/-/settings/integrations) ## Collaborate with your team - [ ] [Invite team members and collaborators](https://docs.gitlab.com/ee/user/project/members/) - [ ] [Create a new merge request](https://docs.gitlab.com/ee/user/project/merge_requests/creating_merge_requests.html) - [ ] [Automatically close issues from merge requests](https://docs.gitlab.com/ee/user/project/issues/managing_issues.html#closing-issues-automatically) - [ ] [Enable merge request approvals](https://docs.gitlab.com/ee/user/project/merge_requests/approvals/) - [ ] [Set auto-merge](https://docs.gitlab.com/ee/user/project/merge_requests/merge_when_pipeline_succeeds.html) ## Test and Deploy Use the built-in continuous integration in GitLab. - [ ] [Get started with GitLab CI/CD](https://docs.gitlab.com/ee/ci/quick_start/) - [ ] [Analyze your code for known vulnerabilities with Static Application Security Testing (SAST)](https://docs.gitlab.com/ee/user/application_security/sast/) - [ ] [Deploy to Kubernetes, Amazon EC2, or Amazon ECS using Auto Deploy](https://docs.gitlab.com/ee/topics/autodevops/requirements.html) - [ ] [Use pull-based deployments for improved Kubernetes management](https://docs.gitlab.com/ee/user/clusters/agent/) - [ ] [Set up protected environments](https://docs.gitlab.com/ee/ci/environments/protected_environments.html) *** # Editing this README When you're ready to make this README your own, just edit this file and use the handy template below (or feel free to structure it however you want - this is just a starting point!). Thanks to [makeareadme.com](https://www.makeareadme.com/) for this template. ## Suggestions for a good README Every project is different, so consider which of these sections apply to yours. The sections used in the template are suggestions for most open source projects. Also keep in mind that while a README can be too long and detailed, too long is better than too short. If you think your README is too long, consider utilizing another form of documentation rather than cutting out information. ## Name Choose a self-explaining name for your project. ## Description Let people know what your project can do specifically. Provide

context and add a link to any reference visitors might be unfamiliar with. A list of Features or a Background subsection can also be added here. If there are alternatives to your project, this is a good place to list differentiating factors. ## Badges On some READMEs, you may see small images that convey metadata, such as whether or not all the tests are passing for the project. You can use Shields to add some to your README. Many services also have instructions for adding a badge. ## Visuals Depending on what you are making, it can be a good idea to include screenshots or even a video (you'll frequently see GIFs rather than actual videos). Tools like ttygif can help, but check out Asciinema for a more sophisticated method. ## Installation Within a particular ecosystem, there may be a common way of installing things, such as using Yarn, NuGet, or Homebrew. However, consider the possibility that whoever is reading your README is a novice and would like more guidance. Listing specific steps helps remove ambiguity and gets people to using your project as quickly as possible. If it only runs in a specific context like a particular programming language version or operating system or has dependencies that have to be installed manually, also add a Requirements subsection. ## Usage Use examples liberally, and show the expected output if you can. It's helpful to have inline the smallest example of usage that you can demonstrate, while providing links to more sophisticated examples if they are too long to reasonably include in the README. ## Support Tell people where they can go to for help. It can be any combination of an issue tracker, a chat room, an email address, etc. ## Roadmap If you have ideas for releases in the future, it is a good idea to list them in the README. ## Contributing State if you are open to contributions and what your requirements are for accepting them. For people who want to make changes to your project, it's helpful to have some documentation on how to get started. Perhaps there is a script that they should run or some environment variables that they need to set. Make these steps explicit. These instructions could also be useful to your future self. You can also document commands to lint the code or run tests. These steps help to ensure high code quality and reduce the likelihood that the changes inadvertently break something. Having instructions for running tests is especially helpful if it requires external setup, such as starting a Selenium server for testing in a browser. ## Authors and acknowledgment Show your appreciation to those who have contributed to the project. ## License For open source projects, say how it is licensed. ## Project status If you have run out of energy or time for your project, put a note at the top of the README saying that development has slowed down or stopped completely. Someone may choose to fork your project or volunteer to step in as a maintainer or owner, allowing your project to keep going. You can also make an explicit request for maintainers.

Reasoned for 5 seconds

Crafting a README

I'm pulling together a new README in Markdown, embedding user content into the template, and including sections like "Name," "Description," "Badges," "Installation," and "Usage."

md

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# CV Analyzer – AI-Powered CV Summary

Welcome to the **CV Analyzer** project! This command-line application processes a PDF CV, identifies key sections (Education, Work Experience, Skills), and generates a concise summary using the **Gemini** LLM. The goal is to make CV screening and review more efficient for both candidates and recruiters.

