

RAG

# RAG Retrieval-Augmented Generation

ChatGPT ▾



Where can you access the NextGen-IFC project online?



The NextGen Integrated Facility for Computational Research (NextGen-IFC) project can be

Where can you access the NextGen-IFC project online?



The NextGen Integrated Facility for Computational Research (NextGen-IFC) project can be accessed online through several platforms and sources:

1. **Official Website:** The primary source of information and resources related to the NextGen-IFC project is its official website. This site will typically contain detailed information about the project's objectives, updates, publications, and contact details.

instance, the Na  
the NextGen-IFC

5. **Conference Pro**  
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GitHub

<https://github.com/buildingSMART/NextGen-IFC>

**buildingSMART/NextGen-IFC**

**Next Generation IFC** · test new technologies to maintain IFC; · evaluate and explore new IFC schema changes; · test CI tools for quality assurance. Are you ...

Open Access Article

Development of a Conceptual Mapping Standard to Link Building and Geospatial Information

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Abstract

This study introduces the BIM (building information modeling)-GIS (geographic information system) conceptual mapping (B2GM) standard ISO N19166 and proposes a mapping mechanism. In addition, the major issues concerning BIM-GIS integration, and the considerations that it requires, are discussed. The B2GM is currently being standardized by the spatial-information international standardization organization TC211. Previous studies on BIM-GIS integration seem to focus on the integration of different types of model schemas and on the implementation of service interfaces. B2GM concerns the clear definition of the conditions and methods for mapping the object information required from the user's use-case viewpoint for city-scale mapping. The benefits of the B2GM approach are that the user is able directly control the BIM-GIS linkage and integration process in order to acquire the necessary objection information. This can reveal cases of possibly unclear BIM-GIS integration outside the black box in an explicit and standard way, so that the user can distinctively predict the final output obtainable from the BIM-GIS integration. This study examined B2GM in terms of its development background, components, and several utilization examples, as well as the levels and considerations of the integration of different BIM-GIS models.

Keywords: BIM; GIS; conceptual mapping; ISO 19166; BG-IL

Version: 551.61		CUDA Version: 12.4	
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Memory-Usage		GPU-Util	Compute M.
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			N/A

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GeoBIM.pdf 3.6MB

Chat

what is BIM?

BIM (Building Information Modeling) is a method used in the construction industry to create and manage digital representations of physical and functional characteristics of places. It includes defining object information such as runtime, geometry, property, and relationship for building components like walls, doors, and rooms. The geometry information uses boundary representation with support for vertices, edges, loops, and faces. Property information categorizes attributes and defines name, value type, and initial value pairs. System properties, including the BIM element name and GUID, are automatically created when making a model. Relationships between elements are also defined, following UML relationships.

what is use cases of BIM?

BIM-GIS integration is used for scaling building information modeling (BIM) to city level use cases. This method includes a BIM-GIS element, geometry, and property set mapping with external datasets. The goal is to enable flexible information mapping and integration, focusing on user's specific requirements. Previous studies suggest various methods for BIM-GIS integration, but this study proposes using the B2GM standard under ISO/TC211.

tell me about BIM-GIS standard?

The BIM-GIS standard, also known as Building Information Modeling-Geographic Information System, is a method for

