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Design and Implementation of Online Auction System Project Documentation Using the WPM Method

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ABSTRACT

Online auction system project documentation refers to the comprehensive collection of written materials, instructions, guidelines, and resources that outline the design, development, and operation of an online platform where goods or services can be auctioned off to potential buyers over the internet. This documentation is essential to guide developers, stakeholders, and users through the process of creating, understanding, and utilizing the online auction system. Key aspects and components covered in online auction system project documentation typically include: Introduction: An overview of the project, its objectives, and the scope of the online auction system. This section sets the context and explains the purpose of the documentation. System Architecture: A detailed description of the technical structure of the online auction platform, including databases, servers, APIs, and user interfaces. It outlines how different components interact to create a functional system. User Roles and Permissions: Explanation of different user roles (buyers, sellers, administrators, etc.) and the permissions each role has within the system.

This ensures that the platform operates securely and effectively. User Registration and Authentication: Guidelines on how users can create accounts, log in, and manage their profiles. Security measures like password policies and two-factor authentication might also be covered. Item Listing and Management: Instructions on how sellers can list their items for auction, including adding descriptions, images, and setting starting bids. Also, guidelines for managing active and completed auctions. Bidding Process: Details on how buyers can place bids on items, how bidding increments work, and how the highest bidder is determined. This section may also address automatic bidding and bid tracking. Payment and Checkout: Information on how winning bidders can complete their transactions, make payments, and confirm delivery details.

This part ensures smooth monetary transactions. Security and Privacy: Documentation on measures taken to ensure data security, user privacy, and fraud prevention. A Weight product Model (WPM) establishment solution to a decision-making issue utilized to address. This suggested approach an evaluation relative in nature takes into consideration the method. Subsequent segment includes a relaxation sheet structured implementation delivers an appraisal of the challenge. Tasks associated with a specific domain Weighted ProductOnline auction system project documentation Content Quality, Clarity of Instructions, Visual Presentation and Completeness the Ranking of Online auction system project documentation in Online auction system project documentation 5 is got the first rank whereas is the Online auction system project documentation 3the Lowest rank.

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Introduction

An online auction system is a digital platform that enables users to participate in buying and selling activities through virtual auctions conducted over the internet. It allows sellers to list items or services for sale, while potential buyers can place bids on these items. Online auction systems provide a convenient way for individuals and businesses to trade goods, services, or collectibles without the need for physical presence [1].User Registration: Users need to create accounts on the platform, providing necessary personal information. This process enables them to participate in auctions, track bids, and manage their activities.User registration is a fundamental process in various online systems and platforms, including online auction systems. It involves allowing individuals to create accounts or profiles on a digital platform by providing certain information. This process serves as an entry point for users to access and utilize the features and services offered by the platform. In the context of an online auction system, user registration is essential to enable individuals to participate in auctions, list items for sale, and engage in buying and selling activities [2].Item Listing: Sellers can list items they want to sell, including detailed descriptions, images, starting prices, and auction duration.

Some platforms may offer fixed-price listings alongside traditional auction-style listings.Item listing is a significant feature within an online auction system that allows sellers to showcase their items or products for potential buyers to view and bid on. It plays a pivotal role in facilitating the trading process by providing detailed information about the items, setting starting prices, and defining the terms of the auction. Here's a breakdown of how the item listing process typically works:Seller Account: Sellers need to have a registered and verified account on the online auction platform to list items [3].Bidding Process: Registered users can place bids on items they are interested in purchasing. The bidding process involves submitting bids that exceed the current highest bid by a specified increment. Users can manually place bids or set up automatic bidding to increase bids incrementally.The bidding process is a crucial aspect of an online auction system, enabling users to compete for items by placing increasing bids over a specified time period. It's the heart of the auction experience and involves participants actively engaging to secure items they want to purchase.

Here's a breakdown of how the bidding process typically works [4].Auction Management: The system manages the auction process by tracking bids, notifying bidders of competing offers, and determining the winning bidder when the auction ends. Different auction formats, such as English auctions (ascending bids) or Dutch auctions (descending bids), may be supported.Auction management is the process of overseeing and facilitating various aspects of an online auction from start to finish. It involves ensuring that the auction runs smoothly, efficiently, and fairly, while providing participants with a positive experience. Effective auction management encompasses a range of tasks and responsibilities aimed at creating a successful auction event. Here's an overview of key components involved in auction management [5].Listing Preparation: Before an auction begins, sellers create detailed listings for the items they want to auction. This includes providing accurate descriptions, images, starting prices, and any relevant terms and conditions.Auction Setup: Auction managers set up the parameters of the auction, including the start and end times, bid increments, reserve prices (if applicable), and any special features like "Buy It Now" options.User Registration and Verification: Auction management may involve verifying the identities of registered users to ensure the integrity of the auction. This step helps prevent fraudulent activities and creates a secure environment for participants [6].Time Limits: Auctions have predefined time limits during which users can place bids. The highest bidder when the auction clock expires wins the item.Time limits in an online auction refer to the predefined duration during which the auction is active and participants can place bids on items.

