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Chatbot specialized in museums in Bogota

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Introduction

In the digital era, museums face the challenge of adapting to new ways of interacting with their visitors. The incorporation of advanced technologies, such as chatbots, has proven to be an effective tool to improve the user experience and facilitate access to information. This article presents the development of a chatbot specialized in museums in Bogota, Colombia, with the aim that depending on the artistic tastes and what you want to see, it can recommend a particular museum in Bogota, in order to promote the cultural heritage of the region.

The chatbot is an application based on artificial intelligence designed to interact with users in a conversational way, answering their questions and providing information about museums. The implementation of this technology in Bogota's museums not only seeks to modernize the way in which information is provided, but also to increase the accessibility and interest of the general public depending on the interests of each person.

Sources

to make the chatbot we obtained the information and did web scrapping from the following museum sites

- National Museum of Colombia: *Museo Nacional de Colombia, Bogota´, Colombia — Google Arts & Culture*
- Gold Museum: *Gold Museum - Collection - banrepcultural.org*
- Botero Museum: *Botero Museum's Collection - Banrepcultural*
- Santa Clara Museum: *Santa Clara Museum - Google Arts & Culture*

Questions to answer based on the information needed to make the chat bot

1. **What kind of content already exists?**

   Existing content that can be used to develop a chatbot specialized in recommending museums in Bogota comes from various sources and can be categorized as follows:

   - **Information from official museum websites:** The official websites of museums in Bogota´ provide detailed descriptions of their permanent and temporary exhibitions, as well as information about the collections they house. This includes names of artists, titles of works, artistic currents and dates of creation. In addition to this, information on fees, location and historical information about the museum can also be found. By means of web scraping techniques, updated and detailed information can be extracted from the museums' web pages.

- **Social media content:** Museums frequently post updates about new exhibitions, events and activities on their social networks. In turn, social media users can provide insight into common concerns and preferences among visitors.
- **Blogs and Specialized Media Articles:** There are several blogs and websites dedicated to art criticism and culture often publish reviews and articles about exhibitions in museums in Bogota.

2. **What information or documentation needs to be mixed or updated?**

   To ensure that accurate and up-to-date data is provided that can be used by the chatbot to provide relevant recommendations to users, it is necessary to update and blend the information obtained. Information on temporary exhibitions and new collection acquisitions should be updated regularly to reflect the museum's current offerings. Updates on location, contact details, museum history and any other relevant details that may be useful to users should also be taken into account.

3. **What type of information would be the hardest to produce or gather?**

   The information that would be most difficult to gather is information that changes frequently, such as opening hours, admission fees or exhibition updates, as this can be difficult to track and keep up to date and requires constant monitoring of museum websites. In addition, some museums may present their information in non-standard formats or in complicated web page structures, which makes the process of extracting data through web scraping difficult. From social networks it is also difficult to collect information on the subjective experience of visitors, such as their opinions, reviews and comments.

4. **What is a knowledge management system?**

   A knowledge management system is a tool used by companies to organize documentation, FAQs and other information into easily accessible formats for internal and external customers. These tools enable people to efficiently access and share knowledge, collaborate on projects and processes, and facilitate informed decision making. These systems typically include features such as document databases, knowledge repositories, internal social networks, advanced search systems and collaboration tools, all aimed at improving productivity and organizational performance.

5. **What are the best knowledge management free tools** Some of the best and most popular free knowledge management tools are MediaWiki, which is the software behind Wikipedia and is an excellent choice for creating internal wikis where users can collaborate and document organizational knowledge; there is also Notion, which offers a wide range of functions, including the ability to create databases, wikis, collaborative documents and task boards; and finally there is also TiddlyWiki, which is a personal wiki that runs on a single HTML file and can be stored locally or in the cloud.

