NORTHWEST NAZARENE UNIVERSITY

Natsullythreads E-Commerce Website

THESIS
Submitted to the Department of Mathematics and Computer Science
in partial fulfillment of the requirements
for the degree of
BACHELOR OF ARTS

Natalie Ann Sullivan
2022

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Abstract

Building and designing a full-functioning e-commerce website for the small business Natsullythreads.

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Natsullythreads is a custom embroidery business that needs a website to keep track of shirt color, size, design, payment, shipping details, and more. WordPress is the leading web publishing platform, and the Divi Builder is used to construct the web pages in a drag and drop manner. WordPress uses PHP as the programming language and MySQL as the database that stores data. HTML, CSS, and JavaScript programming languages assist in further customizing the web pages. The site itself is built to coincide with the brand's colors, logo, and typography and be visually appealing to the viewer.

As well as providing simple and direct communication between the buyers and the seller, the website allows for an easy way for the owner to oversee the orders. It is a place to track customers' demographics and analyze their behavior. Shoppers are given the opportunity to customize their products easily. The website acts as a buffer for a seamless transition from purchase, to creation, to receiving the finished product.

Acknowledgments

I would first like to thank my parents for supporting me throughout college and always pushing me to step outside of my comfort zone and never sell myself short. To Professor Mike Bartlett and Dr. McCarty for introducing me to the web design and development world that ultimately led me to this project. To all of my friends, family, and customers who have supported or purchased from my small business. Lastly, I would like to thank my professor, Dr. Myers, for being encouraging and helpful from the first day I stepped on campus.

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Introduction

Project Background

Natsullythreads is a custom embroidery business created in April 2020 by Natalie Sullivan. The company first came to fruition when the owner picked up a new hobby during quarantine. Hand embroidering hoops turned into designing shirts which eventually turned into gifts for friends and family. People loved the shirts and designs so much that Natalie decided to create an Instagram page where the shirts could be sold. On the first day of social media selling, over thirty-five messages from people interested in buying were received. Everything ran through Instagram for the first six months of business. Shirt color, size, design, placement, payment, shipping details, and more were all tracked via excel spreadsheets and direct messages. As the business grew and there were more orders to maintain, it became apparent that a website would be necessary to keep track of orders, shipping, payments, and customer information.

Project Objectives

The overall goal of this project is to create a full-functioning e-commerce website that the small business, Natsullythreads, will use to operate from. Up until this point, the business is running through Instagram, where customers have been placing orders through direct messaging. Keeping track of size, design, color, and items this way is very cumbersome. To solve this problem, a website will be helpful to automatically keep track of payments and shipping information as they process in real-time. It also will track what items are in stock and easily allow changes to be made. In the end, it will greatly decrease

the amount of time spent tracking these necessary items and will enable the owner to focus on the creation side of the business.

In order to create this website, Bluehost will be used as the primary hosting service and WordPress as the web publishing software. WordPress uses PHP as the programming language and MySQL as the database that stores data within the site, which is easily accessible and editable if needed. To construct the web pages, the Divi Builder will be used. Divi uses a drag and drop method to build the site content. HTML, CSS, and JavaScript can be used to further customize the pages.

One of the main goals of the project is to create a visually appealing and attractive site. Not only will customers be buying the products, but they will be buying into the brand. Because of this, it is imperative that the website is visually cohesive and engaging. A vital part of creating the website is to focus on the logo, typography, and color palette of the brand. All these elements will aid in increasing sales, making things easier for the owner, and progressing and growing the business.

<center>**Implementation**</center>

Bluehost

       The first step in creating a website is to obtain and decide on a domain name that best describes the contents of the site. natsullythreads.com was the chosen domain name as this is what the business was called on Instagram, where it previously sold through and is easily recognizable. There are many different web hosting providers out there and choosing the right one can be difficult. For this project, Bluehost was selected as the web hosting provider. Bluehost has proven to have an easy and simple setup, especially for beginners. Along with that, Bluehost offers a free domain name for a year, a free SSL certificate, and 24/7 customer support. The affordable pricing of Bluehost made it the ideal choice for a smaller e-commerce site.