## Getting Started

1. **Clone the Repository (GitLab)**

```bash
cd existing_repo
git remote add origin https://gitlab.com/svision1/cv-analyzer-ai-powered-cv-summary.git
git branch -M main
git push -uf origin main
```

2. **Add Your Files**
   - Place your Python scripts (including main.py, etc.) in this repo.
   - Commit and push changes to keep your code tracked in GitLab.
3. **Integrate with Your Tools**
   - Set up project integrations (CI/CD, Slack notifications, etc.)
4. **Collaborate with Your Team**
   - Invite team members and collaborators
   - Create a new merge request
   - Automatically close issues from merge requests
   - Enable merge request approvals
   - Set auto-merge
5. **Test and Deploy**
   - Get started with GitLab CI/CD
   - Enable Static Application Security Testing (SAST)
   - Deploy to Kubernetes, Amazon EC2, or Amazon ECS
   - Use pull-based deployments for Kubernetes management
   - Set up protected environments

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4. Phase 1: Requirements Engineering
5. Support
6. Roadmap
7. Contributing
8. Authors and Acknowledgments
9. License
10. Project Status

Project Overview

This project is designed to:

- Parse a CV in PDF format.
- Identify major sections (Education, Work Experience, Skills).
- Generate a concise summary using **Gemini**, focusing on top skills, years of experience, and highest education.

Why Gemini?

- Gemini (Google Generative AI) provides advanced LLM capabilities, enabling more human-like text summarization and context understanding than classical NLP libraries.

Key Features:

- Command-line interface for easy automation.
- Extensible architecture (e.g., add new analysis features in future phases).
- Secure handling of credentials (for Gemini API).

Installation

Below is a generic outline for setting up your local environment. Adjust as needed for your system.

1. **Clone the Repository**

bash

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```
git clone https://gitlab.com/svision1/cv-analyzer-ai-powered-cv-summary.git
```

2. **Create & Activate Conda Environment** (example):

bash

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```
conda create --name CV_Analyzer python=3.9

conda activate CV_Analyzer
```

3. **Install Dependencies**

bash

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```
pip install -r requirements.txt
```

Make sure google-generativeai or any other necessary packages are listed in requirements.txt.

Usage

1. **Basic Command**

bash

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```
python main.py --pdf path/to/candidate_cv.pdf --max-words 100
```

   - --pdf <file>: Path to the candidate's PDF CV.
   - --max-words <int>: Limits the summary length (optional).

2. **Example Output**
   - A concise summary displayed in your terminal.
   - (Optional) Saved to summary.txt if implemented in future versions.

Phase 1: Requirements Engineering

Overview

For the **AI-Powered CV Summary**, we focus on using **Gemini** to generate a human-readable summary.

1. Consult with an LLM

- We refined our feature with Gemini-based brainstorming (see LLM transcripts in ./chats/phase1_llm_chat.txt).

2. Requirements (Inline)

ID	Requirement
FR 1.1	The system shall accept a PDF file as input via the command-line interface.
FR 1.2	The system shall extract text from the PDF while preserving basic structure (headings, bulleted lists).
FR 2.1	The system shall detect major CV sections (Education, Work Experience, Skills, Contact Info).
FR 3.1	The system shall use **Gemini** to summarize the candidate's background.
FR 3.2	The summary shall emphasize top skills, years of experience, highest education, and notable achievements.
FR 4.1	The user can specify output length (e.g., --max-words) and a focus area (e.g., "leadership skills").

Non-Functional Requirements (Excerpt)

ID	Requirement
NFR 1.1	Performance: Should handle a 2–4 page CV and produce a summary in under 5 seconds on average hardware.
NFR 1.2	Usability: A simple command-line interface (main.py --pdf cv.pdf) is required.
NFR 1.3	Security: Gemini API credentials must be stored securely (e.g., .env), not hard-coded.

3. Acceptance Criteria (Inline)

ID	Criterion
AC 1.1	Accuracy & Completeness: Must mention the candidate's role, education, and top skills.
AC 1.2	Readability & Style: Limit summary to --max-words (default 100) in clear English.
AC 1.3	CLI Functionality: Must produce a summary within 5 seconds for a 2–4 page CV.
AC 1.4	Error Handling: Invalid inputs (missing PDF) must show an informative error message.

For more detail, see: LLM Interactions