

Important Elements in Designing the User Interface Advanced Features in Databases¹

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ABSTRACT

Introduction: Designing a database considering the user interface standards with advanced capabilities and features is a significant indicator of fast access to information required by users. It is a criterion for assessment in terms of applicability, usability, and technical concerns. This study aims to determine the key elements in the user interface, usability, and advanced features in the database.

Methods: The current research is an applied study. It has been performed by reviewing the literature and its data has been collected from reviewing the references and searching articles in sites and databases associated with the subject. Findings: The findings revealed that for usability, designing user interface in the database should be in the form of search engines, services, display components, user experience, guidance, and performance. Conclusion: Designers should pay attention to user interface standards, capabilities, and technical issues, as the mentioned components play a significant role in easing information routing, and users can simply meet their requirements in the shortest imaginable time. Actually, by fulfilling the standards, the amount of access to the essential information will significantly improve.

Keywords: Database, accessibility, user interface, evaluation

Introduction

In recent years, the number of Internet users has been increased rapidly. Special attention is paid to the user interfaces in building a web program or applications. The user interface defines the relations between individuals and the website or application. The user interface plays a key role and is a defining point that specifies whether people visit the database again. User interfaces are designed for machines, software, computers, home appliances, smartphones, and other electronic devices that focus on maximum use and user experience, or straightforwardly, user experience is the way your users feel about interrelating with your product and the user interface is how they interrelate with it. Generating a database without a good user interface cannot be successful. If you still have difficulty understanding the user interface, let's go into some examples of user interface design power. In the first place, this makes sense for your wallet. According to Invision, in 10 years, 10,000\$ invested in design-oriented companies was 228% more than invested in a similar one at S&P. This indicates that focusing on the user interface not only improves your customer experience but also makes you more gainful. Users in some databases do not reach the proper information because of the weakness of the user interface indicators. Hence, paying attention to the necessity and presence of elements and features in designs to use databases as efficiently as possible is

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considered essential. User interface efficiency plays a key role in the success of interactive communication, and the design and quality of a user interface directly influence the recovery of information. Thus, when all these criteria are observed in the designs, they improve the success of searches, better performance, and faster data recovery.

Recent research on the user interface has revealed that users are more tending to user interfaces that have pleasing and attractive graphic images. One design standard that user interface designers can learn from is that the website visitor must understand the logic of the page at a glance and know exactly what to do next. This is the minimalist attitude that creates balance in your design. A good user interface follows all the basic guidelines, design rules, and typographic standards. A great website breaks limits and is distinctive. These are the things that will make our website unforgettable. Just like ios and macOS operating systems, your product requires being intuitive and everyone who uses it needs to know everything. Whether you are designing a page for yourself or a client, the designer should know the end-user, and provide what the user is in search of. Regarding the significance of the current issue, it can be stated that the lack of attention to how the user interfaces in terms of functionality, usability, and advanced features of technical issues cause that despite the high cost of subscribing to these databases if the users fail to find the right information, they will be discouraged and dissatisfied with the database.

Methods

This research is of applied type. The method used in the research is reviewing the literature. The information is collected by studying references and searching for articles on related websites and databases. The fast growth of technology influences design trends every year. As a designer, you should always be familiar with present-day and future design trends. You should be continually learning, improving, and expanding your design skills to stay in the market. .

According to the research, experience, and observations I have had thus far, to examine the features of the components of the assessment criteria, these criteria were provided to three experts in this field, then their opinions were collected after the study, and modifications were made regarding these processes. I have reached eight design trends that you should pay special attention to in 2021.

Eight user interface design trends are:

Illustrations

Illustrations have been applied for a long time in the design of digital products. Their evolution has been very noteworthy in recent years. Using this product can draw attention to your product. Even by adding movement to these images, you can make them alive, as a result, they make you more attractive. Animations are one of the most operational ways to tell a strong story about your brand, product, or service.

Small interactive elements

They exist in almost every application or website. Every time you open your favorite application, you will see them. For instance, Facebook has diverse interactive elements that have specific functions, for example, the "Like" feature is a clear example of this. Sometimes we are not even aware of the presence of such a feature, as it is professionally and naturally combined in the user interface.