Setting appropriate time limits is essential to create a sense of urgency, encourage competitive bidding, and ensure that the auction process remains efficient. Here's how time limits work in an online auction [7].Proxy Bidding: Some systems use proxy bidding, where users set a maximum bid, and the system automatically places incremental bids on their behalf up to that maximum. This helps users avoid constant manual bidding.Proxy bidding is a feature commonly used in online auction platforms that allows bidders to place automatic bids on items without needing to actively monitor the auction in real time. Proxy bidding helps bidders stay competitive in auctions, even if they are unable to actively participate during the bidding process. Here's how proxy bidding works [8].Payment and Checkout: Once an auction ends, the winning bidder is required to complete the payment process. Online auction systems often offer secure payment gateways to facilitate transactions between buyers and sellers.Payment and checkout processes are critical components of online auction platforms that facilitate the completion of transactions between buyers and sellers. These processes involve the exchange of funds and the finalization of the purchase, ensuring a smooth and secure experience for all parties involved.

Here's how payment and checkout typically work:Winning Bid Confirmation: When a buyer wins an auction by placing the highest bid, they receive a notification confirming their victory and outlining the terms of the sale.Payment Options: Online auction platforms offer various payment options, including credit or debit cards, digital wallets (such as PayPal or Apple Pay), bank transfers, and sometimes cryptocurrency [9].Feedback and Ratings: After a transaction, both buyers and sellers may leave feedback and ratings for each other. This builds trust and informs other users about the reliability of trading partners.Feedback and ratings are integral components of online auction platforms that allow users to provide and access information about their experiences with other participants, whether they are buyers or sellers. Feedback and ratings contribute to transparency, trust-building, and accountability within the online auction community. Here's how feedback and

ratings work:Feedback Submission: After a transaction is completed, buyers and sellers have the opportunity to leave feedback for each other. This feedback may include comments about the overall experience, communication, item quality, and more [10].Seller Verification: To enhance security and trust, platforms might offer seller verification processes to ensure that listed items are legitimate and transactions are safe.Seller verification is a process used by online auction platforms to ensure the legitimacy, trustworthiness, and reliability of individuals or businesses that wish to sell items on the platform.

It involves verifying the identity and credentials of sellers to create a secure and trustworthy environment for buyers. Seller verification helps prevent fraud, counterfeit items, and unethical practices, enhancing the overall reputation of the online auction marketplace. Here's how seller verification typically works [11].Auction Categories: Items are often categorized based on types, making it easier for users to find what they are looking for. Common categories include electronics, fashion, collectibles, and more.Auction categories refer to the classification or grouping of items available for auction based on their type, characteristics, and intended use. Organizing items into specific categories makes it easier for users to navigate and find items of interest within the online auction platform. Auction categories help both buyers and sellers by creating a structured and organized marketplace.

Here are some common auction categories:Electronics: This category includes items such as smartphones, laptops, cameras, audio equipment, and other electronic devices [12].Mobile Access: Many online auction systems offer mobile apps or responsive websites, allowing users to participate in auctions from their smartphones or tablets.Mobile access refers to the capability of users to access and interact with an online auction system using mobile devices such as smartphones and tablets. With the widespread use of mobile technology, online auction platforms have evolved to provide mobile-friendly interfaces and dedicated mobile apps to cater to users who prefer to participate in auctions while on the go. Here's how mobile access enhances the online auction experience [13].Mobile-Friendly Design: Online auction platforms optimize their websites for mobile devices, ensuring that the interface is responsive and user-friendly on smaller screens. This design adaptation makes it easier for users to navigate, browse listings, and place bids on their mobile devices.Dedicated Mobile Apps: Many online auction platforms offer dedicated mobile apps for popular operating systems like iOS and Android.

These apps provide a seamless and tailored experience, making it convenient for users to engage with auctions from their mobile devices.Accessibility: Mobile access allows users to participate in auctions from virtually anywhere, whether they're at home, commuting, or traveling. This convenience expands the reach of the platform and encourages more frequent participation [14].Customer Support: Online auction platforms typically offer customer support to address inquiries, resolve disputes, and provide assistance to users.Customer support is a crucial component of any online auction system, ensuring that participants have a positive and smooth experience while using the platform. It involves providing assistance, guidance, and solutions to users who may have questions, issues, or concerns related to the auction process, listings, bids, transactions, and other aspects of the platform. Effective customer support contributes to user satisfaction, builds trust, and enhances the reputation of the online auction platform. Here's how customer support works in the context of an online auction system [15].

