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## RAG Pipeline Debug Tracer

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This tool traces the entire RAG pipeline execution:

- Query reformulation
- Document retrieval
- Context building
- Prompt construction
- LLM invocation
- Memory management

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## RAG PIPELINE DEBUG TRACER

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Timestamp: 2025-12-26 19:07:26.239323

Model: llama3.2:3b

Embedding Model: mxbai-embed-large:335m

Chunk Size: 400, Overlap: 50

Top K Documents: 2

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[STEP 0] Initializing RAG Components...

2025-12-26 19:07:26 | INFO | backend.src.embeddings | Embeddings initialized: mxbai-embed-large:335m

2025-12-26 19:07:26 | INFO | backend.src.vectorstore | VectorStore loaded: 1598 chunks in 'records'

2025-12-26 19:07:26 | INFO | backend.src.retriever | Retriever configured (parent\_docs:  
E:\Confidential\_Offline\_RAG\backend\parent\_docs, search\_type: similarity)

2025-12-26 19:07:26 | INFO | backend.src.llm | LLM initialized: llama3.2:3b

✓ All components initialized

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## INTERACTIVE DEBUG MODE

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Enter queries to trace through the pipeline.

Type 'exit' or 'quit' to stop.

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Your Query: who sections are against arjun chowdhury?

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## NEW QUERY SIMULATION

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User Query: 'who sections are against arjun chowdhury?'

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### [STEP 1] QUERY REFORMULATION

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Original Query: 'who sections are against arjun chowdhury?'

Conversation History Length: 0 messages

→ Early conversation detected - using original query

Reformulated Query: 'who sections are against arjun chowdhury?'

Was Reformulated: False

Reformulated Query: 'who sections are against arjun chowdhury?'

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### [STEP 2] DOCUMENT RETRIEVAL

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Search Query: 'who sections are against arjun chowdhury?'

Search Type: similarity

Target Parent Documents: 2

→ Searching vector store for relevant chunks...

2025-12-26 19:07:43 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/embed "HTTP/1.1 200 OK"

2025-12-26 19:07:43 | INFO | backend.src.retriever | Retrieved 2 documents for query: 'who sections are against arjun chowdhury?...'

✓ Retrieved 2 parent document(s)

Retrieved Documents:

-----

Document 1:

Source: IR\_Case\_2.pdf

Total Pages: 2

Content Length: 2417 characters

Preview: DETAILED INTERROGATION REPORT OF ARJUN CHOWDHURY

CASE REFERENCE:

PS Case No 45/2023, 2023-10-12, IPC Sections 21/23, 27A, 29 NDPS Act

1. NAME : Arjun

2. SURNAME : Chowdhury

3. FATHER'S NAME : Ratan Ch...

Document 2:

Source: IR\_Case\_189.pdf

Total Pages: 2

Content Length: 2673 characters

Preview: DETAILED INTERROGATION REPORT OF RAKESH CHOWDHURY

CASE REFERENCE:

PS Case No 79/2023, 2023-11-27, IPC Sections 21, 29, and NDPS Act 1985

1. NAME : Rakesh

2. SURNAME : Chowdhury

3. FATHER'S NAME : Ajay...

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### [STEP 3] CONTEXT BUILDING

→ Building context from 2 document(s)

✓ Added document 1: IR\_Case\_2.pdf

✓ Added document 2: IR\_Case\_189.pdf

✓ Total context length: 5205 characters

### [STEP 4] PROMPT CONSTRUCTION

Conversation History: 0 characters

Context Length: 5205 characters

User Query: 'who sections are against arjun chowdhury?'

Full Prompt Preview:

You are an expert assistant for confidential police interrogation records.

Rules:

- Answer only from the provided records.
- Do not use outside knowledge or assume anything.
- Keep responses professional, neutral, and confidential.
- Refer to documents by their file names, not labels like "RECORD 1".

Handling Multiple People with Same Name:

- Use full names and details (age, location, date, case type) to identify individuals.
- If multiple people have the exact same full name (first and last) in different records:
  - List them with brief details (age, location, date, case type).
  - Ask: "Which one are you asking about?"
- If the user gives clarifying details (age, location, etc.), answer only from the matching record.
- For partial names (e.g., just first name), if multiple match, list them and ask for clarification.
- In follow-up questions with multiple records, use conversation history to identify the person being discussed.

