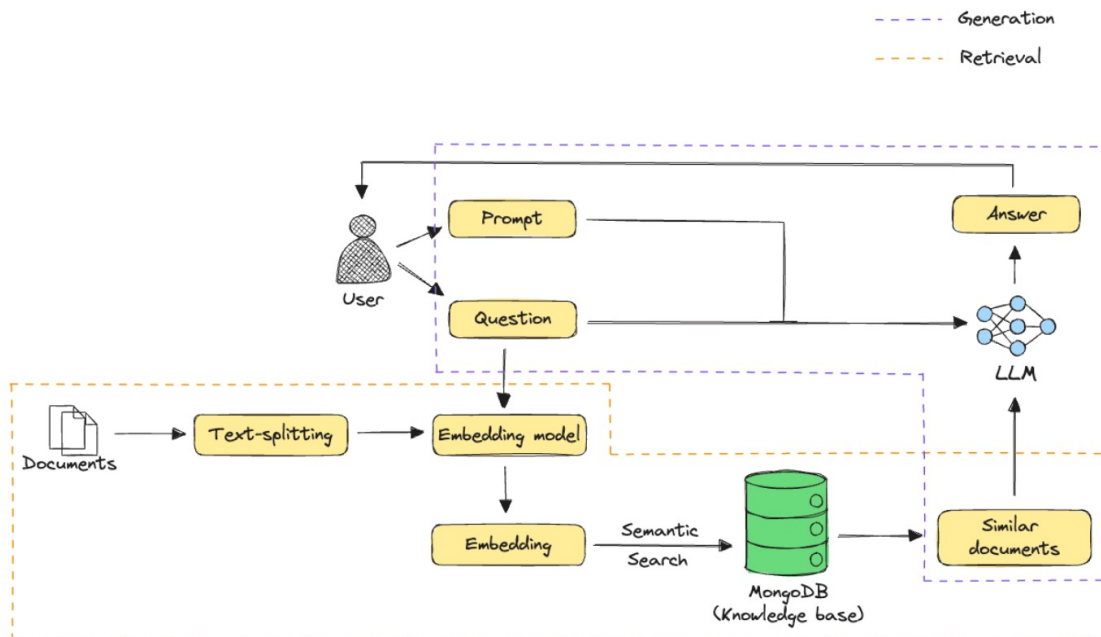


RAG system evaluation

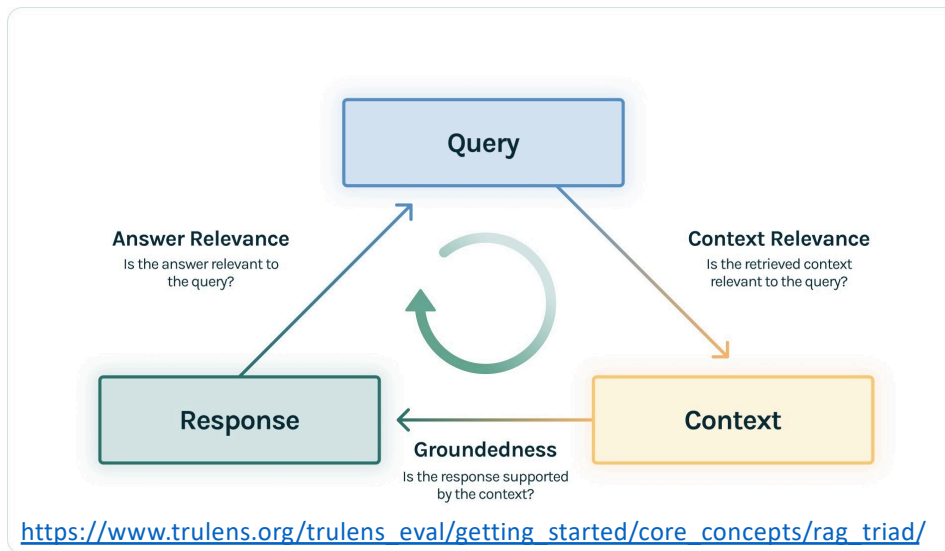
Retrieval Augmentation Generation (RAG)



The main elements to evaluate in a RAG application are as follows:

- **Retrieval:** This involves experimenting with different data processing strategies, embedding models, etc., and evaluating how they impact retrieval.
- **Generation:** Once you decide on the best settings for the retriever, this step involves experimenting with different LLMs to find the best completion model for the task.