Material and method

2.1. Online auction system project documentation: Operating on a website, showcasing a diverse range of items, Online auctions cater to both organizers and sellers to accommodate potential buyers, an online bidding platform is in place. Sellers present their merchandise for auction purposes; Bidders sign up to partake in the wide array of items on auction. They place bids on the products as per the system's design. Online auctions, referred to as e-auctions, virtual auctions, or auctions, are hosted on the internet and accessed via internet-connected devices. Similar to traditional auctions, Online auctions also Come in various formats, Each with its distinct bidding protocols and sales regulations.

2.2. Content Quality: This criterion assesses the depth, accuracy, and relevance of the information provided in the project documentation. It considers whether the content adequately covers all essential aspects of the online auction system, including user registration, item listing, bidding process, auction management, payment and checkout, and more. High content quality ensures that readers gain a comprehensive understanding of the system's functionality and processes.

2.3. Clarity of Instructions: This evaluation parameter focuses on how well the instructions and guidelines within the project documentation are communicated to the intended audience. Clear and concise instructions make it easier for readers to follow the steps required to set up and use the online auction system. Ambiguous or confusing instructions can lead to misunderstandings and hinder effective implementation.

2.4. Visual Presentation: The visual presentation component involves the layout, design, and use of visual aids in the project documentation. An organized and visually appealing layout with headings, subheadings, bullet points, diagrams, screenshots, and other visual elements enhances the readability and comprehension of the documentation. Visual aids help convey complex concepts and processes more effectively.

2.5. Completeness: The completeness of the project documentation is crucial for providing a holistic view of the online auction system. It ensures that all relevant features, functionalities, and procedures are covered in detail. Comprehensive documentation minimizes the need for users to seek additional information elsewhere and helps them navigate the system successfully.

2.6. Method:A Weight product Model (WPM) establishment solution to a decision-making issue utilized to address. This suggested approach an evaluation relative in nature

takes into consideration the method. Subsequent segment includes a relaxation sheet structured implementation delivers an appraisal of the challenge. Tasks associated with a specific domain Weighted Product (WP) and superior alternatives (such as TOPSIS) and others are deliberated upon. guidance in decision-making processes aids in prioritizing techniques. two methods are available [16]. Investigates 2 techniques in assessment due to its incompleteness, 2 strategies and their intricacies by scrutinizing attributes to compare them it observes the goals and precisely their pertaining to intricate scale cycles complex and deduced derived from the error rate computed. Product Model, or its equivalent mileage also referred to as WPM. the initial stage in WPM involves primary working standards and deducing weights based on requirements [17]. WPM presents a choice between two described within the criteria relates to decision-making.

This outcome is illustrated in a matrix each of which can be portrayed. Fundamental mathematical operation optional for addition incorporates multiplication as well. this moment's weighting (SAW) such a straightforward fusion. Concerning this technique additional specifics regarding MCDM In the form of an electronic book are provided [18]. Given MCDA problem with m options and a selection of in relation to standards as explicated let's posit. as introduced by Bridgeman in 1922 Weight added manufacturing process (WPM) a wholly dependable methodology validated this fact, electing multiple criteria, for an additional three criteria Investigate a hundred benchmarks, numerous researchers have effectively employed WPM successful utilization of expressed accommodation Selecting, suitably determining sustenance deciding upon problems confronted by individuals coping with household preference appropriate examination site similar to making a choice resolving multiple criteria [19].

The approach is computed, Web-based Entirely executed through digital devices. The central aims of this vision are: employing WPM constructing a domestic selection model, Proposed values compute and arrange, within an online milieu activating an examination support tool. A method based on weighted products for this version's augmentations given priority incorporates multiplication every occasion multiple proportionamong other factors through multiplication when compared [20]. given weights the systemic approach of product the primary limitation of the product is, when undesirable outcomes are concerned of crucial evaluations Exaggerate the significance Indicating that, because of this the final estimation is depending on the opportunity's Backs/adjustments are also commendable. A benchmark. remote from public reach is distant. The Weighted Product (WP) method Normalization characterizes the technique terms it, As a consequence of this approach Every individual trait and the evaluative outcomes through expansion [21]. Multiplicative repercussions by default values Until juxtaposed (categorized) lack meaning. For advantageous attributes, Weight signifies high quality Multiplication of appraisal acts as an operator, A lower value for weight Even in the role of a ranking.A fresh scoring aspect Implemented by the weighted product method Each bid submission Transforms into an assessment. There are essentially two categories - Feature auctions Entire societies Built upon this are given Master Bid Design Classified under the category of trends [22].

