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# SOFTWARE PROJECT PROPOSAL REPORT

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By Qube Team

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# ABSTRACT

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Our Project is to create a full website about a small business selling different types of shoes (Men and Women), we will create a very special layout for the website.

Qube Team is a leading provider of websites for online store businesses. With a team of sophomore students boasting extensive knowledge in the field, we are well-placed to help our clients grow and thrive - even in challenging times. By really getting to know our customers, our talented team can offer unique and customized solutions backed by data-driven analysis and broad research.

As a team, we believe in building long-lasting client partnerships which help us all grow. Our main goal is to create unique websites that attract a bunch of users from all over the world.

# INTRODUCTION

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As the world headed to online shopping, especially after covid-19, most stores require having a website to increase their sales, so our client is an owner of a small business that sells shoes for men and women, who needs us to build a user-friendly website.

## Background

Nowadays website developers are challenged on implementing the website before the competitor can issue his website, therefore the satisfaction of the users of e-commerce websites decreased, as most of the developers do not consider some obstacles that meet the user, for example, according to the American Management Association Survey in 1997, slow response time, lack of user-friendliness, and poor website design [1].

## Problem Statement

As stated in the introduction many of the websites lack features that aid in making the user more eager to purchase, and more comfortable. Furthermore, the clients are sometimes distracted by the website's actions as the website does not give feedback for their actions.

Anyways, we are planning to design a website that minimizes the number of clicks and the user will reach the page he wants. This is by locating the important data in the most places the users usually search in when they first open the website, for instance, in the upper left corner of the page or the upper part of the page generally, also we will keep the least important information at the bottom of the page, so it does not distract the user. In addition, we will consider designing a website that responds to the user's interaction with the website.

## Motivation

The response of a website varies from one website to another. This problem often occurs when a website lacks the necessary code/backend and-or frontend development to provide the suitable information that is needed for the user.

There are multiple different, same at the core, ways that aid in tackling such problems, one of which could be using the "alert();" function in JavaScript to let the user know whenever an important action has been taken. Other solutions might exist like using the "React" framework that highly builds on JavaScript's existing code and enhances it.

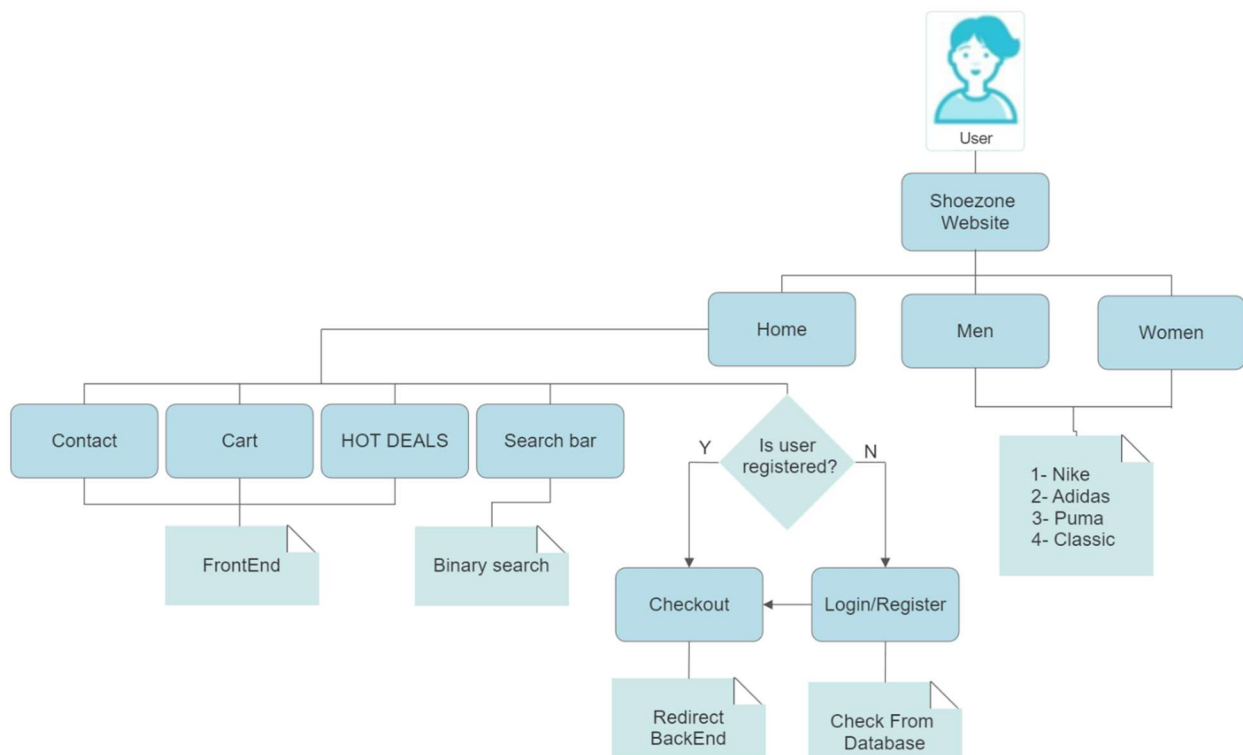
Possible improvements to current solutions could be like providing further upgrades to existing libraries and frameworks or creating special packages that are targeted toward solving such problems.