RAG TRIAD framework



- **Context Relevance:** This component evaluates the **retrieval part** of the RAG system. It evaluates how accurately the documents were retrieved from the large dataset. Metrics like precision, recall, MRR, and MAP are used here.
- **Faithfulness (Groundedness):** This component falls under the **Response evaluation**. It checks if the generated response is factually accurate and grounded in the retrieved documents. Methods such as human evaluation, automated fact-checking tools, and consistency checks are used to assess faithfulness.
- **Answer Relevance:** This is also part of the **Response Evaluation**. It measures how well the generated response addresses the user's query and provides useful information. Metrics like BLEU, ROUGE, METEOR, and embedding-based evaluations are used.

Document used

The screenshot shows the top of the EarnUp Trust Policy document. The header includes the EarnUp logo and navigation links: AI Advisor, Platform, Markets, News, Company, and MyEarnUp. The main heading is "Last Updated: August 9, 2021 EARNUP TRUST POLICY". Below this is the section "Our Approach to Compliance", followed by a paragraph explaining EarnUp's commitment to compliance and information security. A paragraph states that the documentation package is available under NDA. The "Compliance Certifications" section lists SOC 2 Type II Third-Party Attestation. The "Policies & Procedures" section lists Information Security Policy, Acceptable Use Policy, Code of Conduct, and Background checks for all employees.

AI Advisor Platform Markets News Company MyEarnUp

Last Updated: August 9, 2021 EARNUP TRUST POLICY

Our Approach to Compliance

At EarnUp, we take compliance seriously. We understand our customers' needs when it comes to compliance and information security, as well as the serious ramifications of non-compliance. We have diligently built processes to make our services compliant with the standards which may govern your business.

Please contact our compliance team (via email: compliance@earnup.com) for access to our documentation package which includes our systems description. This documentation package is available under NDA.

Compliance Certifications

Soc2 Compliance:

- AWS System and Organization Controls (SOC) Report is an independent third-party examination report that demonstrates how EarnUp achieves key compliance controls and objectives. The purpose of this report is to help you and your auditors understand the EarnUp controls established to support operations and compliance.
- SOC 2 Type II Third-Party Attestation is available.

Policies & Procedures

Here's a list of some of the many policies and procedures we've put in place to meet compliance standards:

- Information Security Policy
- Acceptable Use Policy
- Code of Conduct
- Background checks for all employees

The screenshot shows the top of the EarnUp Privacy Policy document. The header includes the EarnUp logo and navigation links: AI Advisor, Platform, Markets, News, Company, and MyEarnUp. The main heading is "Last Updated: May 1, 2023 EarnUp Privacy Policy". Below this is the "Introduction" section, which states EarnUp's commitment to protecting privacy. The "Purpose and Scope" section describes the policy's application to personal information. The "Policy" section is partially visible at the bottom.

AI Advisor Platform Markets News Company MyEarnUp

Last Updated: May 1, 2023 EarnUp Privacy Policy

Introduction

EarnUp Inc. ("EarnUp" or the "Company") is committed to protecting the privacy of our customers, partners, and employees. We understand the importance of safeguarding personal information and are dedicated to ensuring that our data collection, storage, and processing practices comply with the highest standards of privacy and data protection laws. This corporate privacy policy outlines how we collect, use, disclose, and protect personal information, as well as the rights and options available to individuals with respect to their personal data.

Purpose and Scope

This Privacy Policy describes your privacy rights regarding our collection, use, storage, sharing and protection of your personal information. It applies to the earnup.com website and all related sites, applications, services and tools regardless of how you access or use them.

You accept this Privacy Policy when you sign up for, access, or use our products, services, content, features, technologies or functions offered on our website and all related sites, applications, and services (collectively "EarnUp Services").

We may amend this policy at any time by posting a revised version on our website. The revised version will be effective as of the published effective date. In addition, if the revised version includes a substantial change, we will provide you with 30 days' prior notice by posting notice of the change on the "Privacy Policy" page of our website and/or send the notice by email. After this 30-day notice period, you will be considered as having expressly consented to all amendments to this Privacy Policy.

Policy

How We Collect Information About You

- To reproduce the process of ingesting documents, EarnUp Trust policy and Privacy Policy were converted to PDF files
- RAG system:
 - Used ChromaDB
 - openAI embedding (text-embedding-3-small)
- 12 pages split in chunks of size 100 with overlap (10)