- If the query specifies a particular person by name, only provide information from records that match that exact name. Do not include or mention information from records of other people.

Answering Questions:

- Greetings: Respond warmly and briefly.
- If info is in records: Give clear, detailed answer.
- If not in records: Say "No information available in the interrogation record(s)."
- Unrelated questions: "I can only answer about police interrogation records."

Do not make up information. Use only the provided records.

Conversation History:

Available Records:

SOURCE FILE: IR\_Case\_2.pdf

=== CONTENT ===

DETAILED INTERROGATION REPORT OF ARJUN CHOWDHURY

CASE REFERENCE:

PS Case No 45/2023, 2023-10-12, IPC Sections 21/23, 27A, 29 NDPS Act

1. NAME : Arjun
2. SURNAME : Chowdhury
3. FATHER'S NAME : Ratan Chowdhury
4. AGE : 34
5. SEX : Male
6. ADDRESS  
: Village Bhola, Near Sundarbans National Park, West Bengal, India
7. EDUCATIONAL QUALIFICATION : High School Graduate
8. FAMILY PARTICULARS : Married, one child, elderly parents
9. DESCRIPTIVE ...

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[STEP 5] LLM INVOCATION

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Model: llama3.2:3b

Temperature: 0.2

Prompt Length: 6792 characters

→ Sending request to LLM...

2025-12-26 19:07:58 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/chat "HTTP/1.1 200 OK"

✓ Response received: 104 characters

=====

[STEP 6] MEMORY UPDATE

=====

→ Added user message to history

→ Added AI response to history

✓ Total messages in history: 2

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[FINAL RESPONSE]

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According to IR\_Case\_2.pdf, Arjun Chowdhury is mentioned under IPC Sections 21/23, 27A, and 29 NDPS Act.

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Your Query: statement given by him

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NEW QUERY SIMULATION

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User Query: 'statement given by him'

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[STEP 1] QUERY REFORMULATION

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Original Query: 'statement given by him'

Conversation History Length: 2 messages

→ Analyzing last 2 messages for context

Conversation Context:

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User: who sections are against arjun chowdhury?...

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury is mentioned under IPC Sections 21/23, 27A, and 29 NDPS ...

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Sending reformulation request to LLM...

2025-12-26 19:08:15 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/chat "HTTP/1.1 200 OK"

Reformulated Query: 'statement given by Arjun Chowdhury'

Was Reformulated: True

Reformulated Query: 'statement given by Arjun Chowdhury'

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[STEP 2] DOCUMENT RETRIEVAL

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Search Query: 'statement given by Arjun Chowdhury'

Search Type: similarity

Target Parent Documents: 2

→ Searching vector store for relevant chunks...

2025-12-26 19:08:21 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/embed "HTTP/1.1 200 OK"

2025-12-26 19:08:21 | INFO | backend.src.retriever | Retrieved 2 documents for query: 'statement given by Arjun Chowdhury...'

✓ Retrieved 2 parent document(s)

Retrieved Documents:

-----

Document 1:

Source: IR\_Case\_2.pdf

Total Pages: 2

Content Length: 2417 characters

Preview: DETAILED INTERROGATION REPORT OF ARJUN CHOWDHURY

CASE REFERENCE:

PS Case No 45/2023, 2023-10-12, IPC Sections 21/23, 27A, 29 NDPS Act

1. NAME : Arjun

2. SURNAME : Chowdhury

3. FATHER'S NAME : Ratan Ch...

Document 2:

Source: IR\_Case\_143.pdf

Total Pages: 2

Content Length: 2509 characters

Preview: DETAILED INTERROGATION REPORT OF ARJUN BANERJEE

CASE REFERENCE:

PS Case No/2023, 10-23-2023, IPC Sections 120B/121/121A

1. NAME : Arjun

2. SURNAME : Banerjee

3. FATHER'S NAME : Raghav Banerjee

4. AGE ...

[STEP 3] CONTEXT BUILDING

→ Building context from 2 document(s)

✓ Added document 1: IR\_Case\_2.pdf

✓ Added document 2: IR\_Case\_143.pdf

✓ Total context length: 5041 characters



#### [STEP 4] PROMPT CONSTRUCTION

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Conversation History: 163 characters

Context Length: 5041 characters

User Query: 'statement given by Arjun Chowdhury'

Full Prompt Preview:

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You are an expert assistant for confidential police interrogation records.