3D graphics

3D graphics are almost everywhere. In movies, video games, street advertising, etc., 3D graphics have been presented for several decades, and since then, have had significant improvements and progress. Mobile and web technology is growing quickly, and as a designer, it lets us generate amazing 3D capabilities in building and implementing web and mobile interfaces.

VR (virtual reality)

2019 has been a great year for VR. In recent years we have realized progress in VR headsets. We must bear in mind that the gaming industry often provides innovation and new technologies in the design of digital products. On the other hand, Sony and Microsoft released a new generation of consoles in the 2020 holiday season.

AR (augmented reality)

The world's top technology companies are financing millions of dollars to develop AR. UI design for AR was one of the key trends in 2020. Therefore as a designer, you should be excited to learn new tools and principles when doing experiments.

Neomorphism

Generally, Skeuomorphic design indicates elements of design that are designed in a realistic style and way to match real objects. Prominence, shadows, lighting are all very essential in this type of design. Neomorphism has inspired designers, worldwide. Neomorphism is likely to be the biggest UI design trend of 2021.

Asymmetric designs

We have realized a huge growth of asymmetric designs in digital product design, and in 2020 the trend of asymmetric designs was reinforced. Appropriate use of asymmetrical layouts added a lot of character and dynamism to our designs.

Storytelling

Stories are very essential in user interface design and digital product design in general. You may often see these stories on landing pages as an introduction to a new brand, product, or service. This can be achieved by using typography, images, quality photos, bold colors, animations, and interactive elements. Storytelling also makes your brand name last.

Findings

Findings revealed that to assess the usability of user interface design in the database, it was in the form of search engines, services, display components, user experience, guidance, and performance.

The five most essential elements in the search engine performance of databases are:

Reliability: This concept means that the tools in question provide the same results under the same conditions. So that if a search strategy is performed on the website and several results are displayed, by repeating the same search strategy several months or years later and limiting it to the primary search time, the same number of results should be displayed.

Speed of display: Paying attention to this feature causes rapidity in recovering information by database users. Different engines, such as the Alexa engine, display the speed of the database. The maximum time to access a text in a database should be 8 seconds.

Current results: It means that the websites should be available based on the updated schedule.

Accessibility: Any system may be down for a while and not accessible; websites should always be accessible. In other words, every time you go to the Internet, the anticipated websites can be searched and retrieved and users do not encounter any problems.

Simultaneous users: There should be a good result when there are limitations such as simultaneous users. Databases should always be accessible, and there should be no problem on certain days and hours for various reasons, such as large numbers of users or on holidays. Each system allows multiple users to use the system simultaneously.

Six imperative elements in user interface design services are:

1. Download options: The formats that are intended for download or download in the form of abstract, full text, or other matters are mentioned.
2. Importance of content: Bear in mind that the content of the site should be well optimized and up to date, it is obvious that the content does not just mean text, but in addition to text, it includes images, audio, video, posters, infographics, etc.
3. Print: Pages should be arranged in such a way that along with being responsive, they can be printed on any page. The user can easily print the templates and not encounter any issues.
4. The importance of users' connection with the website: This is one of the principles of the second generation of the web or the same Web 2.0, that interaction with the user and respect for him, respecting users' comments and displaying them in different parts of the site, responding to and following the requests of contacts, turning site members into a virtual community, and many other things that can be realized in the new generation of websites. Ask questions about the site or other topics and write a post

based on the same survey and give a general review. Even try to name a few comments in your post specifically and critique them. The user realizes that you value him and his opinion, so you get a steady visitor.

5. Support and technical care of the website: Always try to see yourself next to your audience. Presently, e-shoppers have less technical support services, and in this area, sites that show well their personnel's experience and power, while sending their technical service policies to customers, will be more successful.