Quick Test

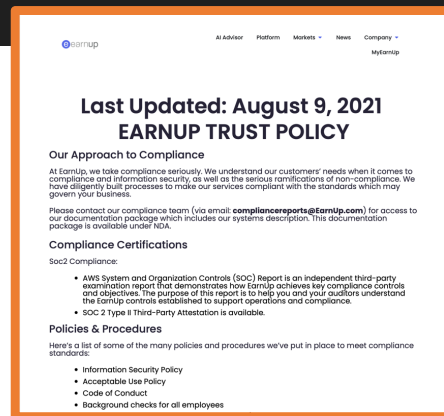
User query

Documents retrieved

Documents ingested by the LLM then answer formatted by the LLM

```
# quick test
query: str = "when was the last update of EarnUp Trust Policy ?"
r = query_rag(query_text=query, print_debug=True)
✓ 0.7s

page content: 8/28/24, 2:22 PMTrust Policy – EarnUp
Page 1 of 3https://earnup.com/trust-policy/
meta data: {'id': 'earnup_compliances_data/Trust Policy – EarnUp.pdf:0:0', 'page': 0, 'source': 'earnup_compliances_data/Trust Policy – EarnUp.pdf'}
-----
page content: Last Updated: August 9, 2021 EARNUP TRUST POLICYOur Approach to ComplianceAt EarnUp, we take
meta data: {'id': 'earnup_compliances_data/Trust Policy – EarnUp.pdf:0:1', 'page': 0, 'source': 'earnup_compliances_data/Trust Policy – EarnUp.pdf'}
-----
page content: 8/28/24, 2:22 PMTrust Policy – EarnUp
meta data: {'id': 'earnup_compliances_data/Trust Policy – EarnUp.pdf:1:0', 'page': 1, 'source': 'earnup_compliances_data/Trust Policy – EarnUp.pdf'}
-----
The last update of the EarnUp Trust Policy was on August 9, 2021.
```



RAGAS

<https://docs.ragas.io/en/stable/>

Generation of questions / answers

- Creation of questions and answers (“ground truth”) based on the original pdf files
- Level of complexity in the questions

```
What measures has EarnUp implemented to meet compliance standards?
EarnUp has implemented several measures to meet compliance standards, including an Information Security Policy, Acceptable Use Policy, Code of Conduct, background checks for all employees, endpoint encryption, and more.
simple
-----

What measures does EarnUp take to handle and protect user information according to their privacy policy?
EarnUp handles and protects user information by having independent third-party auditors test their security and confidentiality related controls on an annual basis. They provide reports and opinions from these audits to their users.
simple
-----

What role does payment processing play in the services provided by EarnUp?
Payment processing is essential for EarnUp services as it involves working with lenders to process payments, resolve disputes, collect fees, and troubleshoot problems. Personal information is shared with lenders to facilitate this process.
simple
-----

What info security policies does EarnUp have?
EarnUp has implemented several information security policies, including an Information Security Policy, Acceptable Use Policy, Code of Conduct, Background checks for all employees, Endpoint encryption, and more.
reasoning
-----

What dual strategies does EarnUp use to protect personal and financial data?
The answer to given question is not present in context
multi_context
-----

What are the main goals of EarnUp's InfoSec Policy for customer data protection and compliance?
The main goals of EarnUp's InfoSec Policy for customer data protection and compliance include ensuring the security and privacy of customer data, achieving compliance with relevant standards, and maintaining transparency with customers.
multi_context
-----

What rights do CA consumers have for transferring personal data under CCPA, and what steps must they take?
California consumers have the right to request that EarnUp disclose certain information about their collection and use of personal information over the past 12 months. To exercise this right, consumers must provide certain information to EarnUp, including their name, address, and a description of the information they want to request.
multi_context
```

Evaluation of the RAG



TruLens

<https://www.trulens.org>

Deploy

Leaderboard

Apps

Evaluations

App Leaderboard

Average feedback values displayed in the range from 0 (worst) to 1 (best).

RAG:v1

Records	Average Latency (Seconds)	Total Cost (USD)	Total Tokens	Groundedness	Context Relevance	Answer Relevance	Select App
10	2.4	\$0	2.88k	0.56 ● low	0.4 ● low	0.85 ✓ high	