Rules:

- Answer only from the provided records.
- Do not use outside knowledge or assume anything.
- Keep responses professional, neutral, and confidential.
- Refer to documents by their file names, not labels like "RECORD 1".

Handling Multiple People with Same Name:

- Use full names and details (age, location, date, case type) to identify individuals.
- If multiple people have the exact same full name (first and last) in different records:
  - List them with brief details (age, location, date, case type).
  - Ask: "Which one are you asking about?"
- If the user gives clarifying details (age, location, etc.), answer only from the matching record.
- For partial names (e.g., just first name), if multiple match, list them and ask for clarification.
- In follow-up questions with multiple records, use conversation history to identify the person being discussed.
- If the query specifies a particular person by name, only provide information from records that match that exact name. Do not include or mention information from records of other people.

Answering Questions:

- Greetings: Respond warmly and briefly.
- If info is in records: Give clear, detailed answer.
- If not in records: Say "No information available in the interrogation record(s)."
- Unrelated questions: "I can only answer about police interrogation records."

Do not make up information. Use only the provided records.

Conversation History: User: who sections are against arjun chowdhury?

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury is mentioned under IPC Sections 21/23, 27A, and 29 NDPS Act.

Available Records:

SOURCE FILE: IR\_Case\_2.pdf

=== CONTENT ===

DETAILED INTERROGATION REPORT OF ARJUN CHOWDHURY

CASE REFERENCE:

PS Case No 45/2023, 2023-10-12, IPC Sections 21/23, 27A, 29 NDPS Act

1. NAME : Arjun
2. SURNAME : Chowdhury
3. FATHER'S NAME : Ratan Chowdhury
4. AGE : 34
5. SEX : Male
6. ADDRESS  
: Village Bhola, Near Sundarban...

[STEP 5] LLM INVOCATION

Model: llama3.2:3b

Temperature: 0.2

Prompt Length: 6784 characters

→ Sending request to LLM...

2025-12-26 19:08:35 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/chat "HTTP/1.1 200 OK"

✓ Response received: 613 characters

[STEP 6] MEMORY UPDATE

→ Added user message to history  
→ Added AI response to history  
✓ Total messages in history: 4

[FINAL RESPONSE]

According to IR\_Case\_2.pdf, Arjun Chowdhury's statement is:

"I was approached by Rakesh Das who knew of my financial struggles. He offered me a chance to earn significantly by transporting packages using my fishing boat. Initially, I refused, but mounting bills and my family's needs forced my hand. I used my knowledge of the Sundarban waters to move the parcels discreetly across the borders, believing nobody would suspect a simple fisherman. Rakesh assured me this was a chance to secure a future for my child, and that the danger was minimal. I deeply regret my involvement now and wish to cooperate fully."

Your Query: who is rahul gandhi

NEW QUERY SIMULATION

User Query: 'who is rahul gandhi'

[STEP 1] QUERY REFORMULATION

Original Query: 'who is rahul gandhi'

Conversation History Length: 4 messages

→ Analyzing last 4 messages for context

Conversation Context:

-----  
User: who sections are against arjun chowdhury?...

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury is mentioned under IPC Sections 21/23, 27A, and 29 NDPS ...

User: statement given by him...

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury's statement is:

"I was approached by Rakesh Das who kne...  
-----

Sending reformulation request to LLM...

2025-12-26 19:08:50 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/chat "HTTP/1.1 200 OK"

Reformulated Query: 'who is rahul gandhi'

Was Reformulated: False

Reformulated Query: 'who is rahul gandhi'

=====  
[STEP 2] DOCUMENT RETRIEVAL  
=====

Search Query: 'who is rahul gandhi'

Search Type: similarity

Target Parent Documents: 2

→ Searching vector store for relevant chunks...

2025-12-26 19:08:56 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/embed "HTTP/1.1 200 OK"

2025-12-26 19:08:56 | INFO | backend.src.retriever | Retrieved 2 documents for query: 'who is rahul gandhi...'

