

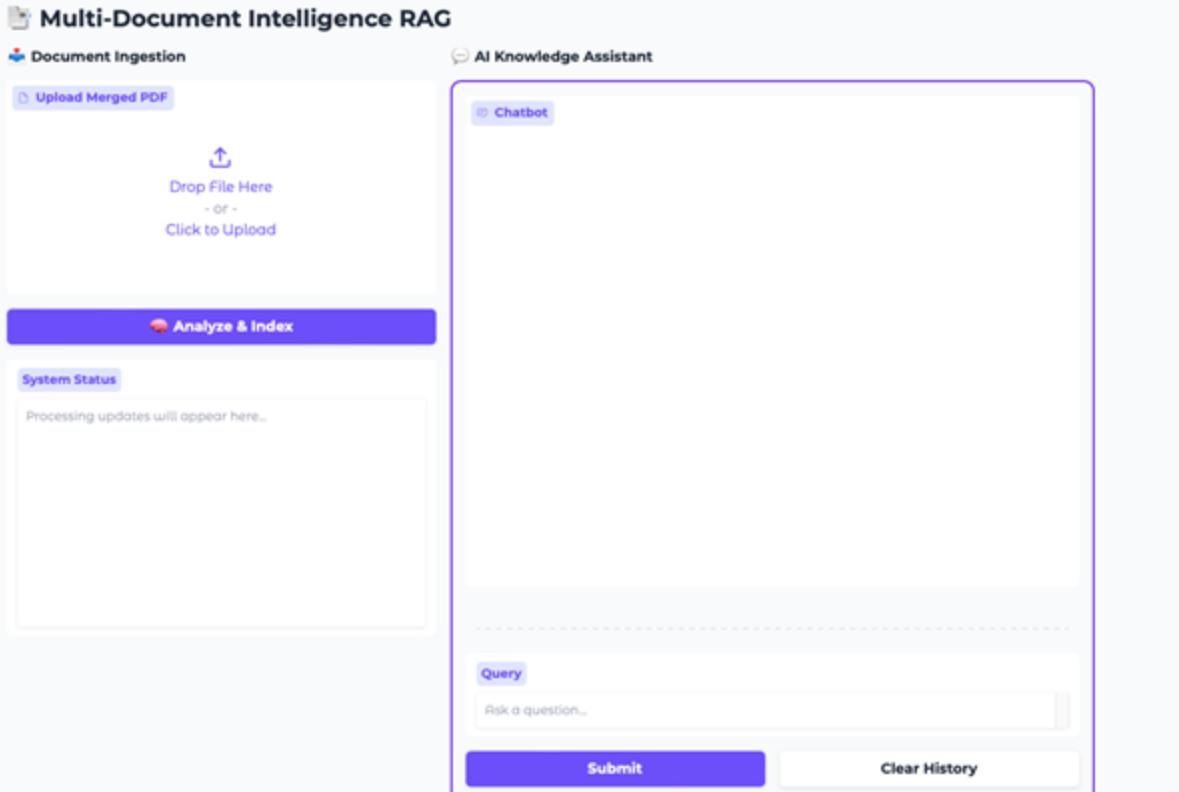
# Full RAG Pipeline with Interactive Gradio Chatbot



Demo & Reflection

Author: Lashawn Fofung, MBA, PMP, CSM, CSPO

# Gradio Chat Interface



## On Launch

- Basic UI Layout
- Monochrome
- Active Button
  - Upload PDF
  - “X” to delete file
  - Analyze & Index
  - Submit Query
  - Clear History
- Labeling Button
  - System Status
  - Query
  - Chatbot

# Gradio Chat Interface

The screenshot displays the Gradio Chat Interface. On the left, the "Document Ingestion" section shows a file named "Lashawn Fofung JQM12 TASK 2 FO Tread...pdf" with a size of "728.7 KB". Below it is a purple button labeled "Analyze & Index". To the right, the "AI Knowledge Assistant" section features a "Chatbot" icon. A large, semi-transparent purple rectangular box highlights the central area where the AI would process the uploaded document. At the bottom of this highlighted area, there is a "Query" input field with the placeholder "Ask a question..." and two buttons: "Submit" and "Clear History".

## File Upload & Processing

- File Uploaded: MBA Capstone PDF
- Before clicking Analyze & Index button
  - Filename
  - File size
- After clicking Analyze & Index
  - Processing time
  - System status shows number of pages

# Gradio Chat Interface

The image shows a screenshot of the Gradio Chat Interface. On the left, there is a 'Document Ingestion' panel with a file uploaded named 'Lashawn Fofung JQM2 TASK 2 FO Tread...pdf' (728.7 KB). A purple button labeled 'Analyze & Index' is visible. On the right, there is an 'AI Knowledge Assistant' panel titled 'Chatbot'. It displays a message: 'Based on the provided text, the name of the PDF is: FO Tread Bikes ' Stockholder Report'. Below this is a 'Query' input field with the placeholder 'Ask a question...' and a 'Submit' button.