# PROJECT DESCRIPTION

This project is for designing a website for a small business that sells shoes for women and men.

Initial Requirements:

- Home Page.
- Login Page.
- Register Page.
- Men Shoes Page.
- Women Shoes Page.
- Items Page.
- Cart Page.
- Checkout & Payments Options Page.
- Contact Information Page



## Objectives

- Designing a user-friendly and easy-to-navigate website by May 2023
- Designing a website with a fast response time by the end of our design phase by May 2023.
- Writing an SRS document to be delivered by May 2023.
- Assigning the initial version of the testing document on the 13<sup>th</sup> of April.
- Assigning the initial version of the Software Design document on the 20<sup>th</sup> of April.

# Stakeholder

## Internal

Front end:

Abdelrahman Mohamed Barakat

Maeen Mohamed Sayed

Backend:

Omar Alaa El Nahass (Team Leader)

Omar Ashraf Elsayed

Roaa Mohamed Aboul Fotouh

## External

Client: Abdelrahman Gamal (The owner of the Shoe zone store)

End Users: The store clients

# SIMILAR SYSTEM

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## Academic

### Designing an E-commerce Site for Users

by Norbert J. Kubilus

#### Introduction

Usability considerations should be of prime importance in the design of an electronic commerce (e-commerce) website. While the number of e-commerce websites has increased rapidly over the last three years, the satisfaction of e-commerce users has generally decreased. This gap results from too little attention being paid to human factors that affect whether a website can be used easily, accurately, and without losing user interest. This paper discusses the role of user interface design in developing e-commerce websites and provides some guidelines for user interfaces.

#### Attracting the E-commerce User

In 1997, the American Management Association surveyed 3,500 of its members on the business use of the Internet and identified three human interface design issues among the top six obstacles to increased e-commerce: slow response time, lack of user-friendliness, and poor website design [1]. Two years later, Anders [2] reports these are still among the critical success factors for an e-commerce site. The primary factor in determining e-commerce user loyalty, according to Anders, is having a website that is "user-friendly and easy to navigate." The other leading success factors are good previous experience, fast response time, and relevant, frequently updated content.

The importance of human interface design in product selection was well established by the mid-1950s when Henry Dreyfuss, a leading industrial designer of his day, made the following observation, "If the point of contact between the product and the people becomes a point of friction, then the industrial designer has failed. If, on the other hand, people are made safer, more comfortable, more eager to purchase, more efficient -- or just plain happier -- the designer has succeeded" [3].

The prevalence of poor user interfaces is not a new, web-specific problem. It has existed since the first interactive computer systems emerged in the 1960s. The application of human factors to solve the problem has existed for nearly as long. Three decades ago, Hansen [4] defined four human factors principles for designing the computer-human interface:

- know the user.
- minimize memorization.
- optimize operations.
- engineer for errors.

In 1980, Schneiderman, a psychologist and computer scientist, added the need for usability testing that "confirms that an interface satisfies the user's requirements for simplicity, naturalness, or ease of use" [13].

Why have human factors seemingly taken a back seat in the design of e-commerce websites? The answer lies partly in the rapid growth of web-based applications in the last five years, as well as the rush to e-market. One of the challenges with e-commerce websites is the need to implement them rapidly before the next competitor can bring up its website. According to web guru Jakob Nielsen, "Usability rules the Web. If the customer can't find a product, then he or she will not buy it. The Web is the ultimate customer-empowering environment. He or she who clicks on the mouse gets to decide everything. It is so easy to go elsewhere; all the competitors in the world are but a mouse clicks away" [8].

