GROUP PROJECT PROPOSAL:

AI MUSEUM FOR EDUCATION USING CONTENT-BASED FILTERING

FACULTY : COLLEGE OF COMPUTING, INFORMATICS, AND MATHEMATICS

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1 BACKGROUND OF STUDY

Artificial Intelligence (AI) in museums represents a groundbreaking method for improving educational experiences, rendering cultural heritage and information more available and engaging. By incorporating AI, museums can change inactive exhibits into interactive, captivating educational spaces that meet the needs of various audience and learning approaches.

AI improves interactive learning through the incorporation of virtual assistants, augmented reality, and tailored content delivery, which enables visitors to interact with exhibits in manners that foster greater comprehension (Mah, 2018). For instance, chatbots driven by AI can act as virtual assistants, providing insights and responding to inquiries instantly (Silver, 2019).

AI technology enables museums to tailor the visitor experience according to personal learning preferences and interests. By utilizing algorithms that assess user interactions, AI can suggest exhibits, offer tailored historical context, and modify educational content to suit different levels of knowledge. This customized method promotes a more significant and unforgettable learning experience for every visitor (Dahya & King, 2021).

Enhanced accessibility is another major advantage of AI in education. AI can assist museums in creating exhibits that accommodate individuals with disabilities, providing functionalities like text-to-speech, translations, and tactile educational components. This inclusivity guarantees that educational material is accessible to a wider audience, including individuals with visual or hearing disabilities (Herrema, 2020).

AI analytics additionally assist museums in gaining a deeper understanding of visitor behaviour and preferences, offering valuable insights for curators and educators. By examining data regarding visitor interactions with exhibits, museums can pinpoint regions of significant interest and opportunities for enhancement (Jain et al., 2022). This data-focused method facilitates the ongoing improvement of educational curricula and exhibition layouts.

By utilizing AI, museums can develop digital records and virtual experiences, safeguarding artifacts and displays in a digital format. These online experiences

allow students and teachers globally to access museum resources, facilitating remote and hybrid learning settings. Models powered by AI can also recreate lost or impaired artifacts, enhancing the durability of historical and cultural preservation (Zhou et al., 2023).

Incorporating AI into museums significantly improves educational experiences and accessibility, aligning with contemporary educational standards that highlight interactivity, personalization, and inclusivity. The "AI Museum for Education" is therefore an innovative initiative that has the potential to transform museum experiences by merging cultural heritage with cutting-edge technology, enhancing engagement, inclusivity, and sustainability in learning.

2   PROBLEM STATEMENT

As Artificial Intelligence (AI) continues to transform various sectors, including education, there is a growing gap in how AI is understood and integrated into educational settings. Artificial Intelligence (AI) is increasingly impacting on many aspects of our daily lives. This is no less true in education (AI&ED) (Holmes,2023). Many educators, students, and administrators lack a clear understanding of how AI can improve teaching, learning, and administration, limiting their ability to fully harness its potential. Despite AI's capabilities to personalize learning, enhance teaching methods, and automate administrative tasks, educational systems often fail to provide sufficient resources to help users comprehend its significance and application in the classroom. For example, the web-based and online education, as enumerated in different studies, has transitioned from simply availing materials online or on the web for students to simply download, study, and do assignments to just pass, to include intelligent and adaptive web-based systems that learn instructor and learner behaviour to adjust accordingly, to enrich the educational experience (Chen,2020).This lack of knowledge and awareness is a key barrier to AI adoption in education, hindering the sector's ability to evolve alongside technological advancements.

Another critical issue is the lack of personalized content in most educational platforms. While AI technologies can offer significant benefits, current systems often fail to cater to the diverse roles of students, teachers, and administrators. As a result, users may struggle to see how AI can be relevant to their specific needs

and responsibilities. The absence of a tailored approach means that many users miss out on understanding how AI can enhance their own educational practices, whether that be improving learning experiences for students or supporting more effective teaching strategies for educators. A more personalized, role-specific approach could significantly enhance users' engagement with AI, encouraging them to embrace these technologies in their daily routines.

Furthermore, as AI continues to evolve rapidly, there is a pressing need for continuous learning to stay informed about emerging trends and tools. Educational systems often fail to provide dynamic, engaging platforms that promote lifelong learning and adaptability, making it difficult for users to keep up with technological advancements. Additionally, many students do not fully grasp how AI technologies are applied outside the classroom, in industries such as healthcare, finance, and robotics, limiting their awareness of the broader impact of AI on society. The AI Museum for Education addresses these issues by offering a personalized, interactive platform that educates users on AI's relevance in education and beyond, fostering a culture of continuous learning, and inspiring users to explore the real-world applications of AI in various industries. This project aims to bridge the knowledge gap, encouraging users to actively explore AI's transformative potential and integrate it into their personal and professional lives.