## Query #1

- Simple question on PDF file name
- Accurate response for title of document
- Not full name

# Gradio Chat Interface

The screenshot shows the Gradio Chat Interface. On the left, there's a sidebar titled "Multi-Document Intelligence RAG" with "Document Ingestion" and "Upload Merged PDF" sections. A file named "Lashawn Fofung 30M2 TASK 2 FO Tread...pdf" is listed with a size of 728.7 KB. Below this is a purple "Analyze & Index" button. Under "System Status", it says "Indexed 29 pages. Ready to answer questions." On the right, the main area is titled "AI Knowledge Assistant". It shows a "Chatbot" section with "Lashawn Fofung" and a "summary of pdf" button. A detailed summary of the uploaded document is provided, mentioning sections like Table of Contents, Balance Sheet, and Cash Flow. At the bottom, there's a "Query" input field with "Ask a question...", a "Submit" button, and a "Clear History" button.

## Query # 3

- Request for summary
- Response detailed with pdf document headers (not all)

# Gradio Chat Interface

The screenshot shows the Gradio Multi-Document Intelligence RAG interface. On the left, the "Document Ingestion" section displays a file named "Lashdown Fofung 3QMT2 TASK 2 FO Thread..pdf" (728.7 KB) with a "Upload Merged PDF" button and an "Analyze & Index" button. Below it, the "System Status" section shows "Indexed 29 pages. Ready to answer questions." On the right, the "AI Knowledge Assistant" section features a "Chatbot" interface. The first message from the bot provides a breakdown of assets by quarter: "Based on the provided balance sheet, here's the breakdown of the company's assets for each quarter:

- Quarter 4: \$3,501,733
- Quarter 5: \$4,595,931
- Quarter 6: \$3,565,821

". A user query "what is the total amount of assets" is shown below. The bot responds with another breakdown: "Based on the provided Balance Sheet:

- Quarter 4: Total Assets = \$3,501,733
- Quarter 5: Total Assets = \$4,595,931
- Quarter 6: Total Assets = \$3,565,821

". At the bottom, there are "Query", "Submit", and "Clear History" buttons, along with a progress bar indicating "processing | 2.0/1.7s".

## Query #5

- With each query, processing time is displayed
- Non-specific query that required specific wording to get combined total assets (see in next slide)

# Gradio Chat Interface

The screenshot shows the Gradio Multi-Document Intelligence RAG interface. On the left, there's a sidebar with "Document Ingestion" and a file uploaded named "Lashdown Fofung 3QMT2 TASK 2 FO Thread.pdf" (728.7 KB). Below it is a purple button labeled "Analyze & Index". Under "System Status", it says "Indexed 29 pages. Ready to answer questions." On the right, the main area is titled "AI Knowledge Assistant" and has a "Chatbot" section. It lists "Quarter 4: Total Assets = \$3,501,733", "Quarter 5: Total Assets = \$4,595,931", and "Quarter 6: Total Assets = \$3,565,821". A user query "what is the combined total amount of all assets for quarters 4, 5, and 6" is shown, followed by the AI's response: "Here's how to calculate the combined total amount of all assets for Quarters 4, 5, and 6 from the provided balance sheet:  
Quarter 4 Total Assets: \$3,501,733  
Quarter 5 Total Assets: \$4,595,931  
Quarter 6 Total Assets: \$3,565,821  
Combined Total: \$3,501,733 + \$4,595,931 + \$3,565,821 = \$11,663,485  
Answer: The combined total amount of all assets for quarters 4, 5, and 6 is \$11,663,485." At the bottom, there's a "Query" input field with "Ask a question..." placeholder text, a "Submit" button, and a "Clear History" button.

## Query # 6

- Shows ability to do calculations
- Query specific by using prompt requesting for combined total assets for quarters 4, 5, and 6

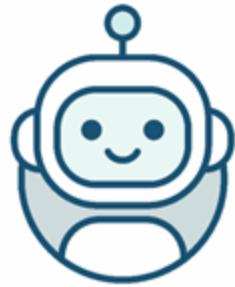
# Reflection

---

What did I add or change compared to the tutorial?

|   |                                   |   |
|---|-----------------------------------|---|
| A | <b>Additions and Key Changes</b>  | Added RAG & Document Splitting to improve parsing, and classifying documents. Tutorial used mock functions. |
| B | <b>BGE Semantic Vector Search</b> | Allowed for a more specific search instead of basic answer. Tutorial had no search capability               |
| C | <b>Custom Styling</b>             | Modified column width and window size with borders and a divider. Tutorial used a standard layout.          |

---



Thank You!