Ultimately, presumptions by acknowledging our Instances are subject to weighted product FMADM technique a means to rectify the issue. This technique ascribes or criteria per package Appraises a greater number of alternatives, each trait stands distinct Individually possessing no weight Following the product approach, each attribute combined with the score with relevant trait weights for augmentation and enhancement.Blending assessment characteristics Utilizing Multiplication Methods Excessive utilization remote observations of high spatial resolution remote Sensing data for land satellite-type sensors exploration employing WPM of paramount significance [23]. Photographs through MODIS. however, premium-quality Images are commonly not accessible A constraining factor.

Through METRIC or SEBAL Precise data is essential Global regions, utilizing remote Implementation of Sensing Techniques WPM advances investigation. heat-resistant WPM and appropriate quantities of casein, previously aggregated whey proteins the surface of fat droplets to seal entirely. These outcomes reflect thermal processing enriched in whey protein for enhancing emulsions contribute [24]. suggested diverse selections of methodologies incorporating innovative methods offering enhanced precision in comparison coupled with expedited computations delivering efficiency. For the extraction of bauxite effective mining procedure proposed for determination approaches are furnished.In earlier research endeavours, employing the employed methods the outcomes yielded by these techniques are juxtaposed. Routine segmentation and supplementary approach most fitting the findings indicate the preferable mining technique [25].

Result and discussion

Table 1. Online auction system project documentation

	Content Quality	Clarity of Instructions	Visual Presentation	Completeness
Online auction system project documentation 1	46.36	150.63	35.63	48.96
Online auction system project documentation 2	36.45	142.97	33.69	36.45
Online auction system project documentation 3	30.15	130.46	38.65	43.78
Online auction system project documentation 4	37.63	145.46	40.32	35.63
Online auction system project documentation 5	35.63	186.41	46.56	33.48

Table 1 shows the Online auction system project documentation for weighted product model.Online auction system project documentation 1, Online auction system project documentation 2, Online auction system project documentation 3, Online auction system project documentation 4 and Online auction system project documentation 5. Evaluation Content Quality, Clarity of Instructions, Visual Presentation and CompletenessContent Quality in Online auction system project documentation 1 - 46.36 is showing the Highest Value. And Online auction system project documentation 3 - 30.15 is showing the lowest value.Clarity of Instructions in Online auction system project documentation 5 - 186.41 is showing the Highest Value and Online auction system project documentation 1 - 142.97 is showing the lowest value.Visual Presentation in Online auction system project documentation 5 - 46.56 is showing the Highest Value and Online auction system project documentation 2 - 33.69 is showing the lowest value.Completeness in Online auction system project documentation 1 - 48.96 is showing the Highest Value and Online auction system project documentation 5 - 33.48 is showing the lowest value.

