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Museum Artifact Transaction System using Data Mining Techniques

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Abstract: *The Museum Artifact Purchase System (MAPS) is a comprehensive solution designed to revolutionize the acquisition process of antique artifacts, offering enhanced efficiency, security, and transparency. Through five distinct modules, namely Clients, Laboratory, Antique, Museum, and Admin, MAPS seamlessly orchestrates every stage of the artifact purchasing journey. In the Clients module, users undergo a meticulous registration process to access the system, enabling them to upload product details, monitor real-time status updates, and engage with the laboratory process for product age determination. Lab personnel, in turn, utilize the Laboratory module to process sample data, generate comprehensive reports, and seek approval from the administrator. Antique persons utilize the Antique module to register their shop details, participate in product bidding, and complete payment processes for successful bids. Meanwhile, the Museum module empowers museum personnel to browse artifact details, make purchases, and manage orders seamlessly. Central to the system's operation is the Admin module, where administrators oversee and manage user details, product listings, order processing, and payment verification. Administrators ensure the integrity of the system by approving bidders, verifying payments, and finalizing artifact sales. Throughout the entire process, MAPS employs advanced security measures, including AES encryption for data protection, ensuring the confidentiality and integrity of all transactions. By integrating smart contracts, MAPS automates complex transactions, streamlining the purchase process and eliminating the need for intermediaries. Overall, the Museum Artifact Purchase System (MAPS) stands as a promising solution poised to transform the antique art market, offering increased efficiency, security, transparency, and cost-effectiveness in artifact transactions.*

Keywords: Museum Artifact Purchase System

I. INTRODUCTION

The Museum Artifact Purchase System (MAPS) is a comprehensive solution designed to revolutionize the acquisition process of antique artifacts, offering enhanced efficiency, security, and transparency. Through five distinct modules, namely Clients, Laboratory, Antique, Museum, and Admin, MAPS seamlessly orchestrates every stage of the artifact purchasing journey. In the Clients module, users undergo a meticulous registration process to access the system, enabling them to upload product details, monitor real-time status updates, and engage with the laboratory process for product age determination. Lab personnel, in turn, utilize the Laboratory module to process sample data, generate comprehensive reports, and seek approval from the administrator. Antique persons utilize the Antique module to register their shop details, participate in product bidding, and complete payment processes for successful bids. Meanwhile, the Museum module empowers museum personnel to browse artifact details, make purchases, and manage orders seamlessly. Central to the system's operation is the Admin module, where administrators oversee and manage user details, product listings, order processing, and payment verification. Administrators ensure the integrity of the system by approving bidders, verifying payments, and finalizing artifact sales. Throughout the entire process, MAPS employs advanced security measures, including AES encryption for data protection, ensuring the confidentiality and integrity of all transactions. By integrating smart contracts, MAPS automates complex transactions, streamlining the purchase process and eliminating the need for intermediaries. Overall, the Museum Artifact Purchase System (MAPS)

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II. LITERATURE SURVEY:

Digital Transformation in Artifact Acquisition Systems: The concept of digital platforms revolutionizing traditional industries has been extensively studied in literature Scholars like Westerman et al. (2014) have explored how digital technologies reshape business models and processes, emphasizing efficiency gains, improved customer experiences, and enhanced market reach.

Security Measures in Online Transactions: The importance of security measures in online transactions has been widely discussed. Research by Cavusoglu et al. (2004) highlights the significance of encryption technologies, such as AES, in safeguarding sensitive data and ensuring the integrity of transactions in digital environments.

Blockchain and Smart Contracts in Transaction Automation: Blockchain technology and smart contracts have garnered significant attention for their potential to automate transactions and eliminate intermediaries. Studies by Tapscott and Tapscott (2016) and Iansiti and Lakhani (2017) delve into the transformative impact of blockchain on various industries, emphasizing its role in enhancing transparency, reducing costs, and mitigating fraud.