Certainly, the success enjoyed by Amazon.com is due in part to being the first to get to market, but it also enjoyed a reputation for above-average usability. Nielsen, for example, singled it out as probably the best major e-commerce site in terms of usability as of late 1998 [9]. For every Amazon.com success story, however, there are thousands of start-up e-commerce companies founded and run by engineers and/or graphic designers who do not have a background in human interface design. It is not unusual to find a junior programmer or graphic artist deciding on and implementing a user interface change in the wee hours of the morning, often with an untoward impact on the website's users.

Maintaining control over the human interface design is fundamentally an organizational problem and management problem. One way of addressing this problem is to delineate roles and responsibilities for project team members. For example, individuals who design web pages should not be allowed to install or change them on the website physically. Formal interface reviews and change-control procedures are also effective controls. The latter includes maintaining a development website on which user interface changes can be prototyped, tested, and perfected before introducing changes to the production website.

Change control, however, is more than just having a development or staging site that is separate from the production site. It also involves maintaining a design document, or at the very least, a written set of user interface requirements. Any changes to the interface should be documented by the team responsible for designing the user interface and reviewed/approved by one or more people responsible for quality management. Finally, there should be formal processes for deploying new content into production.

Some people rationalize that usability testing is very costly and complex, and therefore cannot be justified. Nielsen has dispelled this myth by demonstrating that the best results come from testing no more than five users and running as many small tests as the organization can afford [7]. Repetitive testing is necessary as the human interface design is changed and refined.

The incremental cost and time for testing and other controls can be justified in terms of the quality cues that the website gives to prospective customers. Hoffman and Steenkamp [5] define quality cues as informational stimuli received by a customer before purchasing or consuming a product or service. Customers typically use quality cues in choosing between brands. With an e-commerce website, the first quality cues come from the human interface.



## Human Interface Design

Designing the human interface for an e-commerce website should focus on gaining the user's attention, orienting the user to the business that will be transacted, and retaining the user's attention. The goal is to achieve active participation by the user on the website. This requires understanding how to extend the human perception of the business transaction so that the computer, and thus the website itself, becomes virtually transparent. A widely held belief among experts in computer-human interaction is that the only good computer is invisible.

Rubinstein and Hersh [11] described three components of a user interface design for software user interfaces that are still relevant for discussing or evaluating e-commerce websites. First, there is the user's conceptual model that helps the user anticipate the effect of the input he/she provides to the website. The second component is the information presented by the website, which should be consistent with the user's conceptual model. Finally, there is the feedback provided by the website in response to user input.

### Conceptual Model

Cognitive psychologists such as Don Norman [10] tell us that the human mind processes new information based on observations and inferences -- that is, the person forms a conceptual or mental model. For example, almost everyone has a mental model of how a supermarket is organized that is created over time from various experiences. Walk into an unfamiliar supermarket, and one can make reasonable guesses about where to find the meat department, dairy case, courtesy desk, and check outstations. Specific details found in the supermarket such as aisle signs provide confirming information. In effect, the shopper parses a supermarket and uses the local information together with a conceptual model to navigate the store. So, it is with an e-commerce website.

The design of an e-commerce website incorporates activities, ideas, terminology, and relationships that the user must handle when using the website. According to Turkle, "the user knows enough to get involved with it [the website] at that level" [15]. The user develops an understanding of the website and its operation in terms of these things.

A conceptual model is a basis for user expectations. When a new user enters an e-commerce website, he/she quickly starts to build a conceptual model that relates the website to what he/she already knows. A user will perceive a website as easy to navigate, and thus user-friendly if he/she can easily construct a conceptual model of the website. If a website requires a complex conceptual model, the user sees the website as confusing or difficult to use. Mental models map the user's intentions to website features, thereby bridging what Norman [10] calls the gulf of execution. These models also close the gulf of evaluation by helping the user to interpret the results of his or her actions, as well as the state of the website.

The challenge for the website designer is to come up with a design model and a system image that are consistent with the user's model of the website. "Ideally, the user's model and the design model are equivalent," according to Norman. "However, the user and designer communicate only through the system itself: its physical appearance, its operation, the way it responds... The designer must ensure that everything about the product is consistent with and exemplifies the operation of the proper conceptual model" [10].

## Information Presentation

The fundamental question is how an e-commerce website presents information to a user in a way that promotes a comfortable and effective interaction between the user and the site. The website developer has a myriad of ways to present information from simple text to multimedia displays. Selection and use of text, graphics, video, and audio depending on how well users will respond to the information.

The look and feel of an e-commerce website should be based on user requirements. Page layout and navigation should be as intuitive and easy as possible. Skylar [14] recommends "designing for location" to help improve the overall information presentation and guide how the user will traverse a web page. As illustrated in Figure 1, he divides the page into five sectors and ranks them in order of importance. The most important information belongs in the middle of the page and the next most important across the top of the page. The least important information belongs in sector five in the left-hand margin. This is typically static information such as a menu or directory items that the user can choose to navigate the website.