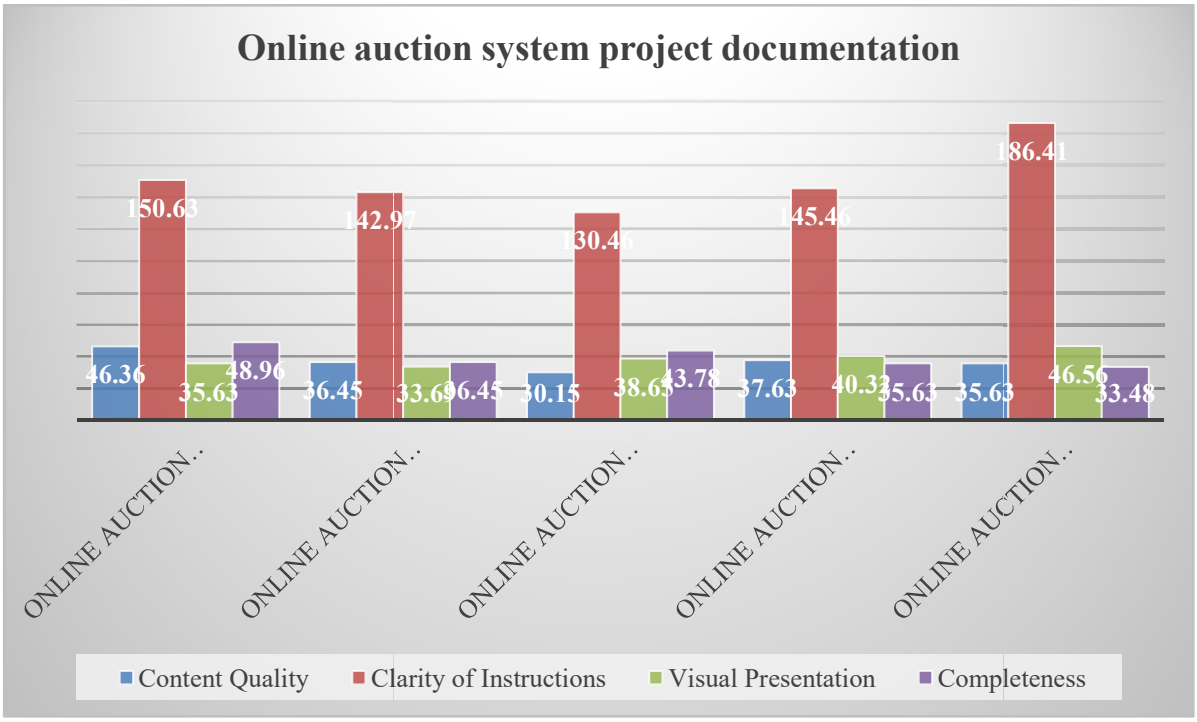

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Table 2. Performance value

	Performance value			
Online auction system project documentation 1	1.00000	0.80806	0.94555	0.68382
Online auction system project documentation 2	0.78624	0.76697	1.00000	0.91852
Online auction system project documentation 3	0.65035	0.69986	0.87167	0.76473
Online auction system project documentation 4	0.81169	0.78032	0.83557	0.93966
Online auction system project documentation 5	0.76855	1.00000	0.72358	1.00000

Table 2 shows the performance value forOnline auction system project documentation in Content Quality in Online auction system project documentation 1 - 1.00000 is showing the Maximum Value Online auction system project documentation 3 - 0.65035 is showing the Minimum Value. Clarity of Instructions in Online auction system project documentation 5 - 1.00000 is showing the Maximum Value and Online auction system project documentation 1 - 0.76697 is showing the Minimum Value. Visual Presentation in Online auction system project documentation 2 - 1.00000 is showing the Maximum Value and Online auction system project documentation 5 - 0.72358 is showing the Minimum Value. Completeness in Online auction system project documentation 4 - 0.93966 is showing the Maximum Value and Online auction system project documentation 1 - 0.68382 is showing the Minimum Value