WordPress

       Once obtaining the domain from Bluehost, WordPress was selected as the content management system (CMS) that the site would be created on. WordPress is one of the biggest open-source CMS, powering more than one-third of all websites (Jackson, 2022). When compared to other CMS, such as Wix or Squarespace, WordPress ended up having the greatest amount of flexibility for designing and is user-friendly. Unlike any other system, WordPress utilizes plugins allowing for completely customizable pages. The designing, coding, and backend development can all be done within the platform. Along with this, WordPress is great for those just starting out in the web development world.

Divi Theme

The final setup of the website, before the design and development process begins, is choosing the WordPress theme that will be used to build the pages themselves. WordPress theme is a tool that allows the user to construct, edit, and change the layout of a website. With these, photos, typography, color, and design elements can all be edited. With over 31,000 themes to choose from, figuring out which theme best suits the site is important (Fitzgerald, 2022). For Natsullythreads, it was necessary that the theme offered flexibility and free-range layout design. The Divi Theme seemed to be the best option for the requirements of the website. The Divi Theme uses the Divi Builder to allow the user to drag and drop elements into the page. Things like text, images, forms, and more can easily be added. The Divi Builder makes it easy to customize the website to the brand's colors, logo, and typefaces. Once the site itself is set up, the brand identity is created.

Brand Identity

While the behind-the-scenes setup is important, the brand identity is what attracts the customers. Brand identity is more than just a logo. It is brand awareness and how customers perceive the brand. Creating a successful brand story is arguably the most important part of starting a business. Without an attractive and authentic brand, customers will not give it a chance. The logo, color palette, typography, and other design elements cohesively bring the brand to life.

Natsullythreads went through a variety of logos and color palettes before finding the perfect package. The very first logo ever created was used as a profile picture on Instagram. It first started in black and white, and then color was added shortly after.

Figure 01 shows the black and white, first-ever logo. This logo had no dimensionality, was not very memorable and did not catch the attention of the viewer. Figure 02 shows the colored version, with a few small changes to the design. The colored version was crowded, depended too much on color, and was too complex. All in all, the first logos broke most design rules.

Figure 1. First Logo

Figure 2. Colored First Logo

The next logo created was used in the first rendition of the website, mockups, and was the face of the brand before the complete brand redesign took place. This logo offered simplicity and contrast between the weight of the typeface and outer rings, the embroidery hoop. However, it still was not memorable and was not an eye-catching design.

Figure 3. Second Logo

When the decision was made to create the website, a full brand redesign was also in place. Not only would the logo be refreshed, but a color palette, design elements, and typefaces would be set in place as well. At this point, Natsullythreads did not have any steady branding material. The first step was to come up with a color palette that fit the personality of the brand. Because the brand has handmade, customizable products, it was important to the creator that the colors would be neutral and earthy. Figure 04 shows the full-color palette. The primary color is dark green, with lavender purple being the accent color. The pepper and cream colors are used in the background.

#b1b6bc   #37483b   #ecefeb   #333430

Figure 4. Color Palette

Once the color palette was established, creating the logo was a critical step. Having failed at the previous two logos, a more original and hand-crafted look would fit the brand better. Figure 05 displays the final logo. This logo still utilizes the circle form, while the typeface variety is what makes the logo stand out. The hand-drawn, thicker font of "threads" is contrasted with the thin, light, and airy font of "NATSULLY." The design element in the upper right-hand corner offers a natural, earthy feel to the logo. The logo can be used in any of the colors/combinations within the palette, depending on what it may be needed for. Along with the main logo, there are also other variations that are necessary for the website, as well as different platforms. Figure 06 shows the other variation for the logo. Like the original, it has a contrast between the first font and the second, with the second utilizing the hand-drawn look. This logo is to be used for simple and smaller needs.