2  
5 1 3  
4

Figure 1: Relative areas of web page importance [14]

Guiding the user's eye may also involve the use of an "attract feature" such as animation, stimulating video, or compelling graphics in sector two. As a function of normal reading habits, the user typically begins scanning or reading a page at the upper left-hand corner. Attract features should not interfere with the speed of the website. There seems to be general agreement that a user will leave an e-commerce website if it takes more than 8-10 seconds for information to download.

Audio and video used to attract users, or generated in response to user input should enhance the buyer's experience and not distract from it. Audio sequences and video display segments should be limited to 20-30 seconds. The user should be able to interrupt video, audio, animation, or other multimedia display. Furthermore, the overuse of images, audio, and video can increase the time in which a page downloads, which hurts usability.

Schneiderman [12], Skylar [14], and others agree that a flat hierarchy of information is important for a successful website design. The hierarchy of information should be apparent at a glance, so the user easily understands the information available on a page. He/she should easily recognize any selection points or navigation controls. The user should be able to obtain information at the top and second levels of the hierarchy of information by following the hierarchy for the entire website, following the hierarchy for a selected product group, bringing up an index, or performing a keyword for a search.

Finally, color choices should be pleasing to the eye and should stimulate the user's interest. Kubilus and Cole [6] provide specific recommendations concerning color selection. Barely discernible color contrasts such as yellow-green on the green should be avoided. Negative contrast should be used for flashing patterns--that is, flash a darker foreground on a brighter pattern. Avoid using colors in the yellow/red end of the color spectrum for page backgrounds or flashing patterns. Photoc stimulation response, a potential health risk for millions of people, occurs sooner and is more pronounced with red stimuli than with blue and green stimuli.

## Feedback

The interactive cycle between a user and a website is not complete until the website responds to a command entered by the user. According to Norman, "feedback--sending back to the user information about what action has been done, what result has been accomplished--is a well-known concept in the science of control and information theory. Imagine trying to talk to someone when you cannot even hear your voice, or trying to draw a picture with a pencil that leaves no mark: there would be no feedback" [10].

Website feedback often consists of a change in the visual or verbal information presented to the user. Simple examples include highlighting a selection made by the user or filling a field on a form based on a user's selection from a pull-down list. Another example is using the sound of a cash register to confirm that a product has been added to an electronic shopping cart. This last feedback feature can be found on Amazon.com, CyberRebates.com, WalMart.com, and other business-to-consumer (B2C) websites.

Completed orders should be acknowledged quickly. This may be done with an acknowledgment or fulfillment page. The amount of time it takes to generate and download this page, however, is a source of irritation for many e-commerce users. Users are quick to attribute meaning to events. A blank page, or what a user perceives to be "a long time" to receive an acknowledgment, may be interpreted as "there must be something wrong with the order." If generating an acknowledgment may take longer than what may be reasonably expected by the user.

Finally, feedback should not distract the user. Actions and reactions made by the website should be meaningful. Feedback should not draw the user's attention away from the important tasks of gathering information, selecting products, and placing orders.

## Conclusion

Successful e-commerce website development depends on achieving congruence between the user's conceptual model of the website itself and how the website delivers information and accepts orders in a non-threatening manner. The guidelines presented in this paper are a basis for developing user-oriented e-commerce websites.

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## Biography

Norbert J. Kubilus, CCP is an Assistant Professor of Computer Science at the College of New Jersey, where he teaches courses in systems development and database management systems. A graduate of Seton Hall University and Rensselaer Polytechnic Institute, he has over 25 years of software engineering experience in industry and education. He has delivered seminars on human interface design to student and professional groups for the last 15 years [1].