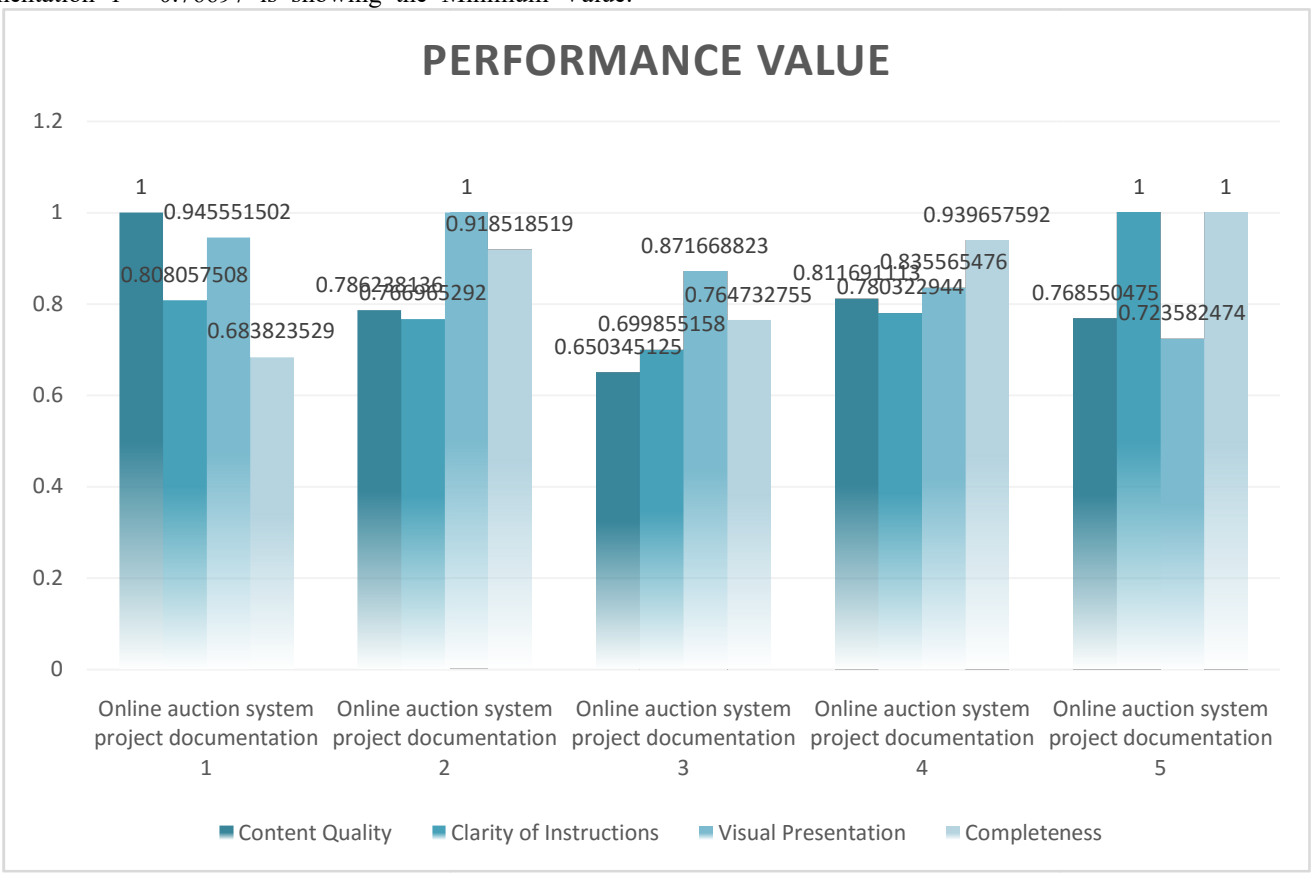

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Table 3. Weightages

Weightages			
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25

0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25

Table 3 shows the Weightages used for the analysis. We taken same weights for all the parameters for the analysis

Table 4. Weighted Normalized Decision Matrix

Weighted normalized decision matrix				
	Content Quality	Clarity of Instructions	Visual Presentation	Completeness
Online auction system project documentation 1	1	0.9481	0.9861	0.90936
Online auction system project documentation 2	0.9416	0.9358	1	0.978976
Online auction system project documentation 3	0.898	0.9146	0.9662	0.935142
Online auction system project documentation 4	0.9492	0.9399	0.9561	0.98456
Online auction system project documentation 5	0.9363	1	0.9223	1

Table 4 shows the Weighted Normalized Decision Matrix. Online auction system project documentation for weighted product model.Online auction system project documentation 1, Online auction system project documentation 2, Online auction system project documentation 3, Online auction system project documentation 4 and Online auction system project documentation 5. Evaluation Content Quality, Clarity of Instructions, Visual Presentation and Completenessit is also Weighted Normalized Decision Matrix value.

