Isnad

إسناد

Submitted By

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Abstract

In an era where information is readily accessible yet often difficult to verify, the "Isnad" chatbot emerges as a valuable tool for users seeking reliable sources about Arabic poetry. This intelligent chatbot simplifies access to trustworthy information, enabling users to easily explore the meanings and stories behind poetic verses, with a particular emphasis on the "Seven Mu'allaqat" as an initial model. The project addresses the critical issue of limited access to credible sources for understanding the origins and narratives of poems. To resolve this, an AI model "ALLAM" is trained on data from reputable literary sources, ensuring precise and accurate responses to inquiries about the poems. The "Isnad" project is presented through a user-friendly web application that allows users to interact with the chatbot, facilitating a seamless experience where they can ask questions and receive informative answers. By bridging the gap between literature and technology, "Isnad" enhances the exploration of Arabic poetry and fosters a deeper appreciation for this essential aspect of cultural heritage.

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Introduction

In today's digital age, while information is widely accessible, verifying its accuracy, especially in literary and cultural contexts, remains a challenge due to the complexity of poetic verses and varying sources. The "Isnad" project addresses this by introducing an intelligent chatbot that provides accurate and trustworthy information about Arabic poetry, focusing initially on the "Seven Mu'allaqat." Powered by advanced AI and trained on reputable literary sources, the chatbot offers users immediate responses through a web application, simplifying access to verified information and enhancing their understanding of literary history. By bridging literature and technology, "Isnad" enriches the exploration of Arabic poetry and fosters a deeper appreciation for this vital cultural heritage..

Motivations

The "Isnad" project is motivated by a desire to enhance accessibility and appreciation of Arabic poetry through an intelligent chatbot that simplifies complex literary content for a wider audience. By utilizing advanced AI trained on reputable literary sources, "Isnad" tackles the challenge of information reliability, ensuring users receive accurate and trustworthy insights. The project also aims to promote cultural heritage by focusing on the "Seven Mu'allaqat," enriching users' understanding of these iconic poems. Ultimately, "Isnad" seeks to empower users with the knowledge and resources necessary to confidently explore and engage with Arabic poetry, fostering a deeper connection to their literary heritage.

Project Objectives

In this section, the objective of the project is mentioned in the list below:

- Enhance Accessibility: Create a user-friendly chatbot that simplifies complex Arabic poetry for a diverse audience..
- Ensure Information Reliability: Leverage advanced AI trained on reputable literary sources to provide accurate and trustworthy information..
- Empower Users: Equip users with the knowledge and resources needed to confidently engage with Arabic poetry and its cultural significance..

The Problem Statement

Accessing reliable and accurate information about Arabic poetry poses significant challenges due to the overwhelming volume of available resources and the variability in their quality. Many individuals struggle to find trustworthy sources that provide clear insights into the meanings, stories, and historical contexts of poetic verses. This difficulty is particularly pronounced for iconic works such as the "Seven Mu'allaqat," where understanding the nuances and origins of the poems is essential for a comprehensive appreciation. As a result, there is a pressing need for a solution that simplifies access to verified information and enhances users' understanding of Arabic literary heritage.

The Design of The Isnad

The "Isnad" project comprises two essential modules: the Machine Learning (ML) Algorithm and the Website Application. The ML Algorithm processes data from reputable literary sources, enabling the chatbot to provide accurate responses to user inquiries about Arabic poetry. The Website Application offers an intuitive interface for users to interact with the chatbot, facilitating easy access to information. Together, these modules create a seamless experience that enhances users' understanding of Arabic literary heritage.

Overview of the System

The system operates by first monitoring the user's input in real-time. Once the user submits their query, the input is processed to extract relevant information, which is then sent to the Pinecone vector database that contains resources related to the "Seven Mu'allaqat." Subsequently, this data is forwarded to the ALLAM model for analysis. Finally, as illustrated in **Figure 1**, the ALLAM model generates and presents the output in text format, delivering precise and insightful information to the user.

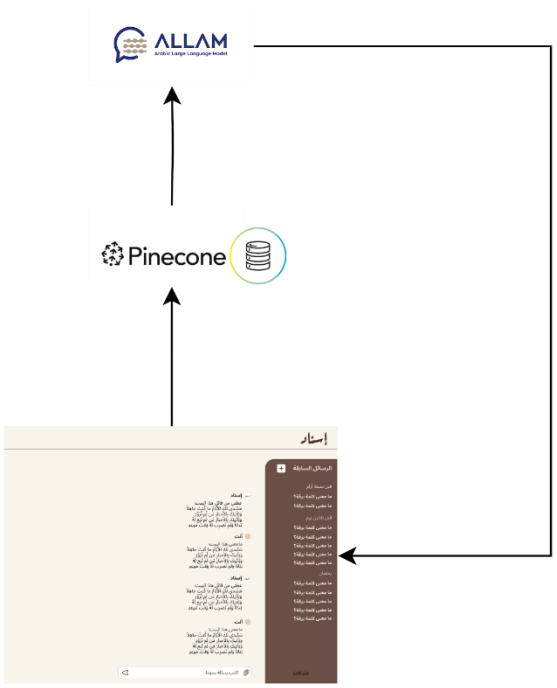

Figure 1. A simplified explanation of the design flow.