Figure 5. Natsullythreads Logo

Figure 6. Logo Variation

The typography that will be used on the website also must be established in the brand identity. The header font, which is very similar to the font used in the logo, is called Source Sans Pro Light. The body font is Abhaya Libre. Figure 07 shows these two fonts, with Source Sans Pro Light on the top.

Figure 7. Typography

Finally, the design elements are what bring uniqueness to the brand. Because Natsullythreads's products are one-of-a-kind, it was important to add small touches here and there that display the individuality of the brand. Although simple, the design elements are to be a small addition to any image, post, or page, they are not meant to stand out. Figure 08 displays a few examples of what the design elements may look like. All represent one-line drawings of flowers and are in a unique style that can only be found through Natsullythreads. One can find these elements placed subtlety throughout the website itself.
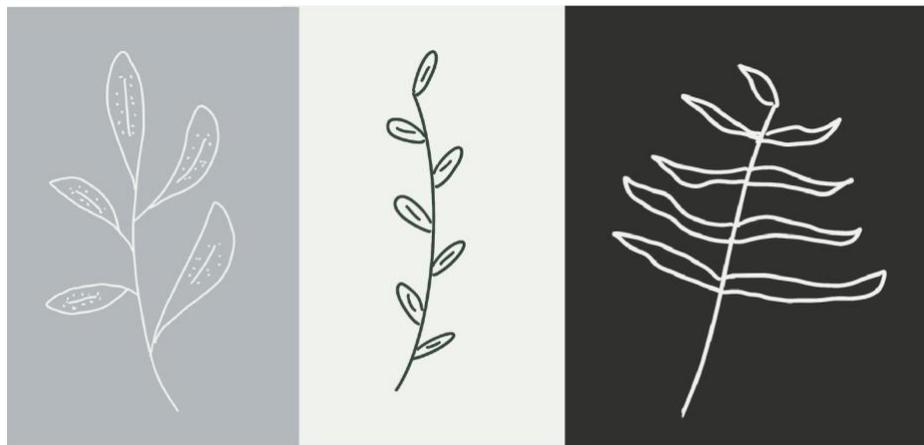

Figure 8. Design Elements

Wireframe Sketches

      With the website set up complete and the brand identity in place, the website building process itself could begin. Starting small, the first step was to create wireframe sketches which are hand-drawn drawings of what the website itself will look like. These sketches are bound to change multiple times, especially as the pages themselves are built. The sketches help outline the flow of the website. In this case, the text, images, and elements are not as important. Rather get an idea of what pages there will be, and what each page will be about. Deciding what should be on the website is a critical step in the whole process. Figure 09 displays the first-ever wireframe sketches. These sketches continued to be improved upon until the final sketches were used to start building the site.
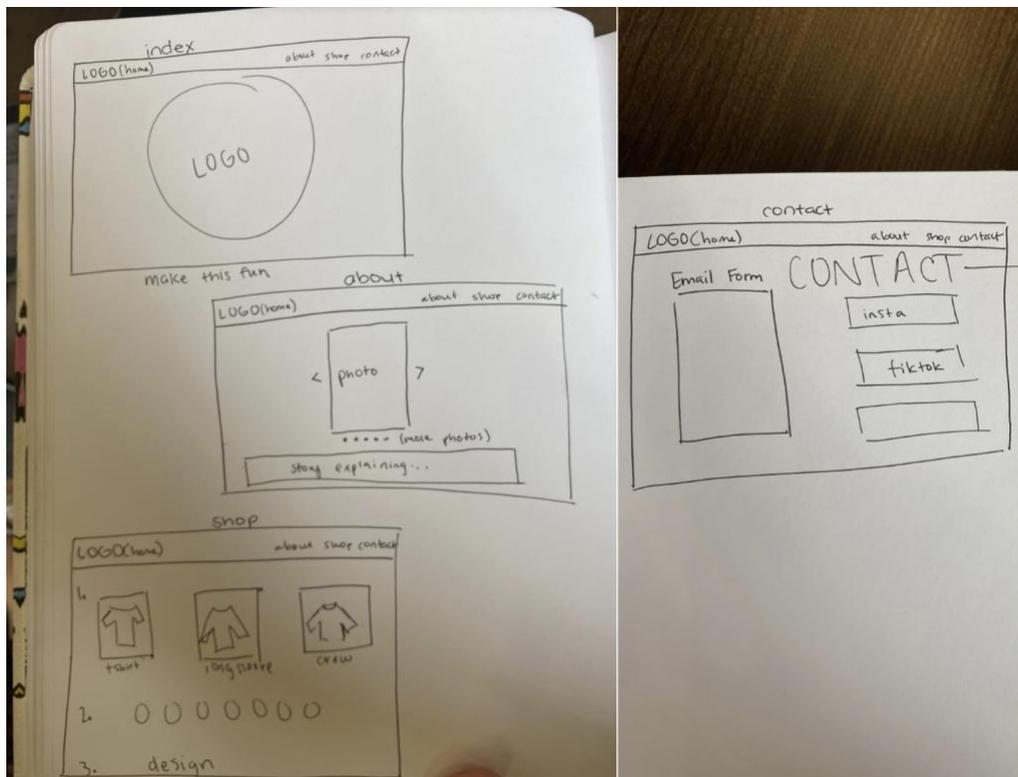