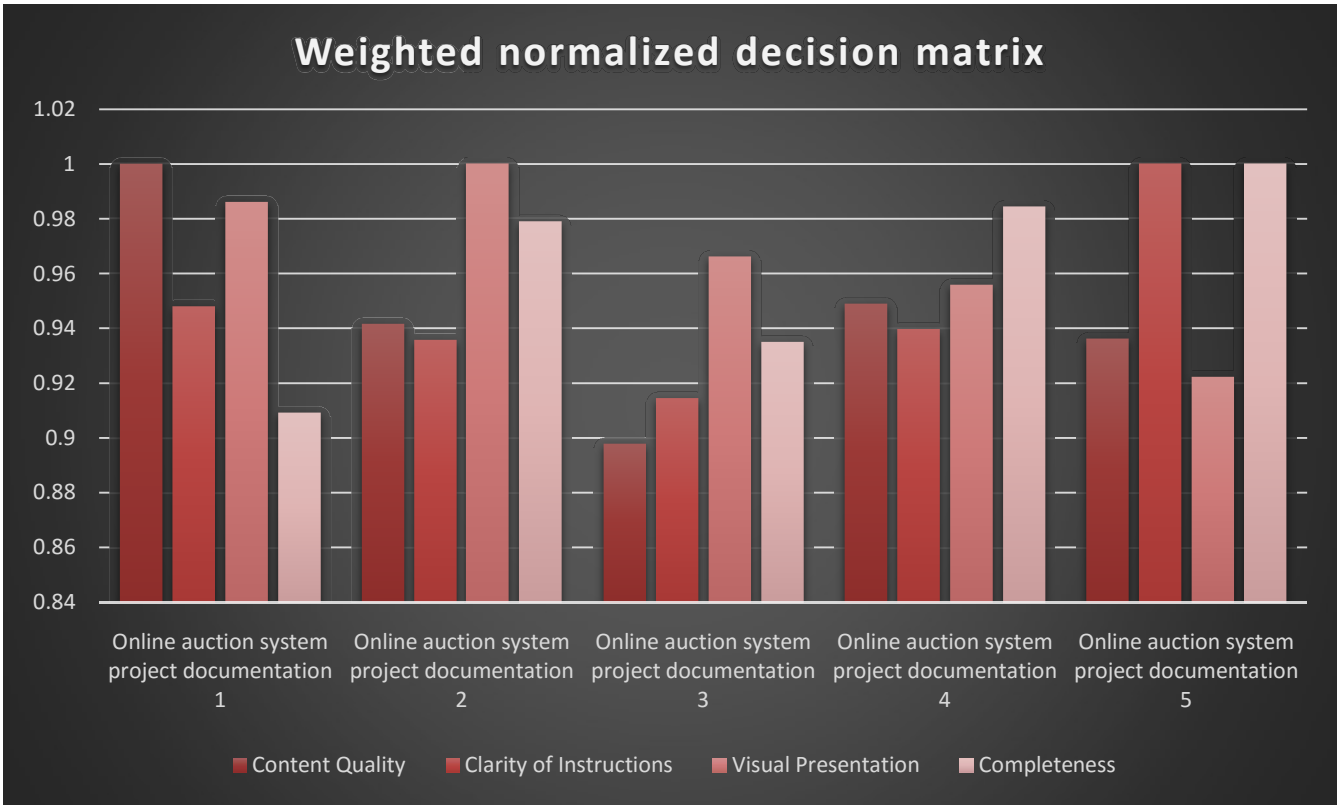

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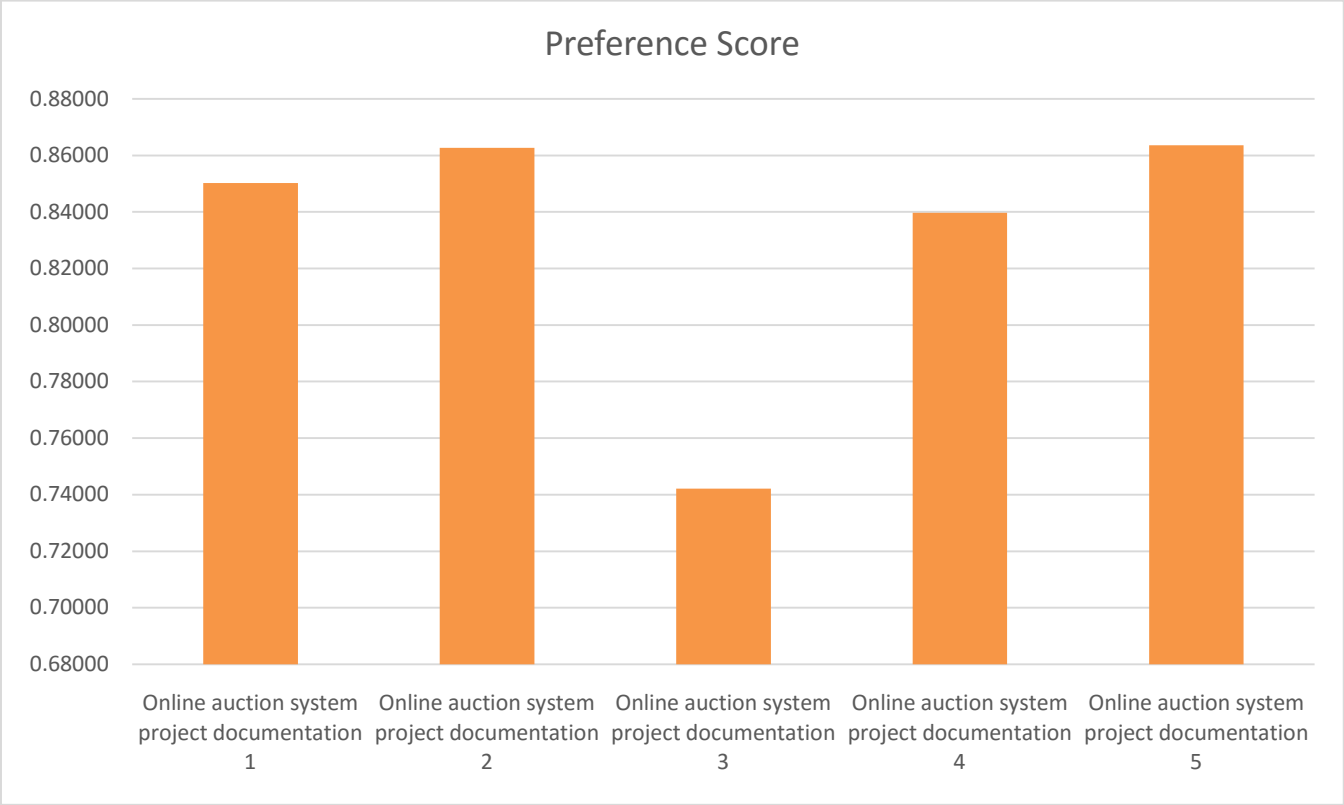
Table 5. Result of Final Preference score and Rank

	Preference Score	Rank
Online auction system project documentation 1	0.85019	3
Online auction system project documentation 2	0.86269	2
Online auction system project documentation 3	0.74217	5
Online auction system project documentation 4	0.83976	4
Online auction system project documentation 5	0.86356	1

Table 5 shows the Result of Final Preference score and Rank of WPM for Online auction system project documentation. Preference scoreOnline auction system project documentation 5is showing the highest value for preference score and Online auction system project documentation 3is showing the lowest value.