# Hallucination

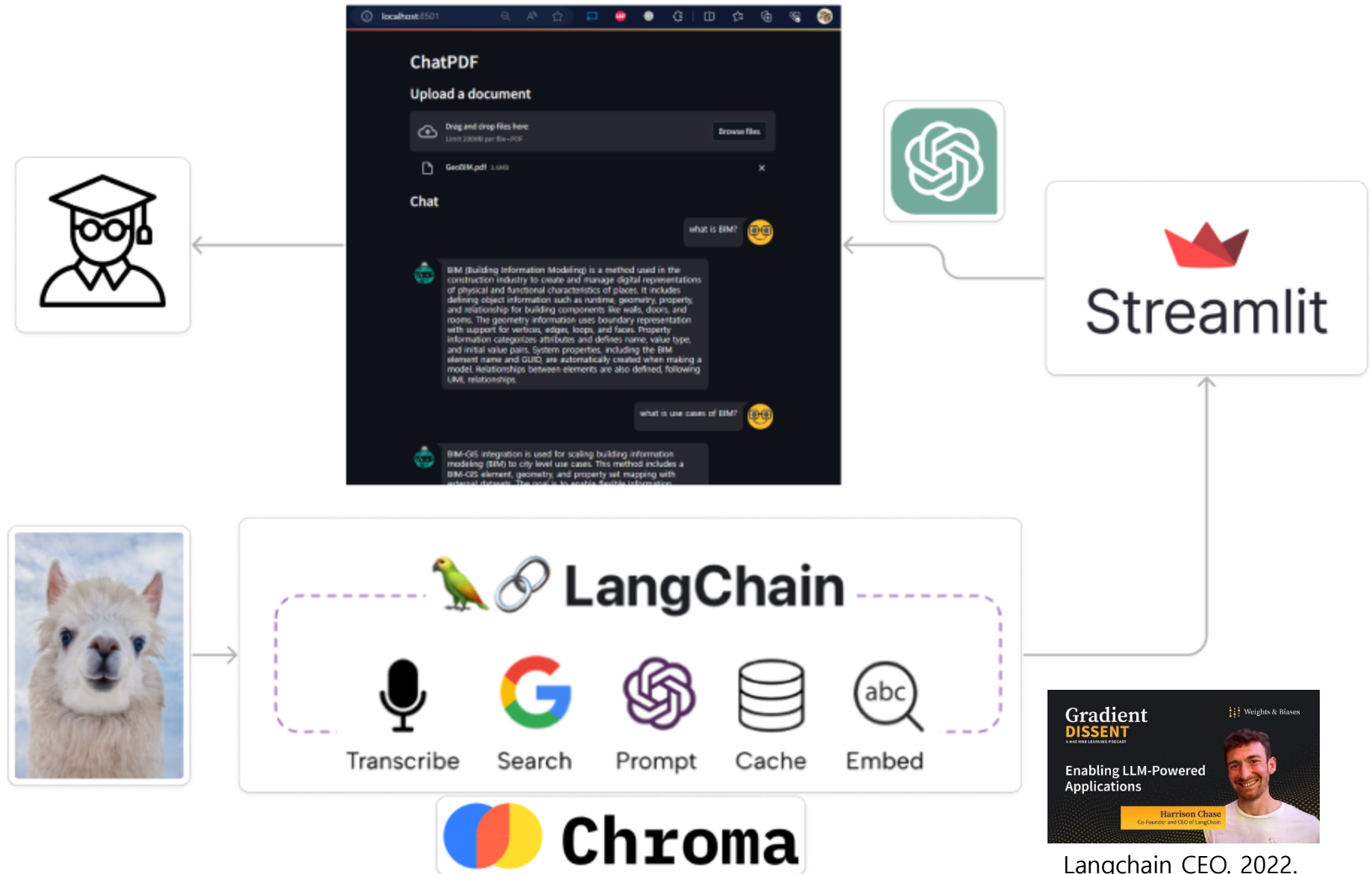


Why wasn't that answer 35 as you predicted?



I apologize for my mistake earlier. The correct set of operations to arrive at 35 is to double the number 8, which is 16, subtract 3 from it to get 13, multiply it by 5 to get 65, subtract 30 to get 35, and then divide it by 2 to get the final answer of 17.

# BIM expert agent using RAG



Langchain CEO. 2022.  
30M\$ in 2023.