E-commerce Platforms in Art Markets: The intersection of e-commerce platforms and the art market has been explored by researchers such as Ginsburgh and Mei (2006) and Kujala et al. (2019). These studies examine how online platforms facilitate the buying and selling of art objects, addressing challenges related to authentication, provenance, and trust.

User Experience and Interface Design: The user experience (UX) and interface design of digital platforms play a crucial role in their adoption and success. Research by Norman (2013) and Nielsen (1993) provides insights into principles of UX design, emphasizing usability, accessibility, and intuitiveness in interface design to enhance user satisfaction and productivity.

III. SYSTEM ARCHITECTURE

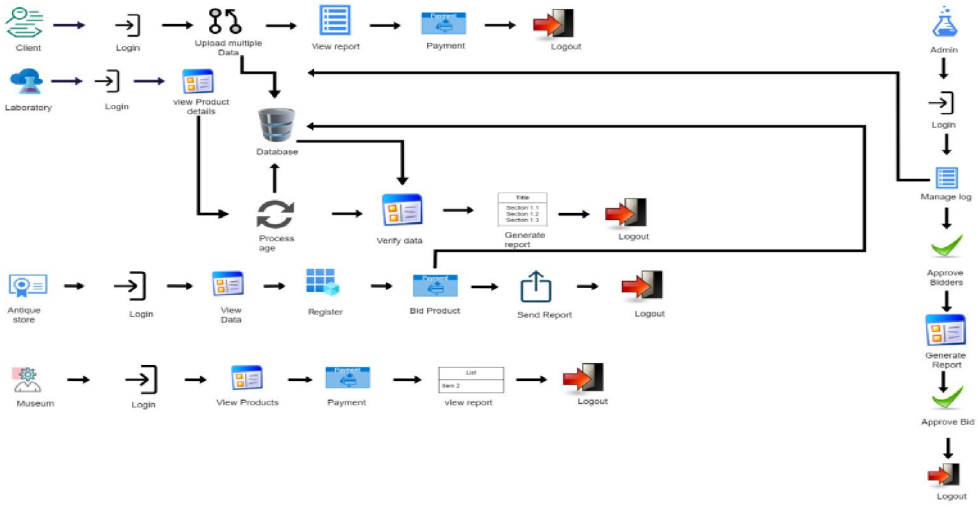

Fig.1 Approach for artifact purchase web page

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Dataset:

	Material	expected	location	owner	source	id	quantity	clid	Status	artif_type	images
2	Wood	199	Lake Mun	kilash	Archaeolc	1	24	1	pending	Organic	Productimg/1.jpg
3	Bone	114	Siberia, R	kilash	Archaeolc	2	15	1	pending	Organic	Productimg/2.jpg
4	Charcoal	133	Mesa Ver	kilash	Archaeolc	3	2	1	pending	Organic	Productimg/3.jpg
5	Shell	101	San Franci	kilash	Archaeolc	4	13	1	pending	Organic	Productimg/4.jpg
6	Peat	177	Ireland	kilash	Archaeolc	5	12	1	pending	Organic	Productimg/5.jpg
7	Charcoal	106	Greenlanc	kilash	Archaeolc	6	22	1	pending	Organic	Productimg/6.jpg
8	Bone	159	Patagonia	kilash	Archaeolc	7	7	1	pending	Organic	Productimg/7.jpg
9	Shell	140	California	kilash	Archaeolc	8	14	1	pending	Organic	Productimg/8.jpg
10	Peat	167	Norway	kilash	Archaeolc	9	8	1	pending	Organic	Productimg/9.jpg
11	Wood	139	Mexico	kilash	Archaeolc	10	24	1	pending	Organic	Productimg/10.jpg
12	Wood	126	Lake Mun	kilash	Archaeolc	11	21	1	pending	Organic	Productimg/11.jpg
13	Bone	142	Siberia, R	kilash	Archaeolc	12	7	1	pending	Organic	Productimg/12.jpg
14	Charcoal	160	Mesa Ver	kilash	Archaeolc	13	13	1	pending	Organic	Productimg/13.jpg
15	Shell	186	San Franci	kilash	Archaeolc	14	12	1	pending	Organic	Productimg/14.jpg
16	Peat	131	Ireland	kilash	Archaeolc	15	25	1	pending	Organic	Productimg/15.jpg
17	Charcoal	151	Greenlanc	kilash	Archaeolc	16	24	1	pending	Organic	Productimg/16.jpg
18	Bone	135	Patagonia	kilash	Archaeolc	17	4	1	pending	Organic	Productimg/17.jpg
19	Shell	137	California	kilash	Archaeolc	18	18	1	pending	Organic	Productimg/18.jpg
20	Peat	129	Norway	kilash	Archaeolc	19	15	1	pending	Organic	Productimg/19.jpg
21	Wood	158	Mexico	kilash	Archaeolc	20	7	1	pending	Organic	Productimg/20.jpg
22	Hematite	131	Lake Mun	kilash	Archaeolc	21	2	1	pending	Inorganic	Productimg/21.jpg
23	Calcite	153	Siberia, R	kilash	Archaeolc	22	20	1	pending	Inorganic	Productimg/22.jpg
24	Limestone	199	Mesa Ver	kilash	Archaeolc	23	9	1	pending	Inorganic	Productimg/23.jpg
25	Jasper	194	San Franci	kilash	Archaeolc	24	8	1	pending	Inorganic	Productimg/24.jpg