3   OBJECTIVES

1. To identify the educational needs and interests of users by assessing how personalized AI content can best support for users and administrators in understanding the role of AI in modern education and real-world applications.
2. To develop an interactive, user-friendly AI Museum platform that provides customized educational experiences, allowing users to explore various AI technologies, such as computer vision, natural language processing, and robotics, tailored to their individual roles and learning goals.
3. To evaluate the effectiveness of AI-enhanced educational experiences in fostering knowledge retention, lifelong learning, and adaptability, measuring how well the platform encourages users to integrate AI insights into their personal and professional growth.

4 SCOPE

Scopes	Details
Target User	The target audience can be considered as students and teachers who would like to get some insights of AI usage in learning process. Content and administration of the quiz shall be handled by administer user.
Data Source	For this project, data would be gathered from open access educational databases and journals (IEEE, Scopus). These sites will give information on use of AI in areas related to education.
Data	The data set will cover a wide range of AI solutions in education. For instance, AI in adaptive learning, in natural language processing, as well as class management among others. It will also include details of the functionality of each AI, together with its uses as well as certain educational applications. The implications of the collected data are to be generalized to construct exhibits and quiz questions.
Process	Some of the activities are data gathering, creating user profiles during registration according to the user type or role, content filtering with an aim of presenting user specific content, a quiz that enhances the recommendation systems. These are the user role definition, and recommended products or services.
Algorithm	Content-based Filtering will be applied chosen for the project this algorithm employs preferences and role similarity with educational AI content. This approach makes a given user to be served by the relevant recommendations and exhibits related to the education field.

Table 1: Project Scope

5 PROJECT SIGNIFICANCE

Upon completion, this project should be able to provide the significant benefits to individuals who are using it particularly the user and administrator. By presenting

an accessible and interactive platform, the project aims to educate users on how Artificial Intelligent (AI) is transforming the education sector into a modern sector making it easier for them to understand and adopt these technologies in their own roles. The AI Museum for Education will personalize content based on the user's role which helps each visitor see the relevance of AI in their educational journey. This project is expected to encourage many people in the future to explore the artificial intelligence and leverage it potential.

Firstly, this project helps the users to empower their knowledge on AI in education. By personalizing content based on user roles, the project ensures that the students and teachers received the knowledge that relevant and accurate to their needs. This targeted approach enhances understanding of AI's role in addressing diverse educational needs which offer students to customize learning experience and providing teachers with resources to support effective and engaging teaching strategies. Thus, by empowering the knowledge in AI for education can enhance the user interest to explore and adopt AI technologies in their own educational practices. As users gain a deeper understanding of how AI can be applied to improve their learning methods, they are more likely to embrace these technologies in their daily routines which can resulting in future innovations of educational sector.

Secondly, this project fosters a culture of lifelong learning and adaptability within the education system. As technologies rapidly advance, staying informed about their applications in education is a key to maintaining a competitive edge in field. By providing an engaging and user-friendly platform for learning about AI, the project encourages users to continuously explore emerging trends and tools which make them ahead of technology shifts. This approach ensures that the educators and students are not only aware of current AI applications but are also inspired to seek out new ways to integrate AI into their educational practices and growth within the educational sector. Thus, staying updated on the current AI technology can helps create an innovation and enhances both learning and teaching experiences.

Thirdly, this project helps to spark user's interest in understanding the importance of AI in daily life especially for a student. The Ai Museum for Education educates

the users how the AI can be applied to real-world problem, not limited to educational content alone. For example, by understanding a brief explanation of different types of AI such as computer vision, Natural Language Processing (NLP) and Robotics, the students can explore how these technologies are used in various industries (Kumar, 2024). For example, computer vision is applied to healthcare for diagnostic imaging purposes while the NLP is used in virtual assistants like Siri and Alexa. From here, students can get a clearer picture of how AI technologies are shaping the industries and improving everyday life. Hence, it is proven that this system not only focusses on recommending suitable AI for the students but also provide new knowledge about the technology that are being used in the world.

6   CONCLUSION

In conclusion, the AI Museum for Education offers various of benefits that can deepen user's understanding of AI, foster lifelong learning and inspire real-word application of AI technologies. By tailoring content to individual roles, the platform not only educates users about AI's impact in education but also encourage them to adopt and explore these technologies in meaningful ways. This system is seeking to helps the user to explore many types of AI and fully leverage their potential. Beyond individual benefits, this system aims to be a driving force in modernizing education through technology. As users explore various AI concept, they can gain wider knowledge into how these technologies can impact both educational sector and industries.

Furthermore, the advancement of technology will be always up to date in the AI Museum for Education. By staying up to date with the latest advancement, users can continuously enhance their skills and apply this knowledge in their life whether it is for their education, careers and in personal life. This system aims to open user's eyes to the transformative potential of AI by helping them understand its diverse application and encouraging them to explore its impact in both educational and real-world contexts. Lastly, the AI Museum for Education system hopes to inspire many users to develop a deeper interest in AI and encouraging them to explore the possibilities and discover areas that reflect with their personal and professional goals.

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