Figure 9. Wireframe Sketches

Development

   The completed wireframes make building the website fairly straightforward. The first step is creating each web page that will be involved in the website. WordPress seamlessly allows the creator to customize the color palette and typography. This way, when adding background colors and text, it is simple to choose the defaults that were set in place, rather than having to enter the hex code or search through the list of fonts every time. The logo and favicon (icon image associated with the URL) can also be added (Kang, n.d.). Once the pages are made and the defaults are set, the header and footer that are created will be universally added to each page. Figure 10 displays the header in which the Divi Theme Builder has a variety of options that allow customization. Figure 11 shows the footer, which is designed through a simple text section. Both the header and footer are placed on each page of the website to create consistency.
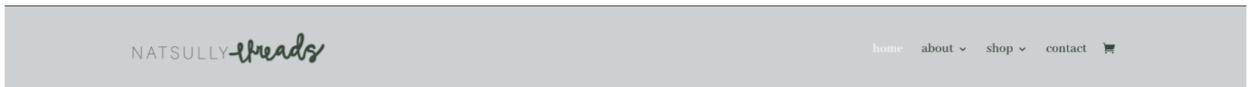

Figure 10. Header

Figure 11. Footer

The Divi Builder allows each page to be fully customizable, meaning that the creator can edit each page with HTML and CSS. Figure 12 shows some of the code that was applied universally, meaning to all pages, which will modify the header and background color of all pages.

```css
header .container {
    max-width: 100%!important;
}

#main-content {
  background-color: #ecefeb;
}

/*take out background overlay*/
.et_slide_menu_top {
background: none;
}

/*take out background opacity*/
.et_header_style_fullscreen
.et_slide_in_menu_container.et_
pb_fullscreen_menu_opened {
opacity: 1;
}
```

Figure 12. Modifying Code

From here, the creation of each individual page begins. Going back and forth between the sketches and WordPress, the process is fairly simple as the designs are already thought through. This includes adding and editing different sections and rows which contain images, text, and other information. Adjusting the spacing and sizing of each element is a tedious yet important part of each page, ensuring that everything fits together. Allowing for enough space between each element on the page is also necessary

so that the user does not get overwhelmed. Each page can be seen as a story that the user

goes through, so it is important to develop it. Figure 13 is an example of just one of the

sections on the homepage of the website. Just in this one section, there is a row, columns,

text, images, a button, and design elements. Each section and page are created exactly

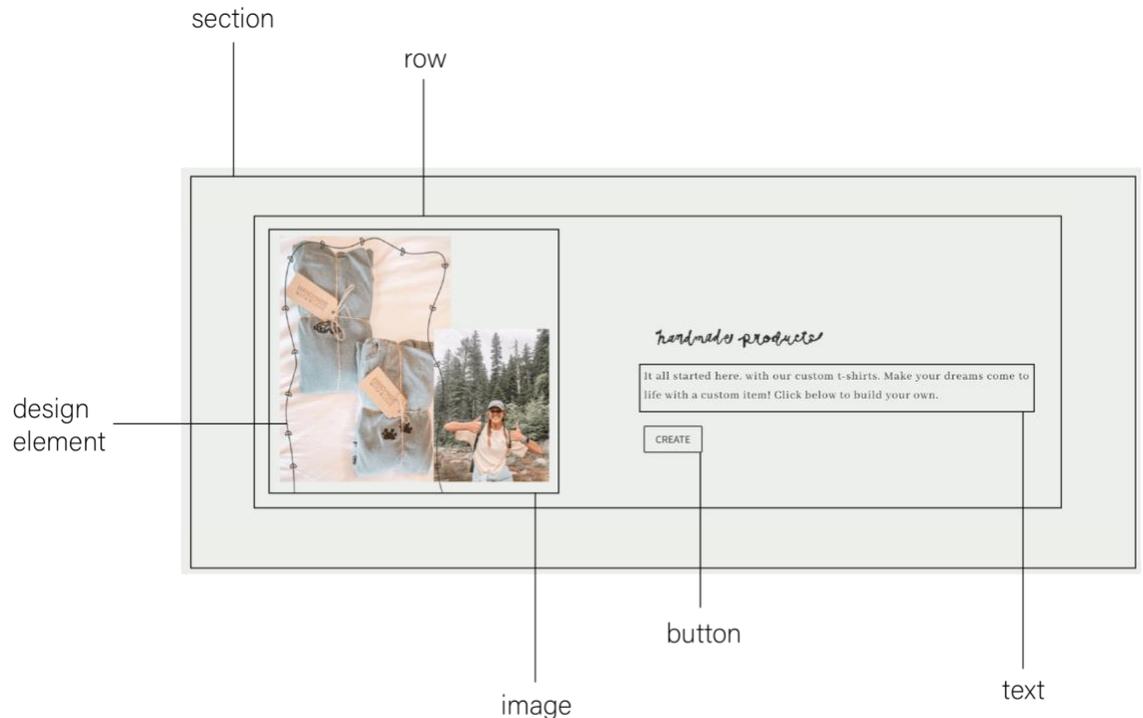like this one, with careful attention to each part.

Figure 13. Homepage Section

Scaling for Mobile/Tablet

After the creation and development of the website and all pages are complete, the

website must be scaled for tablet and mobile since it was built on a computer, and pages

look different on each screen size. WordPress and the Divi Theme allow for each section

and row to be scaled with little help from the developer. However, there are times when

two sections may overlap, and 50px of space will need to be added between the two on

tablet and 30px of space on mobile. This process includes viewing each page on different

screen sizes and adjusting as needed. This can be a very tedious task and involves a lot of

back and forth. There were a few situations where the adjustments needed to be added to

every page. In this case, the code was added to the universal/additional CSS section so

that it could override every page. Figure 14 displays some of the code used for different

screen sizes.

```css
@media only screen and (max-
width: 980px) {
  .three-columns .et_pb_column
{

  width: 33%!important;
  } }

@media only screen and (max-
width: 980px) {
  .tree-column .et_pb_column {

  width: 30%!important;
  } }

.et_pb_slide_description {
text-shadow:none !important;
}
```

Figure 14. Scaling Code

WooCommerce

The final process in the creation of the website is making it customer friendly. In

order to do this, a simple plugin, called WooCommerce, is installed. WooCommerce is an

open-source WordPress plugin that allows a website to become a store. This plugin is

extremely compatible with the Divi Theme and allows the creator to easily add products,

handle shipping and orders. When an order is placed, all of the information that the customer entered is stored in a database created through WooCommerce. It automatically collects payment, order details, and addresses for shipping. From there, the owner is able to print off invoices, message the buyer, and create shipping labels. When a customer places an order, they will also receive an email with information regarding their order and shipping information. The product inventory is automatically updated as customers place an order. WooCommerce also easily connects to a bank account and allows for seamless and safe payment transactions between customers and seller. The database for the store and website can be accessed, but it is recommended that it be left alone, as WordPress handles everything for security reasons.