To delve deeply into the system design, the following are detailed explanations of the various modules that will be used:

Module 1 – Machine Learning (ML) Algorithm

The Machine Learning (ML) Algorithm forms the backbone of the "Isnad" system, responsible for processing user inputs and providing accurate, contextually relevant responses. The system leverages advanced AI techniques to ensure reliable and meaningful insights into Arabic poetry, specifically focusing on the "Seven Mu'allaqat."

The process begins by analyzing the user's query, extracting key information, and converting it into a vector format. These vectors are stored in the Pinecone vector database, which contains relevant data related to Arabic literary works. By utilizing semantic search methods, the system identifies the most relevant data in response to the user’s question.

The extracted data is then passed to the ALLAM model, an advanced Arabic language model trained on a wide variety of texts. While the ALLAM model is not specifically designed for poetry, it excels at understanding the intricacies of the Arabic language, including contextual meanings, historical references, and linguistic nuances. The data retrieved from the Pinecone vector database, which contains relevant literary information, enhances the accuracy and relevance of the responses generated by the ALLAM model. By combining the power of both, the "Isnad" system produces highly accurate, context-aware answers, offering users detailed explanations, interpretations, and background information related to the "Seven Mu'allaqat" and other Arabic literary works.

This ML-powered approach ensures that the chatbot delivers precise answers, fostering a deeper understanding of Arabic poetry while maintaining accuracy and reliability in the information it provides.

Module 2 – Website application

The Website Application serves as the user interface for the "Isnad" project, providing a seamless and engaging experience for users to interact with the intelligent chatbot. In this module, we utilize React JS for the frontend development, allowing for a dynamic and responsive user experience. React's component-based architecture enables efficient rendering and management of the user interface, ensuring that interactions with the chatbot are smooth and intuitive.

For styling, we leverage Tailwind CSS, which allows for rapid and flexible design implementation. Tailwind's utility-first approach empowers developers to create aesthetically pleasing and responsive layouts without the need for extensive custom CSS, facilitating a modern and clean design that enhances user engagement.

On the backend, we employ Express as our server framework to handle API requests and integrate with the IBM API. This setup allows for efficient processing of user queries and retrieval of relevant information, ensuring that the chatbot delivers accurate and timely responses. Express's lightweight nature and robust routing capabilities make it an ideal choice for building RESTful APIs, providing a solid foundation for the backend architecture.

Together, these technologies create a powerful and cohesive website application that not only enables users to easily access information about Arabic poetry but also enhances their overall experience through an intuitive interface and reliable backend integration..

UI/UX

Before embarking on the frontend development, we carefully selected the font, color scheme, and logo for the project to establish a cohesive visual identity. All these elements can be found in **Figure 2** below.