# BIM expert agent using RAG



# BLM expert agent using RAG

```
client = OpenAI(  
    base_url = 'http://localhost:11434/v1',  
    api_key='ollama',  
)  
  
template = {  
    "question": " ",  
    "answer": " "  
}
```

```
def generate_questions_answers(text_chunk):  
    messages = [  
        {'role': 'system', 'content': 'You are an API that converts bodies of text  
            into multiple questions and answers into a JSON format. Each JSON  
            should contain a single question with a single answer. Only respond  
            with the JSON and no additional text. \n.'},  
        {'role': 'user', 'content': 'Text: ' + text_chunk}  
    ]  
  
    response = client.chat.completions.create(  
        model='llama3',  
        messages=messages,  
        max_tokens=2048,  
        n=1,  
        stop=None,  
        temperature=0.7,  
    )
```



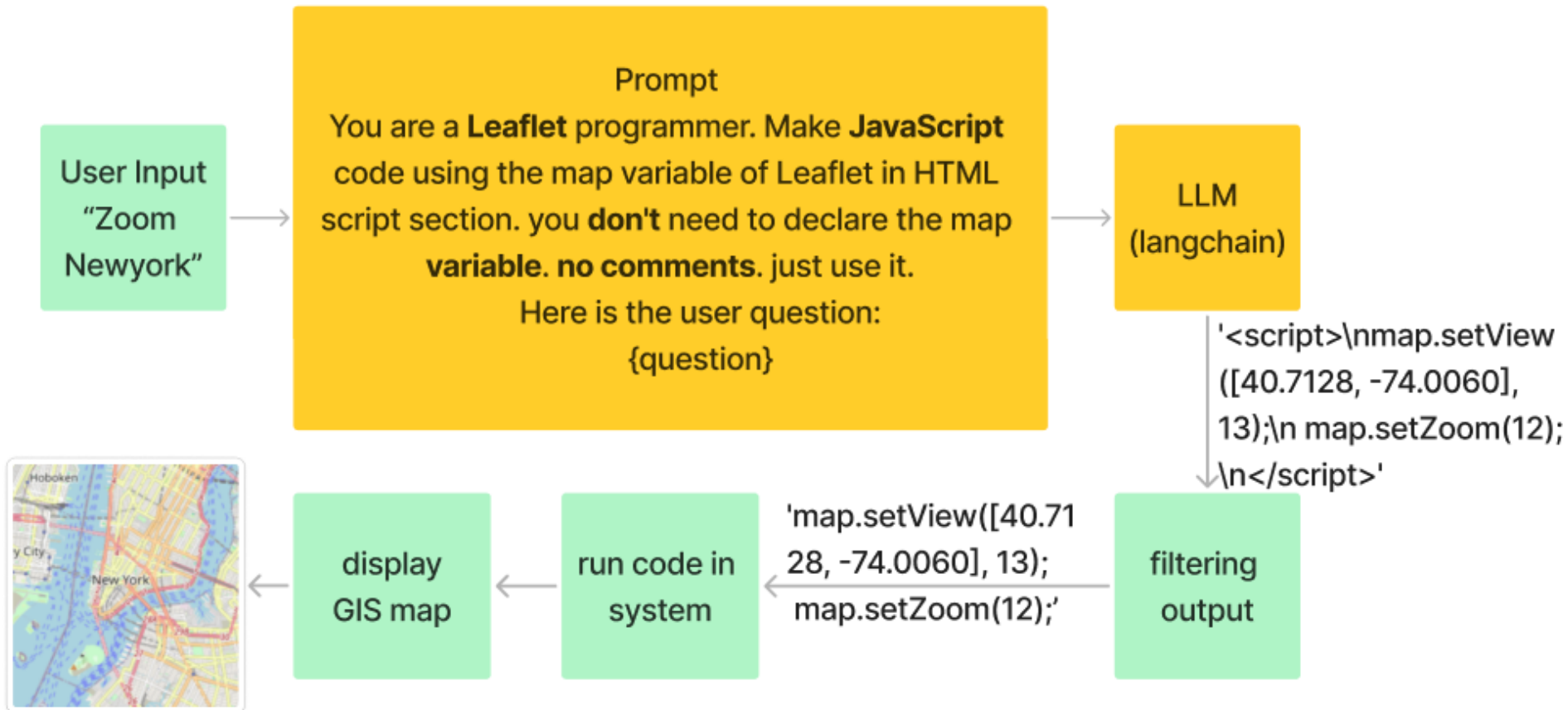
# BIM expert agent using RAG

```
{  
  "question": "What is the URL to access information on jetgeo?",  
  "answer": ".com/jetgeo/IFC2GML"  
},  
{  
  "question": "When was the ISO TC 211 introduction to UML accessed?",  
  "answer": "20 March 2020"  
},  
{  
  "question": "Who wrote Learning UML 2.0 and what is its edition?",  
  "answer": "Miles, R.R.; Hamilton, K., 1st ed."  
},
```

```
1555 {  
1556   "question": "What problems were handled?",  
1557   "answer": "Problems surrounding the integration of BIM and GIS heterogeneous m  
1558 },  
1559 {  
1560   "question": "What is a method used for model integration?",  
1561   "answer": "Schema integration, extension, linkage."  
1562 },  
1563 {  
1564   "question": "What are limitations of model integration methods?",  
1565   "answer": "Each method has its own respective limitation."  
1566 },  
1567 {  
1568   "question": "What is BIM-GIS conceptual mapping?",  
1569   "answer": "BIM-GIS conceptual mapping (B2GM) attempts to standardize the BIM-G  
1570 },  
1571 {  
1572   "question": "How does B2GM divide heterogeneous processes?",  
1573   "answer": "B2GM divides heterogeneous process into PD, EM, and LM, and links a  
1574 },
```