Fig.2 A snapshot of our dataset

IV. EXPERIMENTAL RESULTS

In this project we are aiming to develop a system that facilitates the acquisition of artifacts for a museum. The result would likely be a software application or platform that streamlines the process of selecting, purchasing, and cataloging artifacts for the museum's collection. This system might include features such as inventory management, vendor communication, budget tracking, and documentation of provenance and historical significance for each artifact acquired."

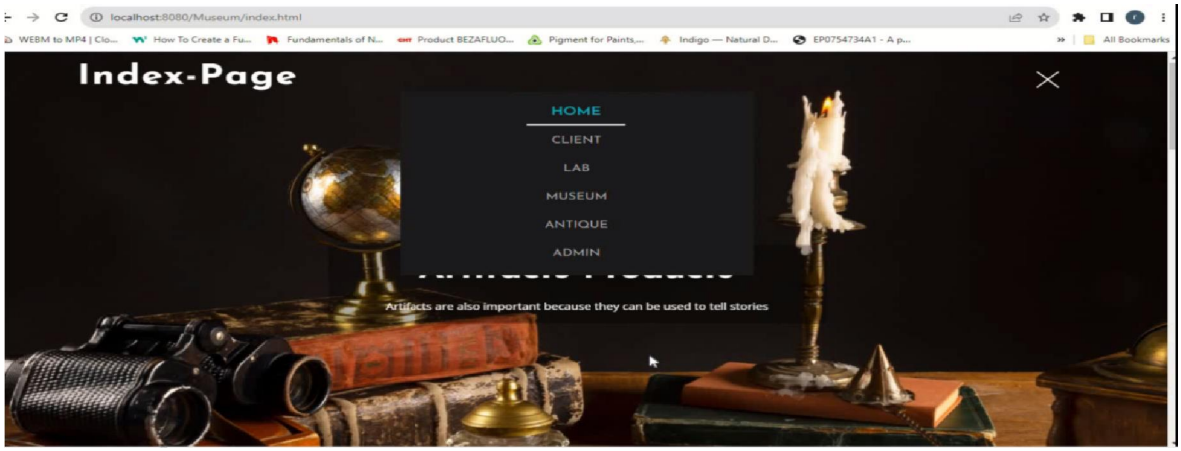

Fig.3 Home page

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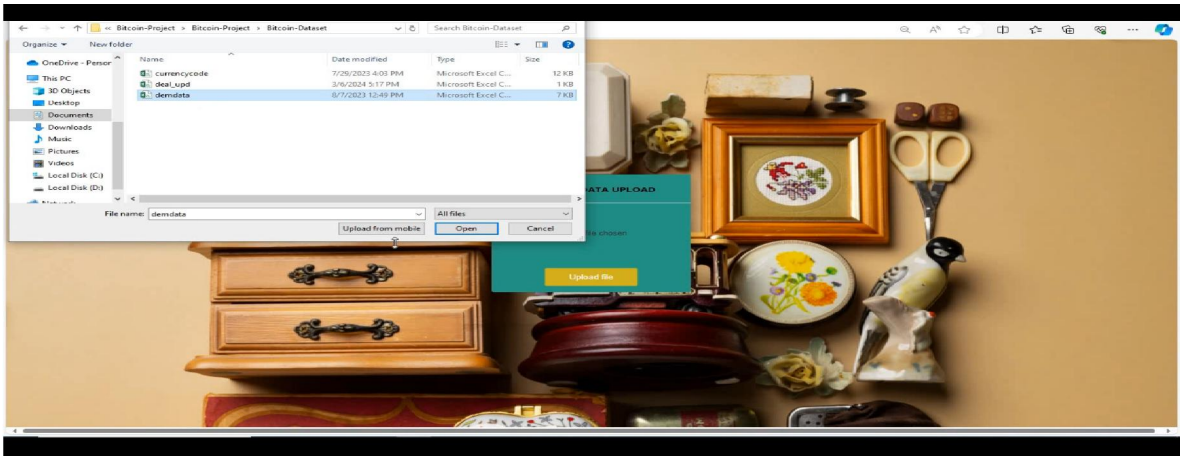