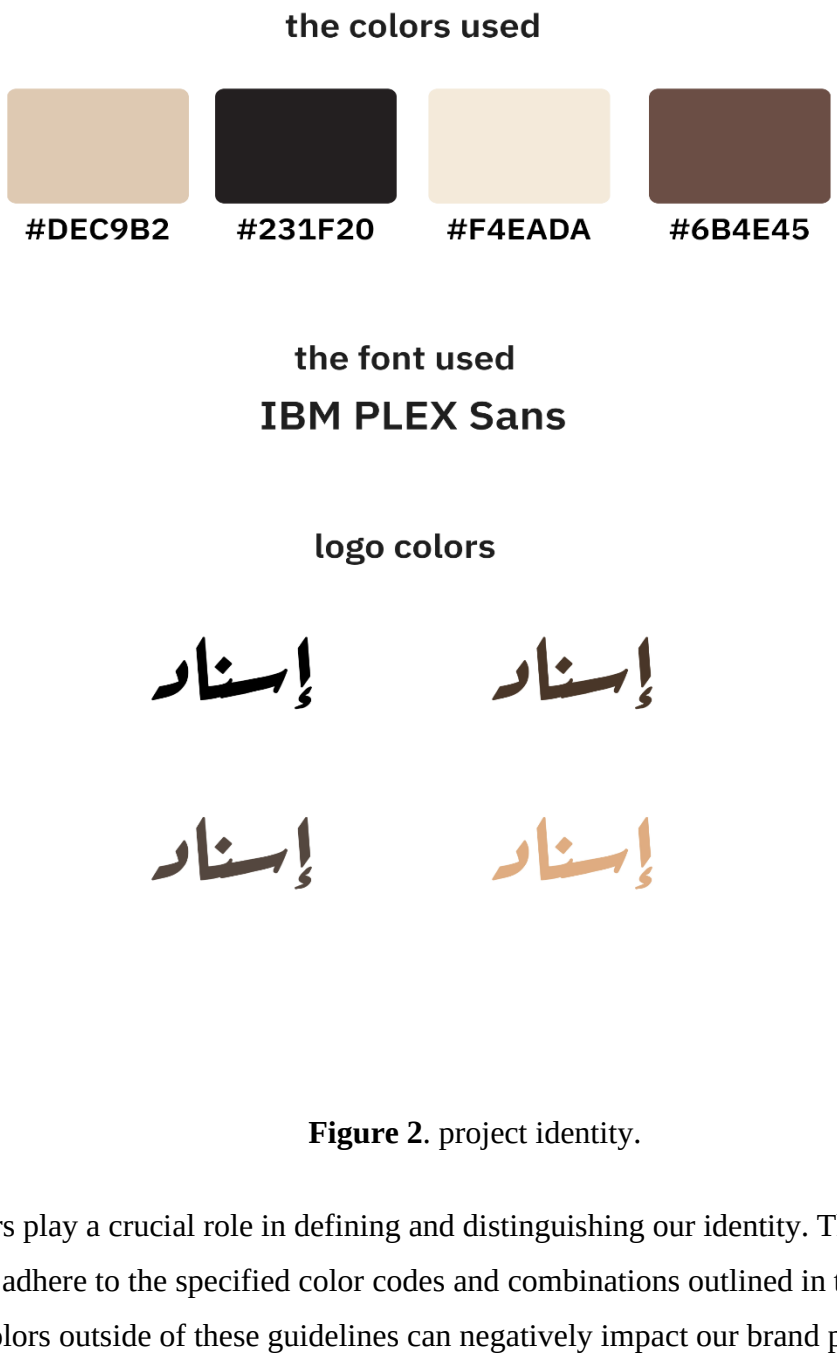

Figure 2. project identity.

Brand colors play a crucial role in defining and distinguishing our identity. Therefore, it is essential to adhere to the specified color codes and combinations outlined in these guidelines. Utilizing colors outside of these guidelines can negatively impact our brand perception and integrity.

Our selected color palette includes:

1. **#DEC9B2** - A soft beige tone representing **the land**, conveying warmth and connection to our roots.
2. **#231F20** - A deep black symbolizing **determination**, adding sophistication and strength to our brand identity.
3. **#F4EADA** - A light creamy off-white that ensures clarity and readability.
4. **#6B4E45** - A warm brown that signifies **authenticity**, bringing an organic touch to our visual representation.

The font used in our materials is **IBM PLEX Sans**, which complements our brand's modern and professional image.

Additionally, our logo is designed with **Arabic lettering**, reflecting our cultural heritage and ensuring a unique and meaningful visual identity.

Adhering to these guidelines is vital for maintaining a consistent and recognizable brand presence.

Figma Design

Find the design URL below for the ISNAD Project on Figma:
ISNAD Project Design on Figma

This version makes the link more clearly associated with the project and includes a cleaner structure. Let me know if you'd like any further refinements!

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Result

The "Isnad" project successfully demonstrates how AI can enhance access to Arabic poetry by providing users with clear and accurate information about the "Seven Mu'allaqat." Through the integration of the ALLAM model and Pinecone vector database, the system efficiently processes user inquiries and retrieves relevant data, offering reliable explanations, historical context, and interpretations. The user-friendly web application, developed with React JS and Tailwind CSS, allows seamless interaction with the chatbot, enabling users to quickly gain insights into complex poetic texts. Early feedback indicates that "Isnad" effectively meets the goal of delivering precise, context-aware answers and has potential for broader application in Arabic literature. Overall, the project proves that combining advanced machine learning with accessible design can significantly enrich users' experience and understanding of literary heritage.

The demonstration of the "Isnad" chatbot can be found in **Figure 3** below.

Figure 3. QR code for Isnad Demo.

The "Isnad" project is accessible online for exploration and interaction with the chatbot. Visit the live demo at Isnad Project Website.

Summary and Conclusion

Finally a concise overview of the key concepts discussed throughout this report. It highlights the summary, conclusion, and future directions on the idea discussed, hoping to be inspiring for further exploration and research.

Future Work

Future developments for the "Isnad" project include broadening its literary scope to encompass more Arabic works beyond the "Seven Mu'allaqat," deepening its cultural value. Adding multimedia elements, such as audio recitations and visual illustrations, would offer users a richer, more immersive experience. Expanding to mobile platforms and incorporating multilingual support would make "Isnad" accessible to a global audience, fostering cross-cultural appreciation of Arabic literature. Additionally, integrating user feedback for continuous learning will allow the chatbot to adapt and improve, ensuring it remains a valuable resource as it evolves.

Conclusion

The "Isnad" project represents a significant step toward making Arabic poetry, specifically the "Seven Mu'allaqat," more accessible and understandable to a diverse audience. By combining advanced AI, reliable literary sources, and an intuitive web application, "Isnad" allows users to explore the meanings, stories, and cultural significance of Arabic poetry with ease and confidence. Through this project, we aim to bridge the gap between technology and literature, preserving cultural heritage in a modern, user-friendly format. Looking ahead, "Isnad" has the potential to grow and adapt, incorporating additional literary works, multimedia elements, and user-driven improvements to continue enriching users' understanding and appreciation of Arabic poetry

APPENDIX A User Manual

Step 1 – Click on this link: [Isnad]

Step 2 – Write the question in the chaatnthen click enter.

Step 3 – if you want create new session click on plus button on the right: