

# 2022

# HEURISTIC EVALUATION REPORT

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November 27, 2022

Ms. Jorgia Wooten

President

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1361 W. Wade Hampton Blvd.

Suite F, Box 3

Greer, SC 29650

Dear Ms. Wooten,

Attached is the report you requested early November on the evaluation of the Alarm Academy online training platform. This report will assist your organization in revising the legacy version of the platform to better suit the needs of your single service and business owner customers. In this report you will a detailed analysis, and our recommendations, for two major areas of concern that directly affect every user of the Alarm Academy platform, including one area that may pose a liability to certain business owner customers.

We strongly recommend using our software development department to complete this overhaul to allow the team who completed the analysis to also assist in performing the revisions. This will avoid any oversights and ensure every area is addressed to your satisfaction.

A member of our team has direct experience using Alarm Academy and is in frequent contact with family and co-workers who also use the platform. Many of our recommendations are based on direct experience from users who are familiar with our team member, and industry conventions.

Thank you for the opportunity to complete this evaluation of your organization's online platform, please feel free to contact us directly if you have any questions about the contents of this report.

Sincerely,

Raul J. Acosta

Carlos Ibanez

Marco Chaparro

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#### Alarm Association of Florida Should Remodel Alarm Academy

#### **Executive Summary**

Alarm Association of Florida would greatly benefit from remodeling the Alarm Academy online training platform. The legacy platform continues to service individuals and business owners who have purchased content prior to November 9, 2022. As it stands, the legacy platform is outdated in comparison to equivalent continuing education unit (CEU) platforms.

Equivalent platforms continue to adopt modern industry conventions in the function and design of their platforms while Alarm Academy suffers from major and minor usability flaws that affect all customers. The following are the general areas of concern that encompass all features that require revision, ordered from most concerning to least concerning:

- 1. Prone To Error
- 2. Lack of Convention
- 3. Lack of Documentation
- 4. Poor Aesthetic

Alarm Academy should address each of these four categories to catch up to equivalent platforms. The first two categories encompass major usability concerns that affect all users and are the highest priority when considering revision. The first category, "Prone to Error", contains details regarding the training voucher system that was found to be susceptible to intentional or unintentional misuse. As it stands, this feature poses a risk to customers who buy orders in bulk for employees of their business.

Addressing the second category will place Alarm Academy on even standing with competitors in terms of functionality. The third category fulfills the Alarm Association of Florida's goal to make Alarm Academy a hub of resources for those seeking to certify or recertify, but currently does not affect the usability for most customers. The fourth category encompasses cosmetic concerns that do not affect usability.

To overhaul the two major areas of concern, Alarm Association of Florida should:

- 1. Create a new training voucher system that gives business owners more control over who can purchase content. This may take a coordinated team effort over several days to accomplish.
- 2. Correct a multitude minor software code errors that may be repaired quickly.
- 3. Reference equivalent online training platforms to bring functionality and aesthetics of the Alarm Academy system to modern standards.

#### 1. Introduction

This report details the results of the heuristic evaluation of alarmacademy.org performed by our team. This evaluation was completed at the request of Alarm Association of Florida, who intends to release a revised version of the website that is in line with modern user expectations and industry standards. The organization has released an early build of Alarm Academy's revised version on November 9, 2022. This report will focus on the legacy version of the website still in use by most users who registered and purchased content prior to November 9, 2022. The purpose of this evaluation was to determine any usability issues preventing users from engaging with the product as intended, and to discuss the overall aesthetic of the website.

Our team consists of three computer science interns, one of whom has extensive experience as a user of the website in question, and as a customer of Alarm Association of Florida. This intern is in constant contact with other frequent users of alarmacademy.org and has been able to connect our team with three individuals who also provided their personal opinions and experiences with the website.

This report is structured starting with an introduction to, and purpose of, alarmacademy.org. The report proceeds with a discussion of methods, followed by a summary of observations. The issues observed are listed in order of importance, which is decided by the team depending on the evaluation conducted and input from the three real-world users. These issues are then rated on severity of the problem and the difficulty of repair. Afterward, the report will provide a more indepth analysis of the top two major findings, including evidence and the team's recommendations. These two major observations pose the greatest burden to the organization, because they require more resources to correct and greatly affect usability of the platform for customers. Some comparisons to modern products have been made as part of the thorough analysis. The report will conclude with the resources used to conduct the evaluation.





Alarm Academy is excited to announce that we have a new site and improved learner experience! If you have purchased a course prior to 11/9/2022, please click the button for LEGACY REGISTRATIONS where you have access to all your previous purchases.

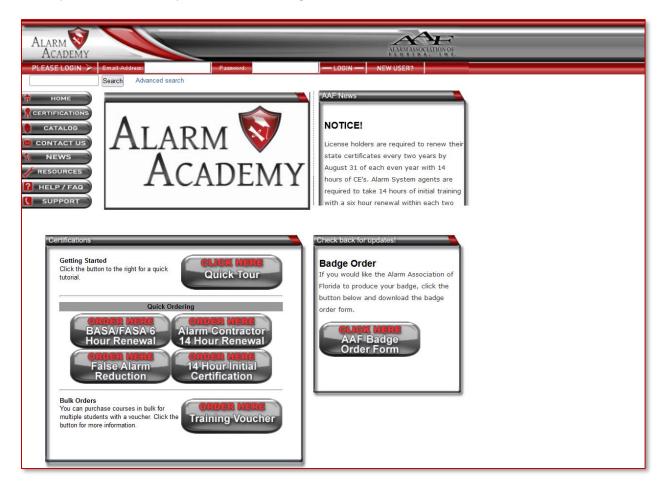
For all new course purchases, please click the NEW COURSE REGISTRATIONS button to be directed to our new learning management system.

Legacy Registrations

**New Course Registrations** 

#### 1.1. Website Description

The Alarm Association of Florida is a non-profit organization that assists users in becoming licensed or certified to do work on fire alarm systems in the state of Florida. They are authorized to offer courses, and certification exams through their online training platform, alarmacademy.org. Alarm Academy offers 9 products, ranging from 14-hour initial training to 6-hour renewals, retake exams, and a course on Florida laws regarding alarm maintenance. The organization also intends Alarm Academy to be a resource hub for all things concerning alarm maintenance and certification. This online platform is used by individuals for single service and businesses for bulk orders.



# 2. Discussion of Methods

The procedures used for the analysis of Alarm Academy are based on the heuristic evaluation usability method developed by Jakob Nielsen. In a heuristic evaluation, a few evaluators critique an interface based on conventional usability standards referred to as heuristics. Three evaluators were used instead of one because a solo evaluator will not be able to determine every single usability issue and, in short, different evaluators will have different observations, therefore the effectiveness of the evaluation is increased, according to Nielsen (1994), How to Conduct a Heuristic Evaluation. Research has shown there is typically little overlap in findings between different evaluators (Nielsen 1994).

The evaluators have tested the interface of Alarm Academy and referenced observations to a set of 10 different heuristics over the span of approximately 30 minutes, which is the average quantity of time necessary to provide a severity estimate of the issues, according to Nielsen (1994), Severity Ratings for Usability Problems. The 10 heuristics used are shown in Figure 1.

#### **HEURISTICS FOR UI DESIGN**

1	Keep Users Informed of System State		
2	System Familiarity to the User		
3	Ability of the User to Maintain Control of the System		
4	Internal and External Consistency		
5	Prevention of Errors		
6 Minimize User Memory Load			
7 Flexibility and Efficiency			
8	Aesthetic		
9	Error Recognition and Viable Solutions		
10	Availability of Information		

Figure 1: Heuristics for UI Design

### 2.1. Organization of Observations

The evaluators were able to narrow down issues observed to 4 categories of concern. After referencing the applicable heuristic to each category of observation, the evaluators determined a severity rating, as shown in Figure 2, to assist in estimating resources required to repair the issue as recommended by Nielsen (1994), Severity Ratings for Usability Problems. The evaluators also approximated a repair rating as shown in Figure 3. These ratings are later used to provide the team's recommendation on how to proceed with revisions of two major areas of concern.

#### **SEVERITY RATING**

0	Not a Usability Issue		
1	Cosmetic Issue: The concern is not visually pleasing but does not affect usability.		
2	Minor Usability Issue: Usability is slightly affected, and the repair is of low priority.		
3	Major Usability Issue: The concern often prevents users from using the service as		
	intended and should be repaired promptly.		
4	Catastrophic Usability Issue: The concern presents security risks or breaks the		
	product entirely, preventing business from being conducted with users.		

Figure 2: Severity Rating

#### **REPAIR RATING**

1	Easy to Repair: May be resolved by one staff member within part of a working day.
2	Moderate Repair: May require one or two staff members a full working day to
	implement a solution. Modification of the solution may be required over time.
3	Difficult to Repair: May require a coordinated team effort to implement a solution,
	along with testing and modifications as necessary, over several working days.
	Several iterations of solutions will be required over time.

Figure 3: Repair Rating

## 3. Summary of Observations

The team of evaluators, guided by the opinions and experiences of three separate real-world users, were able to narrow down 4 general categories of concern that encompass the issues observed in the heuristic evaluation. The issues shown in Figure 4 have been listed in order of importance, based on the severity of the concern. The list ranges from the most problematic category of issues, that pose either a security risk or break the online platform entirely, to the least problematic that encompasses mainly cosmetic issues that do not affect usability.

This report will proceed to thoroughly analyze the first two major categories, providing evidence that the issues exist, along with the team's professional recommendation that is tailored to modern user expectations and conventions, according to Nielsen (1994), 10 Usability Heuristics for User Interface Design. Severity and repair ratings are noted next to each category of issues to assist in approximating resources required, according to Nielsen (1994), Severity Ratings for Usability Problems.

NUMBER	SPECIFIC ISSUE	HEURISTIC	SEVERITY	REPAIR
			RATING	RATING
1	Prone to Error	5. Prevention of Errors	4	3
		7. Flexibility/Efficiency		
		9. Errors & Solutions		
2	Lack of Convention	1. Inform of System State	3	3
		2. Familiarity		
		3. Maintain Control		
		6. Minimize Memory		
3	Lack of Documentation	4. Consistency	1	1
		10. Access to Information		
4	Poor Aesthetic	2. Familiarity	1	3
		8. Aesthetic		

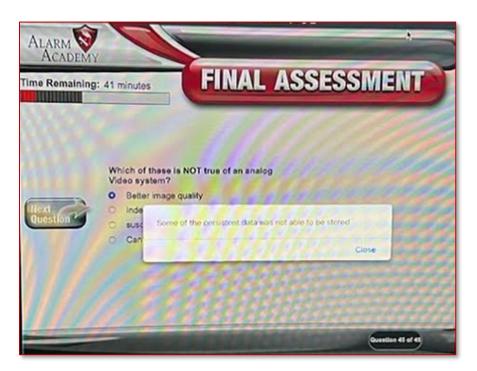
Figure 4: General Categories of Concern

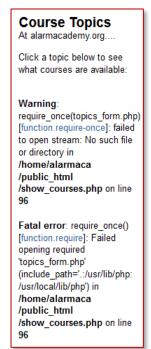
# 4. Categories of Concern

#### 4.1. Prone to Error

NUMBER	SPECIFIC ISSUE	HEURISTIC	SEVERITY	REPAIR
			RATING	RATING
1	Prone To Error	5. Prevention of Errors	4	3
		9. Errors & Solutions		

The team has received information from all three real-world users of Alarm Academy that the platform is prone to error. Brief interviews conducted with these three individuals resulted in a consensus that these users experienced errors when completing the certification exam and errors when attempting to visit certain parts of the website. The evaluators were able to replicate these errors during their individual tests of the platform. Sometimes, these errors have a major effect on usability, such as when a user is forced to repeat an exam to become certified. For example, the following error presented during an exam: "Some of the persistent data was not able to be stored".





This would have resulted in a severity rating of 3 for a major usability issue, but our team ran into a catastrophic usability issue when reviewing the training voucher system of Alarm Academy.

#### 4.1.1. Flawed Training Voucher

The training voucher is Alarm Academy's bulk ordering system for businesses. It basically operates like a gift card, in which a voucher is loaded with a set amount of money and users can make orders if they have the voucher's code. For every order, the cost of the course or exam is deducted from the total value of the voucher. All orders made with the voucher are permanent and non-refundable.



The team deducted that this poses a major security risk for the businesses that use this system, because there is no apparent restriction on use of the voucher. If a user knows the code, they can make orders until the voucher has been drained of funds. This could be unintentional, by accidentally adding two of the same course to the cart, which is possible because of the poor layout and confusing navigation of the platform. An updated price of 2 units of the same course does not become apparent until the user clicks on "Update Go".

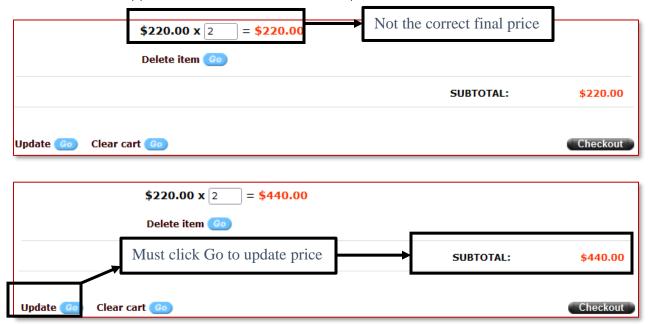


Figure 5: Out of Date Cart System

It could also be intentional if a user becomes aware of the system, by reading the training voucher page accessible by anyone, and decides to purchase extra courses or a retake exam. Presumably, a user may use the voucher even if they are not currently employed by the company. The only way to check the remaining funds is to contact Alarm Academy support.

#### 4.1.2. Recommendation

Some of these usability issues can be resolved quickly, such as certain links leading to error pages. Often these problems are caused by a missing element of code and is typically an oversight in part of the developer. The training voucher issues mentioned can be alleviated by reworking the cart system to industry standards which is covered in more detail in the Lack of Convention category of this report. The training voucher system should be entirely reworked into a smart system that restricts users appropriately or seeks the business owner's confirmation via e-mail prior to a purchase. Business owners should also be allowed to easily check the balance of a voucher. The information on the workings of training vouchers should be restricted to business owners and not openly available to all individuals. This category received a repair rating of 3 due to the coordinated team effort required to find a viable solution to the voucher system.



#### 4.2. Lack of Convention

NUMBER	SPECIFIC ISSUE	HEURISTIC	SEVERITY	REPAIR
			RATING	RATING
2	Lack of Convention	5. Prevention of Errors	3	3
		9. Errors & Solutions		

The Alarm Academy online platform often fails to follow internal consistency and external conventions. This reduces the user's ability to learn the system and forces the user to commit portions of the platform to memory, which in turn reduces usability (Budiu 2014). Certain users, such as those of older generations, may have difficulty navigating the platform because they lack the technological skills to find the often-hidden options. The United States is slowly experiencing an age-shift. More workplaces continue to hire older workers, meaning technology must be able to accommodate the reality that older generations struggle to adapt to inefficient and confusing layouts that do not follow typical industry conventions (Coughlin 1999).

#### 4.2.1. Catalog

This lack of consistency, and inefficient navigation is evidenced throughout the platform but is most notable in the catalog page. The platform currently elects to offer the user the ability to filter through courses immediately upon opening the catalog, instead of displaying the available courses on one page. This choice would make sense if the platform offered dozens or hundreds of courses, but they do not. Alarm Academy instead only offers 9 courses. This is further exacerbated by the fact that the buttons under "All Courses" in the image above do not look like conventional buttons. They also do not display tool tips when hovering over them. The user can click on a category to see the relevant courses, but some categories, such as "Florida Laws and Rules" only display one course.

Alarm Academy does in fact offer a more conventional view of available courses, where they are clearly listed on one page, but the user must first navigate the confusing catalog and select "# Full Course List", followed by clicking the blue "# Full Course List" on the next page.

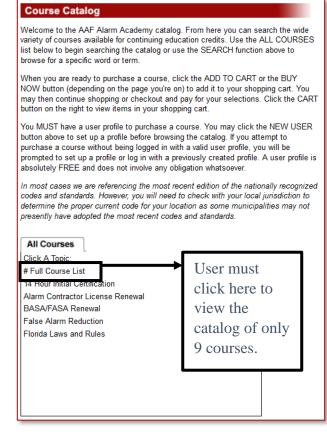


Figure 6: False Catalog

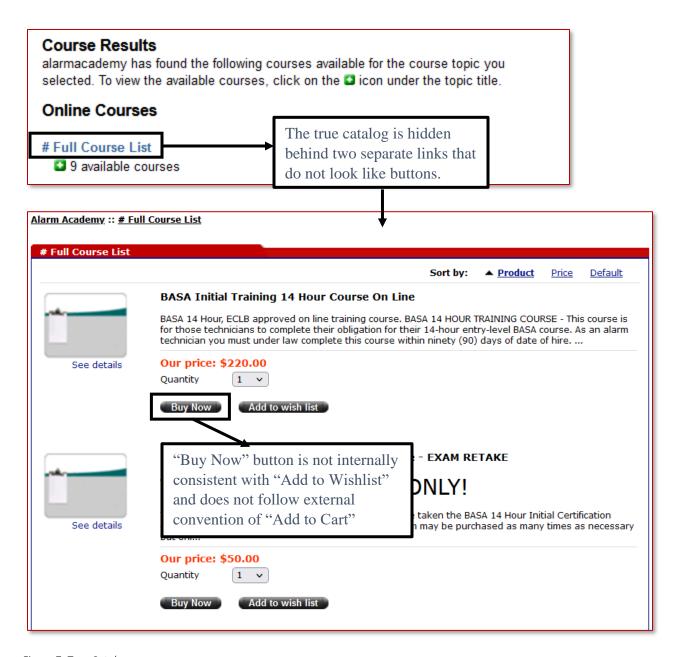


Figure 7: True Catalog

To add to the confusion, if the user wishes to go back to the previous page by click the "Alarm Academy" link, they are directed to a page stating there are no available products. Reducing the amount of exits available and reducing flexibility of the user to control outcomes in the system (Budiu 2014). The exit link is also not named appropriately and is not obvious to the user.

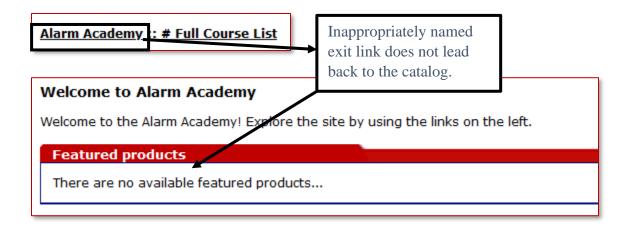


Figure 8: False Exit

#### 4.2.2. Order Management

A similar situation is found on the "Order Management" page. There is a change in name from "My Orders" to "Order Management" upon clicking the "My Orders" link at the top of the page. This may confuse some users, especially when they are initially greeted with another convoluted filter page.

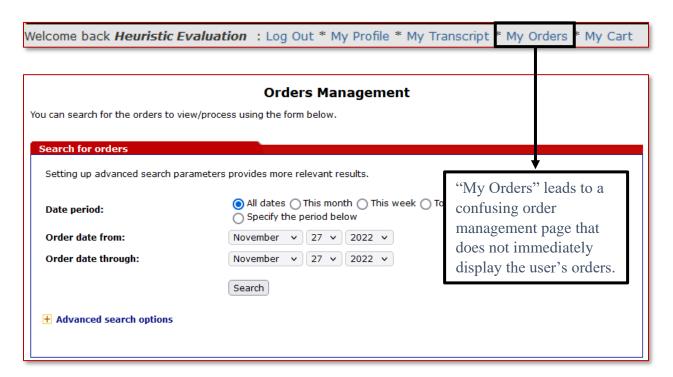


Figure 9: Convoluted Order Management

#### 4.2.3. Shopping Cart

When the user adds an item to the cart and is ready to make payment, they are met with a cluttered checkout screen. To make any changes to their cart the user has multiple redundant options that do not follow industry convention. The "Delete Item", "Update", and "Clear Cart" options have similar functions and are not clickable. Instead, the user must click the "Go" button next to the option.

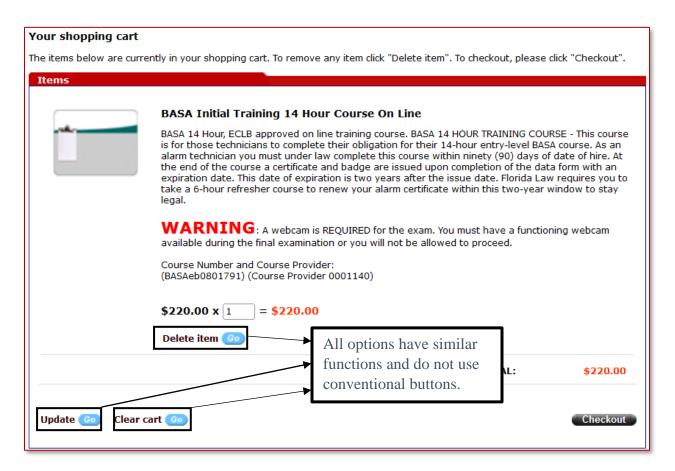


Figure 10: Redundant Options for Checkout

#### 4.2.4. Forgotten Passwords

Furthermore, the Alarm Academy platform fails to offer a conventional solution if the user forgets their password. This issue is especially difficult to overlook because the option to reset the user's password exists on an entirely different page that the user must find. When confronted with the failed login page, the user is given absolutely no indication on how to reset their password or find the page with the password reset link. The page exacerbates the issue by informing the user there is trouble because there is no record of the user existing.



Figure 11: Failed Login

The user must then find the password reset link, although it is likely they will not be aware that it exists and may instead call the company directly, or send an e-mail, which drastically slows down the user and adds to their frustration. If the user attempts to find the link, they must sort between similarly labeled buttons to find assistance, as evidenced below.



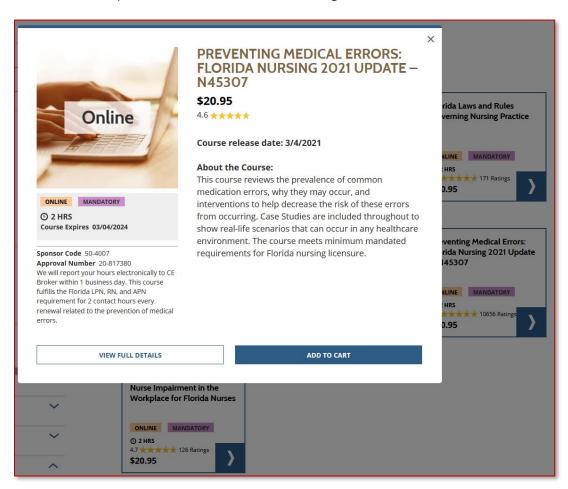
Figure 12: Hidden Password Reset

#### 4.2.5. Recommendation

The Alarm Association of Florida should follow industry standards when revising the above-mentioned components of the Alarm Academy platform. The platform should also maintain a standard of internal consistency when naming buttons and choosing button designs to avoid confusing the user with buttons that have similar functionality, names, and mismatched color schemes. Similar continuing education unit (CEU) platforms such as Elite Learning and CEUfast offer great examples of modern industry standards that the Alarm Academy platform may reference.

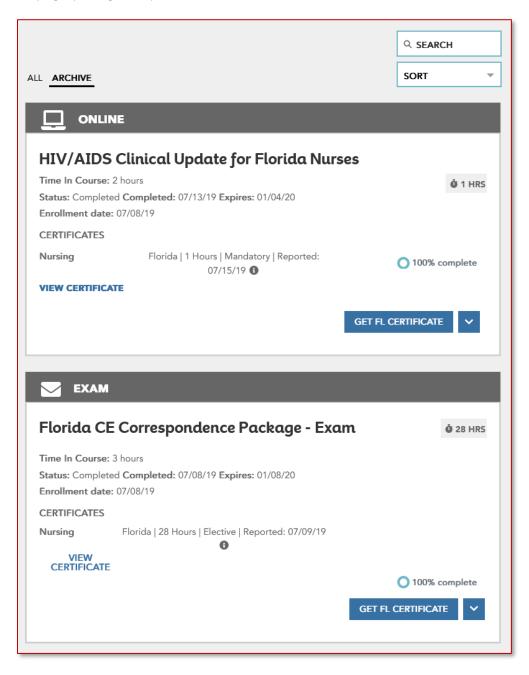
#### 4.2.5.1. Catalog Page

It is common on e-commerce platforms that offer certification courses to list all courses neatly on one page. This page is also immediately accessible upon clicking the appropriate option. Alarm Academy has a similar page, but it is hidden behind obscure links. The filter page that appears when clicking on "Catalog" should be removed and replaced with the page that lists all relevant courses, especially since there is no need to filter only 9 available items. The "Buy Now" button should be changed to the industry standard "Add to Cart". The course description should also be easy to read. An example of these recommendations is given below.