Additional Plugins

There are more than 50,000 WordPress plugins available to help customize and improve sites. WooCommerce is one of many plugins that were utilized during this project. Along with WooCommerce, the other plugins installed to improve the website's usability were: WooCommerce Stripe Gateway, WooCommerce Shipping & Tax, WooCommerce Product Add-Ons Ultimate, and WooCommerce Payments. The Smash Balloon Instagram Feed plugin was used to connect the website to Natsullythread's Instagram page and display the posts. Another plugin used was the Really Simple SSL, which allows for a safe and secure connection between the site and the customer.

<center>**Challenges**</center>

The greatest challenge faced during this process was ensuring that the site is secure. Because there are credit cards and personal information being shared, the security of the site is critical. Once the site was complete and ready to be launched, it was displaying 'not secure' in the URL. After doing research, the Really Simple SSL plugin was installed.

SSL stands for Secure Sockets Layer and is an internet protocol that makes sure data transfer is secure on a site. The HTTPS protocol, rather than HTTP, uses SSL to encrypt the HTTP requests and responses (Balkhi, 2021). It is clear that the website needed to be secure and that would be done by using the HTTPS protocol. Any website that is going to use this will require an SSL certificate. Deciding and figuring out which certificate would be best for this specific e-commerce site was a challenge. Although the certificate can be expensive, it was necessary to complete the site. Enabling the Free SSL Certificate on Bluehost was the first step, and then downloading the Really Simple SSL plugin allowed for the site to be secure. It is vital to make sure that the certificate is always up to date and does not crash. Figure 15 displays the secure connection in the address bar.
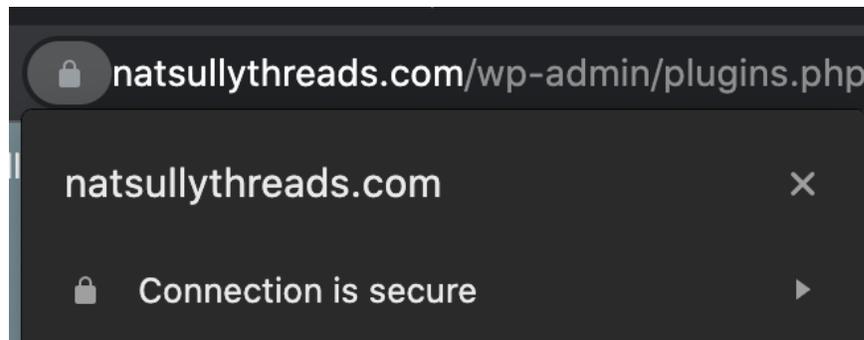

<center>*Figure 15. natsullythreads.com Secure*</center>

Another difficult part of this project was getting the website ready to sell products. In order to do so, it is necessary to register the business as a limited liability company (LLC), obtain an assumed business name (ABN), and get a seller's permit in Idaho. A business debit card and taxpayer identification number will also be needed in order to set up a working e-commerce website. Figuring out which steps needed to be taken and how to do them took some time. Having no guidance or direction on how to do this made it difficult to get started. Once all of this was in place, it was possible to use WooCommerce to create the store.

Future Work

There are several areas in which the website itself could improve. The next step would be to implement Search Engine Optimization (SEO), which helps improve the website's position in the search results pages. SEO can be done by adding keywords in blog posts, descriptions, and the homepage that one may use to search for a certain product. Incorporating SEO would drive more traffic to the website leading to new customers and more sales.

