A diagram of a flowchart

AI-generated content may be incorrect.

**Json Data Format:**

“cik”, “entity name”, “facts”:[”dei”, “us-gaap”]: [“metric”: ‘label', 'description', 'units]

‘units’: [‘USD’, ‘shares’]: ['end', 'val', 'accn', 'fy', 'fp', 'form', 'filed', 'frame']

**Sample Json Data Format:**

{

"**cik**": "0000320193",

"**entityName**": "Apple Inc.",

"**facts**": {

"**us**-**gaap**": {

"**Revenues**": {

"**label**": "Revenues",

"**description**": "Total revenues generated by the entity.",

"**units**": {

"**USD**": [

{

"**val**": 394328000000,

"**end**": "2022-09-30",

"**fy**": 2022,

"**fp**": "FY",

"**form**": "10-K",

"**filed**": "2022-10-28",

"**accn**": "0000320193-22-000070",

"**frame**": "CY2022"

},

{

"val": 365817000000,

"end": "2021-09-30",

"fy": 2021,

"fp": "FY",

"form": "10-K",

"filed": "2021-10-29",

"accn": "0000320193-21-000065",

"frame": "CY2021"

}

}

}

}

Structure of 10K reports

| **Heading** | **Description** |
| --- | --- |
| **Part I** | Covers general information about the company and its business. |
| **Item 1. Business** | Overview of the company's operations, products, services, markets, and strategy. |
| **Item 1A. Risk Factors** | A detailed discussion of risks that could materially impact the company's business, operations, or financial condition. |
| **Item 1B. Unresolved Staff Comments** | Disclosures about any significant comments from SEC staff on previous filings that remain unresolved. |
| **Item 1C. Cybersecurity** | Information about the company's cybersecurity risks and management practices (newly added in recent years). |
| **Item 2. Properties** | A description of significant properties owned or leased by the company, such as offices, factories, or retail locations. |
| **Item 3. Legal Proceedings** | Details of any ongoing or significant legal proceedings involving the company. |
| **Item 4. Mine Safety Disclosures** | Information about compliance with mine safety laws, applicable only to companies operating in the mining sector. |
| **Part II** | Focuses on financial and market-related data. |
| **Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities** | Information about the company’s stock performance, dividends, and any repurchases of its own shares. |
| **Item 6. [Reserved]** | Placeholder for future use; currently no content. |
| **Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations (MD&A)** | Management's perspective on the company's financial performance, results of operations, liquidity, and plans for the future. |
| **Item 7A. Quantitative and Qualitative Disclosures About Market Risk** | Details on exposure to market risks, such as interest rate changes, foreign currency fluctuations, and commodity price variations. |
| **Item 8. Financial Statements and Supplementary Data** | Full financial statements (balance sheet, income statement, cash flow statement) and additional financial data. |
| **Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure** | Any changes in accounting firms or disagreements with accountants about accounting practices or disclosures. |
| **Item 9A. Controls and Procedures** | Information on the company’s internal controls over financial reporting, including management's evaluation of these controls. |
| **Item 9B. Other Information** | Miscellaneous information not included in other parts of the report but required to be disclosed. |
| **Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections** | Details about jurisdictions that limit inspections of company audits, typically related to foreign operations. |
| **Part III** | Provides governance and executive-related information. |
| **Item 10. Directors, Executive Officers and Corporate Governance** | Details about the board of directors, executive officers, and governance policies. |
| **Item 11. Executive Compensation** | A breakdown of executive pay, including salaries, bonuses, stock awards, and other benefits. |
| **Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters** | Information on stock ownership by key executives, directors, and large shareholders. |
| **Item 13. Certain Relationships and Related Transactions, and Director Independence** | Disclosures about relationships or transactions between the company and its directors, officers, or large shareholders. |
| **Item 14. Principal Accountant Fees and Services** | Details of fees paid to the company’s external auditors for audit and non-audit services. |
| **Part IV** | Contains exhibits and additional reference materials. |
| **Item 15. Exhibit and Financial Statement Schedules** | A list of additional documents and exhibits included in the filing, such as contracts, charters, or other material agreements. |
| **Item 16. Form 10-K Summary** | A summary section providing an overview of key information from the 10-K, intended to enhance readability and accessibility for investors. |

Use Cases:

**1. Simple Queries (Routed to RAG)**

Direct factual questions answered using pre-indexed XBRL data.

| **Query Example** | **Path** | **Key Agent** | **Output** |
| --- | --- | --- | --- |
| "What was Tesla's revenue in Q3 2023?" | QVA → RAG | RAG | Factual value (e.g., "$23.35B") |
| "Show Microsoft's debt-to-equity ratio." | QVA → RAG | RAG | Ratio value (e.g., "0.42") |
| "List Apple's total assets for 2022." | QVA → RAG | RAG | Numerical value from balance sheet |

**2. Complex Queries (Routed to Allocator)**

Require multi-agent collaborations.

**Performance Analysis**  
"Explain why Nike's profits declined in Q4 2023.

QVA → Allocator → [Metric Analysis + Narrative Analysis] → Summarize → Visualization → RGCA

**Governance and executive-related information.**

"Did auditors flag governance issues at Wells Fargo?"

QVA → Allocator → NASA → FORSA → RGCA

**Risk Assessment**  
"What risks did auditors flag for Apple in 2023?"

QVA → Allocator → Narrative Analysis → RGCA

**Future Value Prediction**  
"Forecast Meta’s Net Profit for the next 2 years."

QVA → Allocator → [Metric Analysis + Narrative Analysis] → Performance Analysis→ Visualizations → RGCA

**Strategic Advice**  
"Recommend cost-cutting strategies for Apple vs. Meta."

QVA → Allocator → [Metric Analysis + Narrative Analysis] → Performance Analysis → Strategic Adivice→ RGCA

**Comprehensive Report**  
"Generate a full analysis report for Meta."

QVA → Allocator → [All Agents] → RGCA

| **Query Type** | **Example Query** | **Reason** |
| --- | --- | --- |
| **Quarterly Auditor Reports** | "Analyze Apple's Q2 2023 auditor notes" | Only annual reports available (Item 8) |
| **Private Competitors** | "Compare Coca-Cola with private competitor X" | Limited to public SEC filings |
| **Non-US Firms** | "Analyze Samsung's 20-F risk factors" | System handles only 10-K/10-Q (U.S. firms) |