✓ Retrieved 2 parent document(s)

Retrieved Documents:

-----

Document 1:

Source: IR\_Case\_166.pdf

Total Pages: 2

Content Length: 2073 characters

Preview: DETAILED INTERROGATION REPORT OF RAHUL SINGH

CASE REFERENCE:

PS Case No/2023, 10-23-2023, IPC Sections 395, 397

1. NAME : Rahul

2. SURNAME : Singh

3. FATHER'S NAME : Rajesh Singh

4. AGE : 32

5. SEX : ...

Document 2:

Source: IR\_Case\_15.pdf

Total Pages: 2

Content Length: 2342 characters

Preview: DETAILED INTERROGATION REPORT OF RAHUL SINGH

CASE REFERENCE:

PS Case No 234/2023, 15/08/2023, IPC Sections 121, 121A, 124A

1. NAME : Rahul

2. SURNAME : Singh

3. FATHER'S NAME : Rajesh Singh

4. AGE : 2...

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[STEP 3] CONTEXT BUILDING

=====

→ Building context from 2 document(s)

✓ Added document 1: IR\_Case\_166.pdf

✓ Added document 2: IR\_Case\_15.pdf

✓ Total context length: 4531 characters

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#### [STEP 4] PROMPT CONSTRUCTION

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Conversation History: 817 characters

Context Length: 4531 characters

User Query: 'who is rahul gandhi'

Full Prompt Preview:

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- Keep responses professional, neutral, and confidential.
- Refer to documents by their file names, not labels like "RECORD 1".

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  - List them with brief details (age, location, date, case type).
  - Ask: "Which one are you asking about?"
- If the user gives clarifying details (age, location, etc.), answer only from the matching record.
- For partial names (e.g., just first name), if multiple match, list them and ask for clarification.
- In follow-up questions with multiple records, use conversation history to identify the person being discussed.
- If the query specifies a particular person by name, only provide information from records that match that exact name. Do not include or mention information from records of other people.

Answering Questions:

- Greetings: Respond warmly and briefly.
- If info is in records: Give clear, detailed answer.
- If not in records: Say "No information available in the interrogation record(s)."

- Unrelated questions: "I can only answer about police interrogation records."

Do not make up information. Use only the provided records.

Conversation History: User: who sections are against arjun chowdhury?

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury is mentioned under IPC Sections 21/23, 27A, and 29 NDPS Act.

User: statement given by him

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury's statement is:

"I was approached by Rakesh Das who knew of my financial struggles. He offered me a chance to earn significantly by

transporting packages using my fishing boat. Initially, I refused, but mounting bills and my family's needs forced my

hand...

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[STEP 5] LLM INVOCATION

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Model: llama3.2:3b

Temperature: 0.2

Prompt Length: 6913 characters

→ Sending request to LLM...

2025-12-26 19:09:08 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/chat "HTTP/1.1 200 OK"

✓ Response received: 53 characters

=====

[STEP 6] MEMORY UPDATE

=====

→ Added user message to history

→ Added AI response to history

✓ Total messages in history: 6

=====

[FINAL RESPONSE]

=====

I can only answer about police interrogation records.

=====

Your Query: statement of rajesh sharma of case number PS Case No/2023, 15/11/2023, IPC Sections 21/61/85

=====

NEW QUERY SIMULATION

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User Query: 'statement of rajesh sharma of case number PS Case No/2023, 15/11/2023, IPC Sections 21/61/85'

=====

=====

[STEP 1] QUERY REFORMULATION

=====

Original Query: 'statement of rajesh sharma of case number PS Case No/2023, 15/11/2023, IPC Sections 21/61/85'

Conversation History Length: 6 messages

→ Analyzing last 6 messages for context

Conversation Context:

-----

User: who sections are against arjun chowdhury?...

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury is mentioned under IPC Sections 21/23, 27A, and 29 NDPS ...

User: statement given by him...

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury's statement is:

"I was approached by Rakesh Das who kne...



User: who is rahul gandhi...

Assistant: I can only answer about police interrogation records....

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Sending reformulation request to LLM...

2025-12-26 19:09:38 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/chat "HTTP/1.1 200 OK"

Reformulated Query: 'statement of Rajesh Sharma of case number PS Case No/2023, 15/11/2023, IPC Sections 21/61/85'

Was Reformulated: True

Reformulated Query: 'statement of Rajesh Sharma of case number PS Case No/2023, 15/11/2023, IPC Sections 21/61/85'

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[STEP 2] DOCUMENT RETRIEVAL

=====

Search Query: 'statement of Rajesh Sharma of case number PS Case No/2023, 15/11/2023, IPC Sections 21/61/85'

Search Type: similarity

Target Parent Documents: 2

→ Searching vector store for relevant chunks...

