🏥 Project Submission Document

Title: Healthcare Policy Recommendation Agent using Google Generative AI (Gemini) in Google Colab

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📌 Objective

To build an interactive application in Google Colab that recommends the most suitable health insurance policies to users based on their personal requirements and uploaded policy documents using the Gemini model.

🛠️ Tools & Technologies

- **Google Colab**
- **Google Generative AI (Gemini)**
- **ipywidgets**
- **PyPDF2**

🧠 Workflow Overview

1. Setup
Installed required libraries:

bash
CopyEdit
```
%pip install -q -U google-generativeai PyPDF2 ipywidgets
```

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- Configured the Gemini API using the API key via Colab's user data secrets.

2. User Interface (UI)

- Created interactive widgets using `ipywidgets`:
    - **Age**
    - **Family Status** (Individual / Family)
    - **Number of Dependents**
    - **Special Needs** (Senior, Dental, Wellness, etc.)
    - **File Upload**
    - **Submit Button**
    - **Ask a Question Box**

3. PDF Processing

- When users upload PDF documents, `process_uploaded_pdfs()` extracts text using `PyPDF2`.
- Gemini is used to identify and classify each healthcare policy from the uploaded documents (e.g., Basic Health Plan, Family Plus, etc.).

4. Policy Analysis

- Based on user input, a prompt is dynamically generated for Gemini, combining:
    - The user's requirements.
    - The content extracted from each uploaded policy document.
- Gemini returns a personalized recommendation or summary.

5. Displaying Recommendations

- `display_recommendations()` presents the analysis result using clean HTML formatting inside Colab for user clarity.

6. Question Answering

- `answer_question()` uses the Gemini model again to respond to specific user queries (e.g., “Which policy supports dental benefits?”) based on the previously recommended content.

7. Interaction Workflow

- File Upload → User Details Input → Submit → AI-Based Recommendation → User Query → AI Answer

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📄 Policy Document Used

Document Name: `C2_M3_-Project.pdf`
Provider: HealthSecure Insurance Ltd.

Policies Analyzed:

1. Basic Health Plan
2. Family Health Plus Plan
3. Comprehensive Health & Wellness Plan
4. Senior Health Security Plan
5. Add-On Options (Dental & Vision, Maternity & Newborn Care, International Travel Medical Insurance)

✅ Output Example (Based on User Inputs)

- Age: 60
- Family Type: Individual
- Special Requirement: Dental & Senior Support

💡 **Recommended Plan**: *Senior Health Security Plan with Dental Add-On*
Why: Offers routine prescriptions, private rooms, no annual limit on specialist visits, and includes dental/vision benefits with zero waiting period.

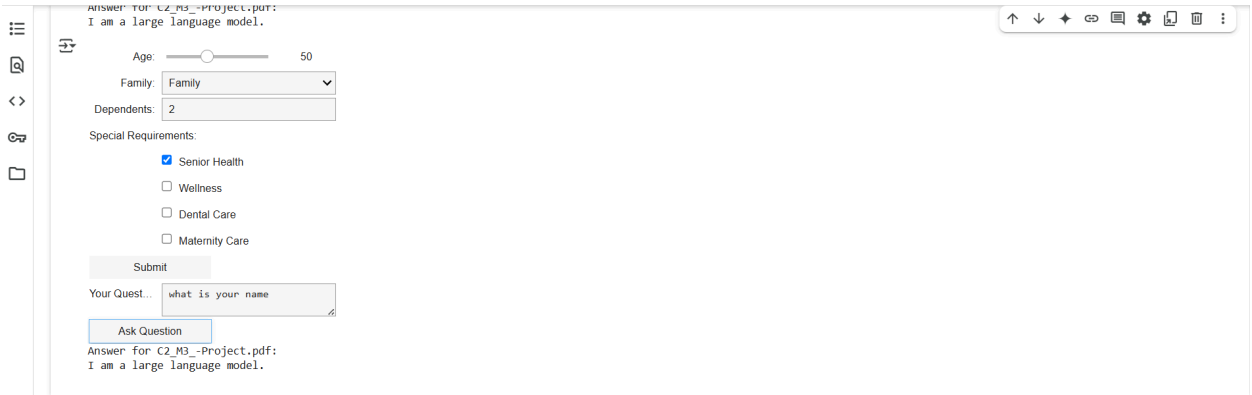
📦 Features Summary

- 🔍 Intelligent document reading and classification
- 🎯 Personalized policy matching
- ❓ AI-powered Q&A on policies
- 🧾 Dynamic form-based user input
- 📈 Visual recommendations rendered in the notebook

🔚 Conclusion

This project successfully integrates user inputs, policy document parsing, and the Gemini model to simulate a healthcare sales assistant, providing tailored insurance advice and real-time question handling.

Output response



Google colab access:[link:https://colab.research.google.com/drive/1fnHmhCznpGSg8bfRU78ZaR3jqR93zT9m?usp=sharing](https://colab.research.google.com/drive/1fnHmhCznpGSg8bfRU78ZaR3jqR93zT9m?usp=sharing)