Leaderboard

Apps

Evaluations

Deploy

Evaluations

Filter Applications

RAG:v1

RAG:v1

Records

Feedback Functions

	App Type	User Input	Response	Application Tag	Time Stamp ↓	Context Relevance	Ans
	RAG_from_scratch(__main__)	"What rights do CA consume...	"Under the California Consu...	-	2024-08-29T15:46:23.700292	0.4	
	RAG_from_scratch(__main__)	"What are the main goals of ...	"Based on the provided cont...	-	2024-08-29T15:46:18.895110	0.4	
	RAG_from_scratch(__main__)	"What dual strategies does E...	"Based on the provided cont...	-	2024-08-29T15:46:15.001011	0.4	
	RAG_from_scratch(__main__)	"What info security policies ...	"Based on the provided cont...	-	2024-08-29T15:46:09.080949	0.6	
	RAG_from_scratch(__main__)	"What AWS features does Ea...	"The provided context does ...	-	2024-08-29T15:46:07.010803	0.5	
	RAG_from_scratch(__main__)	"What are the key compone...	"The key components of the ...	-	2024-08-29T15:46:03.628047	0.4	
	RAG_from_scratch(__main__)	"What are the purposes of us...	"The purposes of using cook...	-	2024-08-29T15:46:00.557730	0.4	
	RAG_from_scratch(__main__)	"What role does payment pr...	"Payment processing is a cru...	-	2024-08-29T15:45:56.842462	0.4	
	RAG_from_scratch(__main__)	"What measures does EarnU...	"Based on the provided cont...	-	2024-08-29T15:45:54.761325	0.3	
	RAG_from_scratch(__main__)	"What measures has EarnUp...	"Based on the provided cont...	-	2024-08-29T15:45:52.872659	0.4	

1 to 10 of 10 |< < Page 1 of 1 > >|

Hint: select a row to display details of a record

Trace details for retrieval part

Leaderboard

Apps

Evaluations

Answer Relevance 0.6000

Context Relevance 0.6000

Groundedness 0.6250

Deploy

Trace details

Tree

Timeline

RAG:v1

Select.Record

2 s

RAG_from_scratch.query

Select.Record.app.query

2 s

RAG_from_scratch.retrieve

Select.Record.app.retrieve

286 ms

RAG_from_scratch.generate_completion

Select.Record.app.generate_completion

1 s

Details

Span JSON

Metadata

Record JSON

App JSON

Time taken

286 ms

Span I/O

Arguments

Select.Record.app.retrieve.args

{ 1 item

"query" : string "What info security policies does EarnUp have?"

Return values

Select.Record.app.retrieve.rets

[3 items

0 : string "which includes Security, Complianceand Privacy.Employee SecurityAt EarnUp employees undergo"

1 : string "data in the cloud.Security TeamEarnUp has a formal information security program in place which"

2 : string "Last Updated: August 9, 2021 EARNUP TRUST POLICYOur Approach to ComplianceAt EarnUp, we take"

Trace details for generation part

Leaderboard

Apps

Evaluations

Deploy

Feedback functions (click on a pill to learn more)

Answer Relevance 0.6000

Context Relevance 0.6000

Groundedness 0.6250

Trace details

Tree

Timeline

RAG:v1

Select.Record

2 s

RAG_from_scratch.query

Select.Record.app.query

2 s

RAG_from_scratch.retrieve

Select.Record.app.retrieve

286 ms

RAG_from_scratch.generate_completion

Select.Record.app.generate_completion

1 s

Details

Span JSON

Metadata

Record JSON

App JSON

Time taken

1 s

Span I/O

Arguments

Select.Record.app.generate_completion.args

2 items

query

string

What info security policies does EarnUp have?

context_str

:

[3 items

0

:

string

which includes Security, Complianceand Privacy.Employee SecurityAt EarnUp employees undergo

1

:

string

data in the cloud.Security TeamEarnUp has a formal information security program in place which

2

:

string

Last Updated: August 9, 2021 EARNUP TRUST POLICYOur Approach to ComplianceAt EarnUp, we take

Return values

Select.Record.app.generate_completion.rets

Based on the provided context, EarnUp has a formal information security program in place that includes policies related to Security, Compliance, and Privacy. Additionally, it appears that employee security is a focus, as employees undergo specific security measures. However, the details of the specific policies are not fully outlined in the provided information. For a comprehensive understanding of EarnUp's information security policies, it would be beneficial to refer to their official documentation or trust policy.

Ragas: type of questions

- Ragas employs a sophisticated approach to generate a diverse set of questions for evaluating Retrieval-Augmented Generation (RAG) systems. Here are the types of questions that can be generated:
 1. **Simple Questions:** These are straightforward questions that require direct answers and minimal reasoning.
 2. **Reasoning Questions:** These questions are designed to enhance the need for reasoning to answer them effectively. They require the synthesis of information and logical deduction.
 3. **Conditional Questions:** These questions introduce a conditional element, adding complexity and requiring the understanding of specific conditions to provide the correct answer.
 4. **Multi-Context Questions:** These questions necessitate information from multiple related sections or chunks of the provided documents, demanding a broader understanding and correlation of information.
 5. **Conversational Questions:** Following the evolution process, some questions are transformed into conversational samples. These simulate a chat-based question-and-follow-up interaction, mimicking a chat-Q&A pipeline.