2025-12-26 19:09:44 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/embed "HTTP/1.1 200 OK"

2025-12-26 19:09:44 | INFO | backend.src.retriever | Retrieved 2 documents for query: 'statement of Rajesh Sharma of case number PS Case ...'

✓ Retrieved 2 parent document(s)

Retrieved Documents:

-----

Document 1:

Source: IR\_Case\_84.pdf

Total Pages: 2

Content Length: 2859 characters

Preview: DETAILED INTERROGATION REPORT OF RAJESH SHARMA

CASE REFERENCE:

PS Case No/2023, 15th Oct 2023, IPC Sections 22, 24, 27

1. NAME : Rajesh
2. SURNAME : Sharma
3. FATHER'S NAME : Ramesh Sharma
4. AGE : 34...

Document 2:

Source: IR\_Case\_8.pdf

Total Pages: 2

Content Length: 2593 characters

Preview: DETAILED INTERROGATION REPORT OF RAJESH SHARMA

CASE REFERENCE:

PS Case No/2023, 15/11/2023, IPC Sections 21/61/85 NDPS Act

1. NAME : Rajesh
2. SURNAME : Sharma
3. FATHER'S NAME : Vinay Sharma
4. AGE :...

[STEP 3] CONTEXT BUILDING

→ Building context from 2 document(s)

✓ Added document 1: IR\_Case\_84.pdf

✓ Added document 2: IR\_Case\_8.pdf

✓ Total context length: 5566 characters

[STEP 4] PROMPT CONSTRUCTION

Conversation History: 908 characters

Context Length: 5566 characters

User Query: 'statement of Rajesh Sharma of case number PS Case No/2023, 15/11/2023, IPC Sections 21/61/85'

Full Prompt Preview:

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You are an expert assistant for confidential police interrogation records.

Rules:

- Answer only from the provided records.
- Do not use outside knowledge or assume anything.
- Keep responses professional, neutral, and confidential.
- Refer to documents by their file names, not labels like "RECORD 1".

Handling Multiple People with Same Name:

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  - Ask: "Which one are you asking about?"
- If the user gives clarifying details (age, location, etc.), answer only from the matching record.
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- If the query specifies a particular person by name, only provide information from records that match that exact name. Do not include or mention information from records of other people.

Answering Questions:

- Greetings: Respond warmly and briefly.
- If info is in records: Give clear, detailed answer.
- If not in records: Say "No information available in the interrogation record(s)."
- Unrelated questions: "I can only answer about police interrogation records."

Do not make up information. Use only the provided records.

Conversation History: User: who sections are against arjun chowdhury?

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury is mentioned under IPC Sections 21/23, 27A, and 29 NDPS Act.

User: statement given by him

Assistant: According to IR\_Case\_2.pdf, Arjun Chowdhury's statement is:

"I was approached by Rakesh Das who knew of my financial struggles. He offered me a chance to earn significantly by

transporting packages using my fishing boat. Initially, I refused, but mounting bills and my family's needs forced my

hand...

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=====

[STEP 5] LLM INVOCATION

=====

Model: llama3.2:3b

Temperature: 0.2

Prompt Length: 8112 characters

→ Sending request to LLM...

2025-12-26 19:09:56 | INFO | httpx | HTTP Request: POST http://localhost:11434/api/chat "HTTP/1.1 200 OK"

✓ Response received: 729 characters

=====

[STEP 6] MEMORY UPDATE

=====

→ Added user message to history

→ Added AI response to history

✓ Total messages in history: 8

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[FINAL RESPONSE]

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According to IR\_Case\_8.pdf, Rajesh Sharma's statement is:

"I was struggling to keep my business afloat when I met Anil at a local market. He spoke about the ease of making money smuggling drugs. Initially, I didn't take him seriously, but as my financial hardships grew, I found myself returning to the idea. One day I agreed to transport a small package to Kolkata. Slowly, my involvement expanded. I knew it was wrong, but I didn't see any other way to provide for my family. I coordinated with suppliers in Bangladesh and routed drugs through my accomplices in Northeast India. Though always nervous, the thought of quick money kept me going."

Would you like to know more about Rajesh Sharma or move on to a different topic?

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