Fig.4 Uploading Dataset

Fig.5 product details

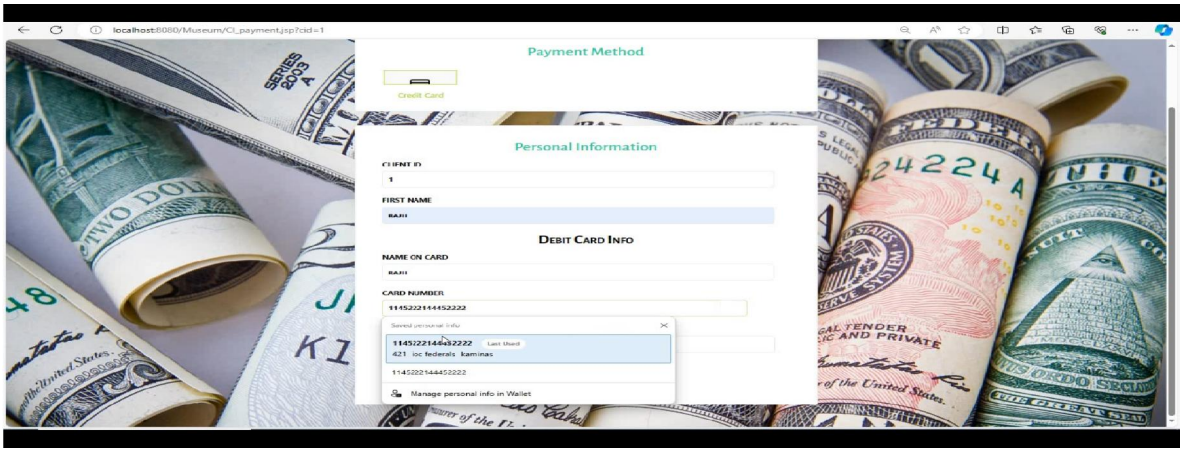

Fig.6 Payment page

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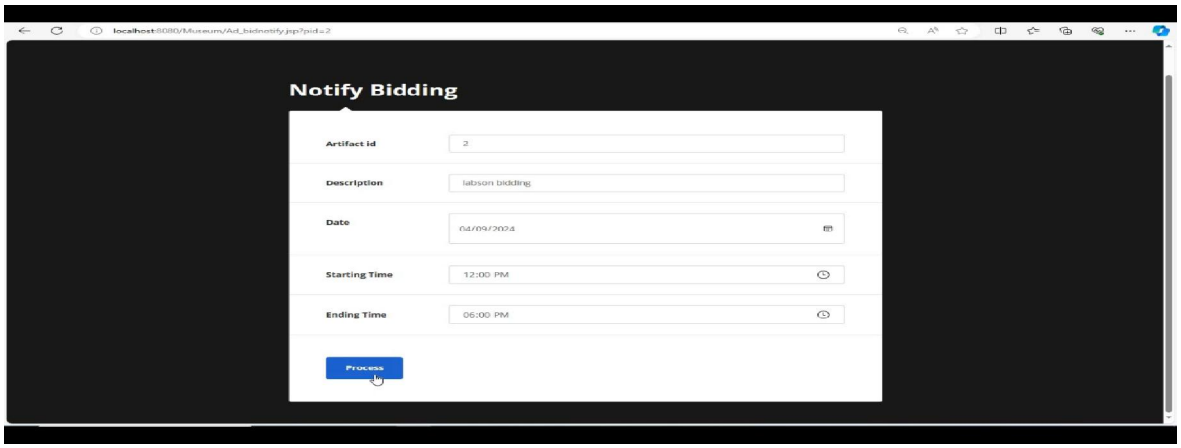

Fig.7 Biding registration

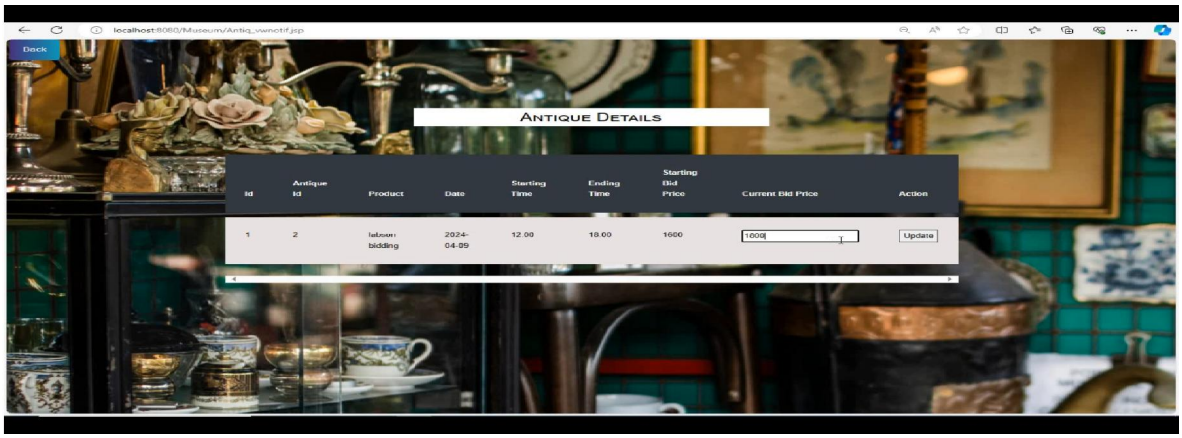

Fig.8 bidding price update

V. CONCLUSION

The Museum Artifact Purchase System (MAPS) is a system that will revolutionize the way antique artifacts are purchased. MAPS will automate the purchase process, ensure that all payments are processed securely, and protect the privacy and security of all data. The system will also integrate with existing systems used by clients, antique dealers, and museums, and it will be scalable and performant enough to handle a large number of transactions simultaneously. One of the most promising future enhancements for MAPS is the use of image recognition technology to automatically identify and authenticate antique artifacts. This would help to reduce the risk of counterfeiting and make it easier for people to buy and sell antique artifacts online. Imagine a scenario where a client wants to sell an antique vase. They could simply take a photo of the vase and upload it to the MAPS system. The system would then use image recognition technology to identify the vase and to authenticate it. If the vase is authentic, the system would provide the client with an estimated value for the vase and would connect them with potential buyers. Image recognition technology could also be used to improve the efficiency of the age determination process. Currently, the age of an antique artifact is determined by a laboratory technician who analyzes the product sample. However, image recognition technology could be used to automatically extract features from the product sample that are indicative of age. This would allow the system to determine the age of an artifact more quickly and more accurately.

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