Q.1 PROBLEM STATEMENT

Design an LLM-Powered Intelligent Query–Retrieval System that can process large documents and make contextual decisions. Your system should handle real-world scenarios in insurance, legal, HR, and compliance domains.

Input Requirements:
- Process PDFs, DOCX, and email documents
- Handle policy/contract data efficiently
- Parse natural language queries

Technical Specifications:
- Use embeddings (FAISS/Pinecone) for semantic search
- Implement clause retrieval and matching
- Provide explainable decision rationale
- Output structured JSON responses

Sample Query:

"Does this policy cover knee surgery, and what are the conditions?"

Q.2   SYSTEM ARCHITECTURE & WORKFLOW

2.1) Design and implement the following system components:

1

Input Documents

PDF Blob URL

2

LLM Parser

Extract structured query

3

Embedding Search

FAISS/Pinecone retrieval

4

Clause Matching

Semantic similarity

5

Logic Evaluation

Decision processing

6

JSON Output

Structured response

Q.3   EVALUATION PARAMETERS

3.1) Your solution will be evaluated based on the following criteria:

a   **Accuracy**

Precision of query understanding and clause matching

b   **Token Efficiency**

Optimized LLM token usage and cost-effectiveness

c   **Latency**

Response speed and real-time performance

d Reusability

Code modularity and extensibility

e Explainability

Clear decision reasoning and clause traceability

Q.4 RETRIEVAL SYSTEM API DOCUMENTATION

Base URL (Local Development):

http://localhost:8000/api/v1

Authentication:

Authorization: Bearer 67a367c4226c74a56a8a3a5e70df0777d1b411ef9ba33ea4d16f2052
4c6e6438

✅ Team token loaded successfully

API Endpoints Overview

POST   /hackrx/run

Run Submissions

Sample Upload Request:

```
POST /hackrx/run
Content-Type: application/json
```

```
    Accept: application/json
    Authorization: Bearer 67a367c4226c74a56a8a3a5e70df0777d1b411ef9ba33ea4d16f20524c6e6438

    {
        "documents": "https://hackrx.blob.core.windows.net/assets/policy.pdf?sv=2023-01-03&st=
        "questions": [
            "What is the grace period for premium payment under the National Parivar Mediclaim
            "What is the waiting period for pre-existing diseases (PED) to be covered?",
            "Does this policy cover maternity expenses, and what are the conditions?",
            "What is the waiting period for cataract surgery?",
            "Are the medical expenses for an organ donor covered under this policy?",
            "What is the No Claim Discount (NCD) offered in this policy?",
            "Is there a benefit for preventive health check-ups?",
            "How does the policy define a 'Hospital'?",
            "What is the extent of coverage for AYUSH treatments?",
            "Are there any sub-limits on room rent and ICU charges for Plan A?"
        ]
    }
```

Sample Response:

```
{
"answers": [
        "A grace period of thirty days is provided for premium payment after the due date
        "There is a waiting period of thirty-six (36) months of continuous coverage from t
        "Yes, the policy covers maternity expenses, including childbirth and lawful medica
        "The policy has a specific waiting period of two (2) years for cataract surgery.",
        "Yes, the policy indemnifies the medical expenses for the organ donor's hospitali:
        "A No Claim Discount of 5% on the base premium is offered on renewal for a one-yea
        "Yes, the policy reimburses expenses for health check-ups at the end of every bloc
        "A hospital is defined as an institution with at least 10 inpatient beds (in towns
        "The policy covers medical expenses for inpatient treatment under Ayurveda, Yoga,
        "Yes, for Plan A, the daily room rent is capped at 1% of the Sum Insured, and ICU
    ]
}
```

Recommended Tech Stack:

FastAPI
Backend

Pinecone
Vector DB

GPT-4

LLM

PostgreSQL
Database

SUBMISSION INSTRUCTIONS

• Submit your complete solution before the deadline

• Include proper documentation and code comments

• Ensure all requirements are met as per question specifications

• Test all API endpoints with sample data

Submit Solution   View Problem Statement (PDF)