6. **What are the success stories of companies that are using knowledge management systems in that area?**

   Several companies have been successful in implementing knowledge management systems in various areas. Some outstanding examples are the following:

   - **IBM:** The company has pioneered the use of knowledge management systems to improve productivity and innovation in its operations. Its internal platform, called "Knowledge Management System", facilitates collaboration among employees, knowledge transfer and efficient problem solving.
   - **Walmart:** Walmart uses a knowledge management system to collect and analyze sales, inventory and customer behavior data in its stores. This enables them to make more informed business decisions, optimize inventory management and improve the customer experience.
   - **McKinsey & Company:** It uses an internal knowledge management system called "Knowledge Management at McKinsey" that allows them to share and access relevant information from past projects, research and best practices. This helps them provide strategic advice and data-driven solutions to their clients more effectively.

7. **How does a company benefit from having a knowledge management system as you want to do?** The benefits of creating a knowledge management system such as the one proposed by collecting information from the websites of the museums of Bogota is that data can be obtained in real time from the websites of the museums,

which ensures that the information stored in the knowledge management system is always up to date and relevant to the needs of the company. In addition to this, there is an updated and complete database on museums in Bogota, which allows a company to make more informed and strategic decisions in areas such as marketing and product development. In addition, a centralized knowledge management system allows employees to easily access and share information about Bogota's museums, which fosters collaboration and knowledge sharing within a company.

Systematic Analysis

Research Question:
How can we create a chatbot system to help user find what museum they should visit in Bogota?

Summary:
In order to increase museum visits and revenue, the used of an integrated user recommendation service as a chatbot in the main museums' webpages is implemented, this chatbot system will be operate using LLMs models like Meta LLaMMA as well as taking use of the already vast amount of information about the museums exabits in a knowledge management system like build information base. Such chatbot system is used due to the benefits it can offer us that can benefit the museums such as 24/7 attention, cost savings, data collection of users interests, fast responses, quick access, like others; these capabilities not only solve the current problem but can be changed and expanded if needed in the possible future.

Data Collection:
To gather the data and information needed the following steps were implemented:

- Seeing were museums mainly stored the data regarding their exhibitions: Those correspond to physical archives, private digital records, art catalog books, online public entries on their webpages, exhibits posted on google art; to be the main sources to get information.
- Choosing the sources from where the data will be gather: Since the data must be digital for the LLM model to process and the biggest public sources to gather the data are digital the own museums online exhibits information and google art they were used as data sources.
- Extracting the data: Through web scrapping all the needed information from the exhibits was extracted and stored for unification and processing.
- Consolidation the information: For the model to better process the data a consolidation in files (pdf format) in a more effective matter must be done, for such thing to be done the information of each exhibit will be separated in different paragraphs containing the needed data about them and then all be united in one same file for the LLM to process.

Process:
With the aim to create the chatbot the following were used:

Step1 Gather data: To acquire a considerable amount of data regarding the topic to filter so as to make sure it is concise and usable for organizing it in a more systemic and processable manner for the model to analyze.

Step2 Setup the LLM: The key to a good resulting chatbot/assistant lies in the correct use of the LLM model as well as the right pick of the model in need, due to there being a big amount of different large language models picking the correct one according to hardware limitations and requirements in need is essential to get the best test result and finish product. Once the model is setup and the main responses are set, we give the model our data for it to work based on it.

Step3 Test how the LLM assistant behaves: To finalize the process the testing of the Assistant in deep is a must to ensure that the responses are on point as expected, also checking that the model doesn't show many hallucinations messing up the responses. Such is done until getting a model good enough for the quality that the assistant requires.

Analysis:
Now days when working with information and knowledge in cases like the museums is very often that working with such information can become rather troublesome such is the case that knowledge management systems have become more popular and widely use and implemented, not only that but with the rise in AI and the necessity for fast and more accessible ways to access such systems and information that AI assistants are now use in more cases such as this one.

To make such a task more plausible and reliable for developers implementing knowledge management systems more to concise text data around a certain specified topic the use of models like Large Language Models that can process huge amounts of data and give results, responses and prediction around the text and information in such data have become indispensable as well as base stone for many projects.

Yet like all systems, more in the case of LLMs and AIs were abnormalities can appear in the form of hallucinations for the model, a good testing and revision of the systems pre-launch variables is a must to find get a Chaos state were the system can work as a reliable, fast, and assertive way to access the information working as knowledge system.