# GeoGPT



# GeoGPT

```
local_llm = 'llama3'
llm = ChatOllama(model=local_llm, temperature=0) # format="json",

def text_to_geo_code(query_text):
    prompt = " " + query_text

    prompt = PromptTemplate(
        template="""You are a Leaflet programmer. Make JavaScript code using the map variable
of Leaflet in HTML script section. I need script section. you don't need to declare
the map variable. no comments. just use it.
Here is the user question:
{question}
""",
        input_variables=["question"],
    )

    text_to_geo_chain = prompt | llm | StrOutputParser()
    generated_code = text_to_geo_chain.invoke({"question": query_text})

    script_regex = r"<script>(.*?)</script>"
    match = re.search(script_regex, generated_code, re.DOTALL)

    code = ''
    if match:
        code = match.group(1).strip() # Return the extracted code

    return code
```

# GeoGPT

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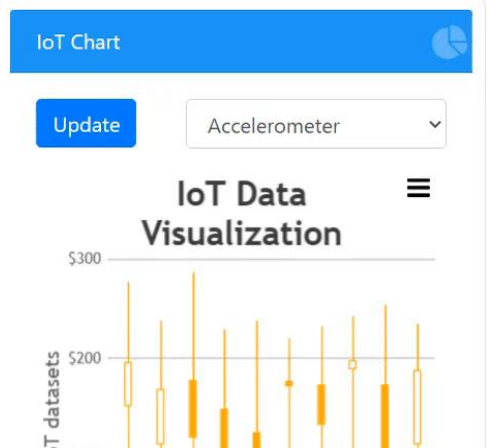
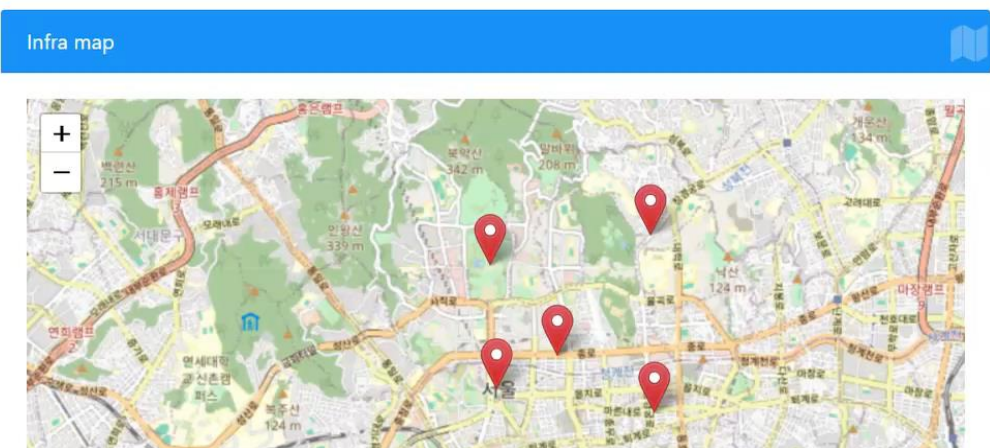
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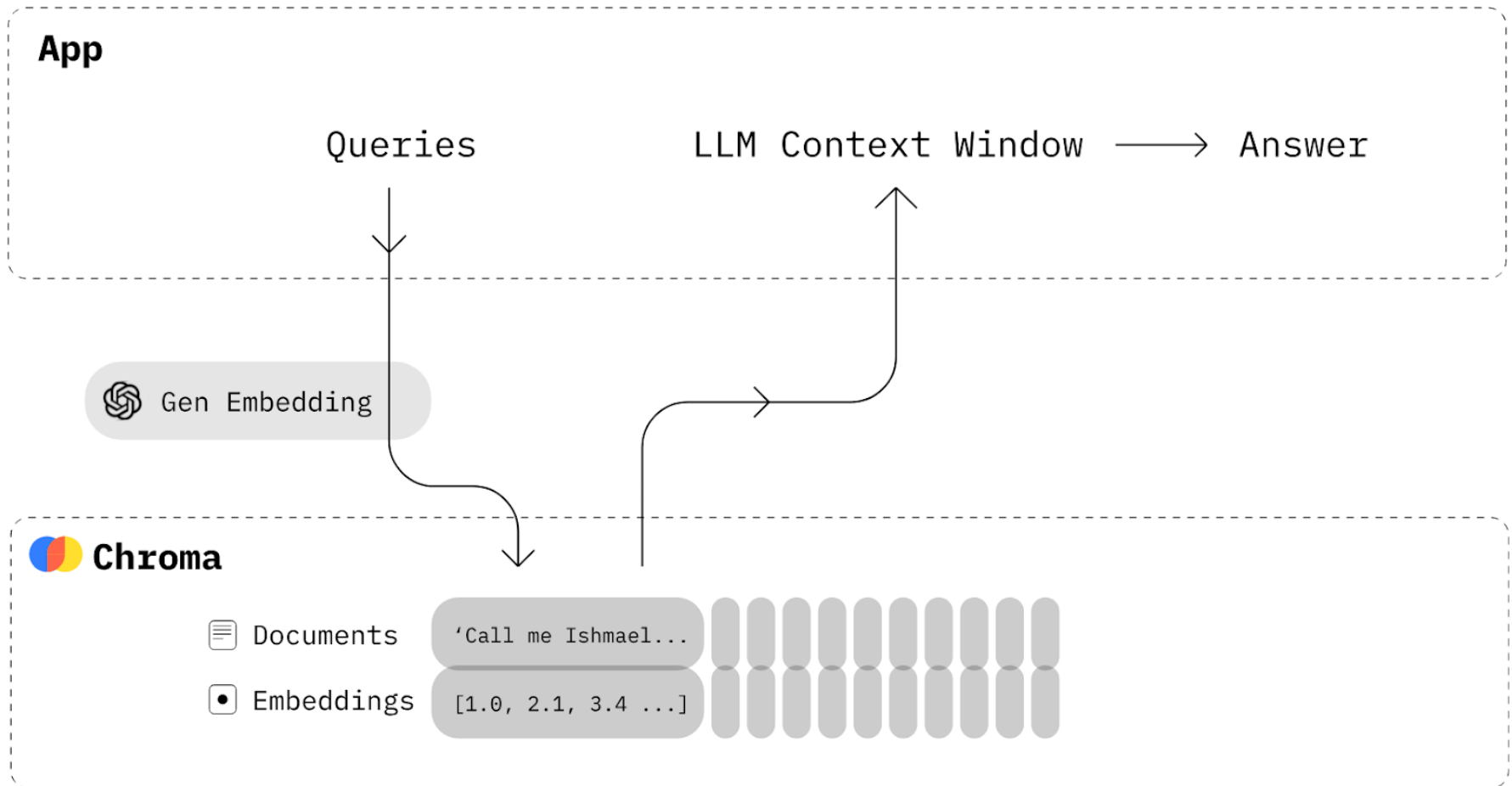
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7

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# LLM & Vector database



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