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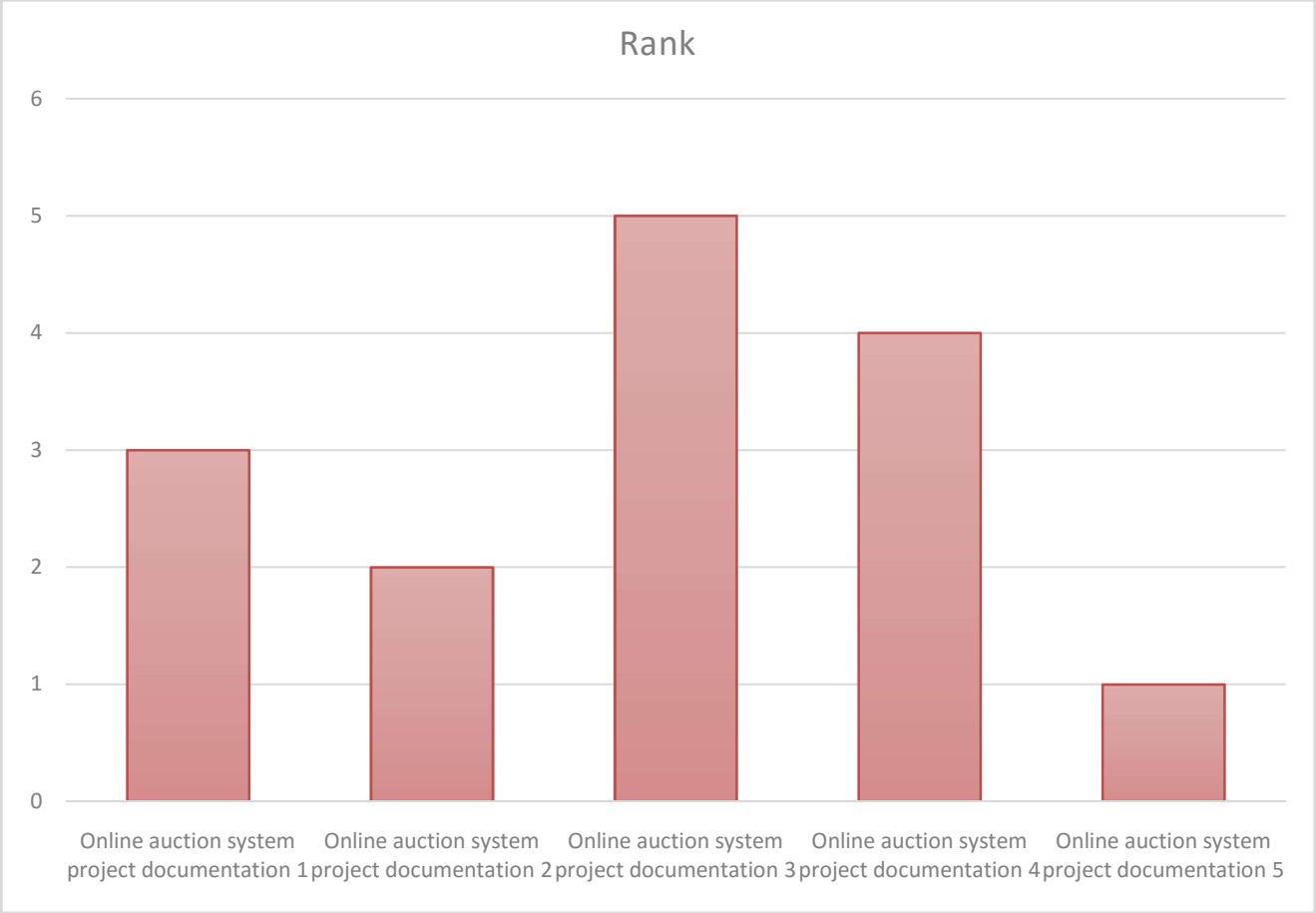

Figure 5. Shown the Rank

Figure 5 Shows the Ranking ofSolar Energy Exploitation. Online auction system project documentation 5 is got the first rank whereas is the Online auction system project documentation 3the Lowest rank.

4. Conclusion

Online auction system project documentation refers to the comprehensive collection of written materials, instructions, guidelines, and resources that outline the design, development, and operation of an online platform where goods or services can be auctioned off to potential buyers over the internet. This documentation is essential to guide developers, stakeholders, and users through the process of creating, understanding, and utilizing the online auction system. Key aspects and components covered in online auction system project documentation typically include: Introduction: An overview of the project, its objectives, and the scope of the online auction system. This section sets the context and explains the purpose of the documentation. System Architecture: A detailed description of the technical structure of the online auction platform, including databases, servers, APIs, and user interfaces. It outlines how different components interact to create a functional system.

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