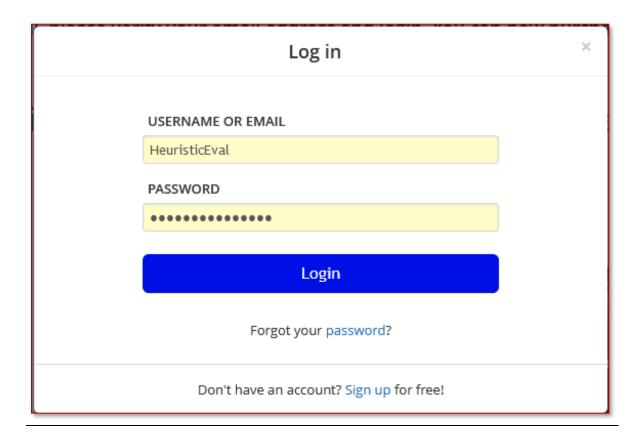
#### 4.2.5.2. Orders Page

If a user would like to review their orders, they are once again faced with a convoluted filter page. The "My Orders" button should direct users to immediately review all orders placed on the platform. If the user has need to filter through their orders, these options should be available through a drop-down menu or in the general vicinity of the orders they are viewing. Conventional online training platforms use a minimalistic design in pages that contain a lot of information such as an orders page (Wong 2020).



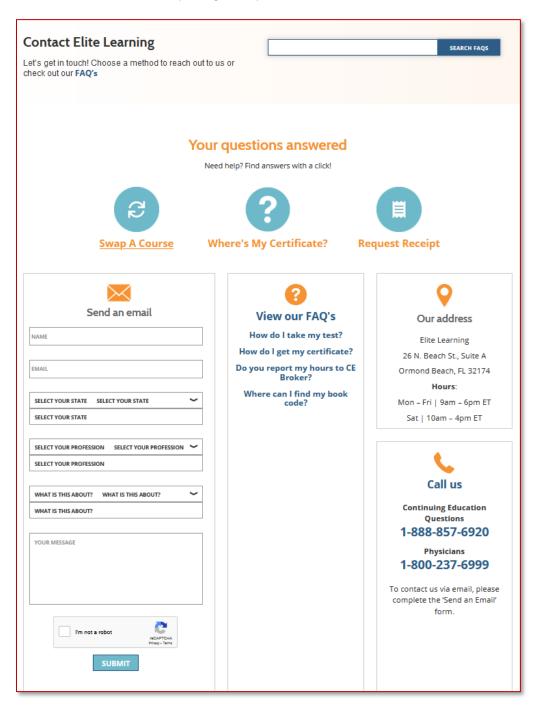
#### 4.2.5.3. Account Information Recovery

The Alarm Academy platform should give the user a direct link to reset their username and password on the login screen. The user should not have to guess incorrectly, and risk locking themselves out of their account due to incorrect guesses, before being given an option to reset their password. Often users will choose to change their password due to security reasons, even if they have not forgotten their information. The option to reset the password should remain under "Support" and added to the login and failed login screens, as is industry standard.



#### 4.2.5.4. Support

The platform should also combine the "Help/FAQ", "Resources", and "Support" pages into one single Support page to avoid causing further frustration in a user who is having difficulty using the platform. Any features relevant to assisting the user with usability issues, account information, or product information should be included in the combined support page. This is very common among modern online businesses (Wong 2020).



## 5. Summary

The Alarm Academy platform is visually and functionally outdated. Overall, the website suffers from resolution issues, but this is mainly a cosmetic issue. After consideration, the team decided issues affecting customer usability of the platform take greater precedence over cosmetic issues. The Alarm Association of Florida would greatly benefit from revising four main categories of concern, namely:

- 1. Prone to Error
- 2. Lack of Convention
- 3. Lack of Documentation
- 4. Poor Aesthetic

The first two categories are major concerns that affect all users of the platform. This is essential to correct because the Alarm Academy platform is falling behind its industry competitors who use modern usability conventions. Due to the first 2 categories, Alarm Academy may lose the business of customers, while the last two categories are minor concerns that do not affect most users and are of low priority although they remain important areas for revision.

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