6. Accordance with the needs of visitors: It is very crucial to optimize the site based on your visitors. Another mistake that many experienced designers make is that the site does not match the average audience. This is an issue that can only be obtained by using the experience and results of statisticians and analyzing them. For instance, monitor resolution, average Internet speed, browsers, and versions used are the items in which you can precisely have a website appropriate for your users.

The five most important elements of a database display are:

1. Complete and concise content: Content is a collection of information that is collected and deposited about a sort of entity from a source. It is likely to display content in both complete and concise forms.

2. Adjustment by field: It is possible in the database that diverse parts of the website can be displayed by the titles of the elements of different fields such as author's field, title, date, etc.

3. Number of likely records per page: The number of records per page on different sites is different. For instance, in one site the number of records is 50 and in another site, there are 20 records; but users can change the number of records, and achieve a certain record.

4. Abstracts: They are separated into two types: structural and non-structural. In terms of systematics, writing content has the same conditions. Yet, in some databases, other titles may be added to the abstract.

5. Limits in the number of citations: It refers to the capability to change the number of citations that are displayed on a search page.

6. Images and graphics: The size of images and graphic files should not be more than 25 KB. Concerning graphic formats, although there are hundreds of formats for graphic files, browsers only support a small number of them, which include GIF, PNG, and JPEG formats.

The 4 main elements in the user experience of the databases are:

1. Value creation: Is this product useful for the user?

2. Does it generate new value for the user against other competitors and similar products?

3. Creating value for the user can make the business a success. Many products have good usability but are not very successful in business. The question must be asked whether this product and design generates a new value for the user? Why should a user abandon the products on the market and use your product?

4. Usability: Do users succeed in satisfying their requirements?

5. For instance, the Motorola Rokr in 2005, was the first phone to connect to Apple's iTunes, and two years later, in 2007, the first generation of iPhone cellphones was introduced, which also removed the product. It was of great value to users. However, the account management system, categorization and access to music archives, and indeed the product usability were significantly weak.

6. Desirability and usefulness: Another element along with value creation and usability of the product, is the pleasure and attractiveness of using the product. One of the most successful products of the last decade is Apple's iPod, which has achieved great success because of its attractive and enjoyable product. One of the reasons is the fast and easy circle form for scrolling and faster access to all buttons.

7. Adaptability: Adaptability is the part that directly influences the installation, download, purchase, and order, and eventually the use of the product or service and has a very close association with the usability of the product.

8. For instance, when using some websites with a mobile browser, you are suggested to use the application version for better access, or on diverse devices, you will find a compatible and optimized version for the device.

The four most significant elements in a database assessment guide are:

1. Text help: Most search engines have a part called Search, which provides thorough information about search features, such as Boolean operators, limiters, and general search principles. Using these features, users can learn about the abilities of search engines.
2. In-site training factors: Diverse sections are designed to educate users. Documents, training programs, text files, help images, videos, or PowerPoint are designed to guide users with the potentials of search, retrieval, etc.
3. Understandability of error messages: It means that error messages are clear and understandable for users. In the face of it, descriptions about it and somewhere, for instance, the HELP section, meanings of error are mentioned.
4. Training: Suitable user guide, user compatibility, technical assistance, and support services should be available via e-mail, phone call, or describing frequently asked questions, and users can solve their problems with the help of the features provided in the system. There should be an archive of frequently asked questions by users.

Conclusion

In general, it can be stated that in the assessment criteria, to examine the elements and capabilities in the user interface of databases, the emergence of online tools has changed all aspects of databases, which saves time and costs in assessing databases. Altering the user interface design process from simple to advanced will result in the retrieval of more relevant items. The user interface should be advanced, but simple and understandable, and at the same time effective. If the user interface page is well designed, users can easily meet their requirements in the shortest likely time. In fact, by complying with the standards, the amount of access to the essential information will enhance significantly. Sufficient attention should be given to the cost of databases and elements such as a concise list of resources and content in the databases, attention to coherence and logical connection between information, use of meta-media techniques, page layout, as well as the type of users, credibility, being up-to-date, the scope, structure, and use of super tags, attention to the aesthetic principle, features such as security, privacy, correctness and precision, and other issues.

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