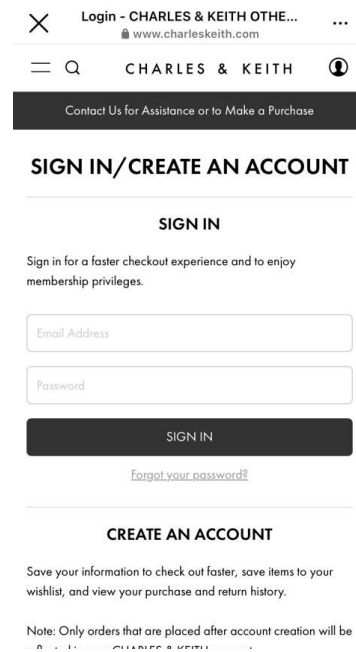
# Business Applications

This is an available shoe store website for Charles & Keith

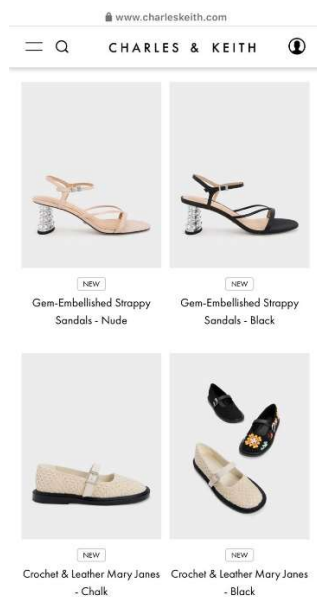
## Home Page



## Login Page



## Items Page



## Contact Information Page



# PROJECT MANAGEMENT AND DELIVERABLES

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## Deliverables

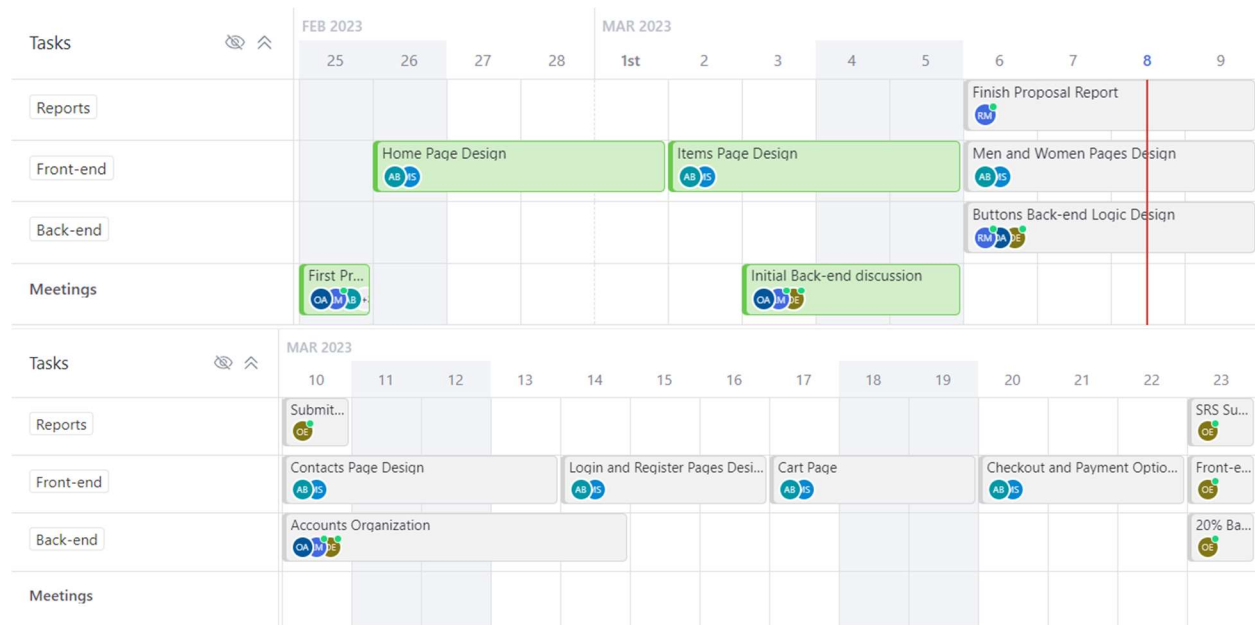
### 1. Website

- **Front-end:**  
The part that allows users to interact with your site. It includes everything from interaction design to visualizations and user interfaces so people can check out or easily find the information they need.
- **Back-end:**  
Comprises things like servers, databases, operating systems, APIs, and more, all of which come together to ensure that the user is served with the correct information as quickly as possible.

### 2. Project Documents

- **Proposal document:**  
Outlines everything stakeholders should know about a project, including the timeline, budget, objectives, and goals.
- **Software Requirements Specifications document (SRS):**  
Breaking down the problem offers design input considers components for feedback and include validation strategies and requirements ranked by importance.
- **Software Design Document (SDD):**  
A detailed plan for developing a piece of software outlines the finished software's functionality and the team's plans to build it (timeline, goals, etc.).
- **Testing document:**  
Describes the test coverage and execution process lists the essentials, quotes the basic terminology, etc.
- **User Guide document:**  
Assist users in using the website.

# Tasks and Time Plan



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