Creating a space for customer profiles would be another goal for the company and website in the future. This would open up many opportunities regarding marketing, email campaigns, private discounts, product offers, and more. It would also allow the owner to see who the loyal customers are and reward them.

Once the website is completed, the job does not stop there. There are necessary site updates that need to happen daily, weekly, and monthly. While WordPress usually handles these on its own, there are times when updates will need to be made manually. If the website ever goes down, or there are some problems, then necessary steps will need to be taken to get it back up and running. Just because the website is finished, does not mean it will never need to be monitored.

Conclusion

The ultimate goal of this project was to create a fully functional e-commerce site in which customers could place orders. The site was built not only for the customers but also to help the owner, who previously had difficulty keeping track of orders, payments, and shipping. The final website, natsullythreads.com, accomplishes all of the original goals. Not only does it allow customers to place an order seamlessly, but the website is also attractive and does a great job of displaying what the brand is all about.

Creating this website from scratch was not an easy task. Dr. Myers told me that I would have difficulty getting it all done, especially with little to no help. There were times when I spent hours researching the best plugin, just for it not to work how I had hoped. Days of designing and drawing sketches of how I pictured the website to look ended up drastically different. All in all, I think I exceeded my own expectations and the expectations of my professors and colleagues.

Overall, I learned a lot working on this project. I was able to complete the whole process of developing a website from start to finish and designing the brand identity for a business. Completing this project would not have been possible without the classes I have taken during my time at Northwest Nazarene University. The computer science courses helped me understand the structure and backend development and coding of a website. My graphic design and marketing courses aided in designing the pages and the development of the brand itself. I feel prepared and ready to apply the knowledge and skills I have learned throughout this project and my time at NNU.

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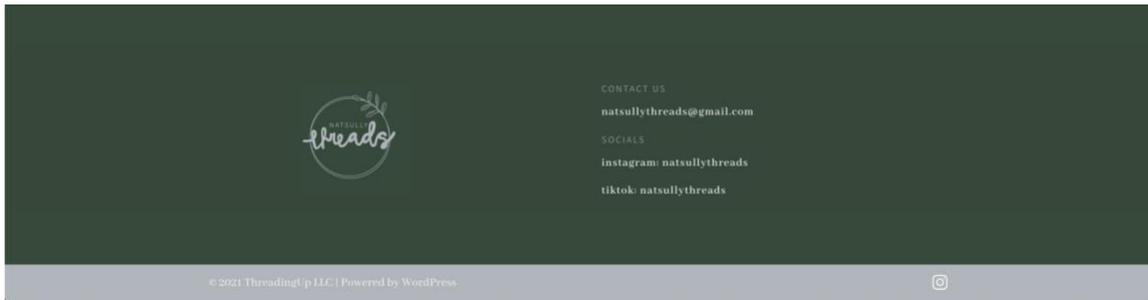guide)*. WPBeginner. Retrieved March 28, 2022, from
https://www.wpbeginner.com/beginners-guide/how-to-get-a-free-ssl-certificate-
for-your-wordpress-website/

Appendix A – Screenshots

Header

CONTACT US
natsullythreads@gmail.com
SOCIALS
instagram: natsullythreads
tiktok: natsullythreads

© 2021 ThreadingUp LLC | Powered by WordPress

Footer

handmade products

It all started here, with our custom t-shirts. Make your dreams come to life with a custom item! Click below to build your own.

CREATE

SHOP OUR NEWEST PRODUCTS

Bloom T-Shirt

'Happy Place' Banner

Macramé Rainbow

Lavender Keychain

Meet The Maker!

Hi, I'm Nat, thanks for stopping by! I handmake all of the items on the site, and hope you find something you like. Click to learn more about my small business journey.

OUR STORY

"natsullythreads is the most unique and charming business to buy from! I absolutely love my butterfly sweater! True to size, great material, great artist, and so much creativity."

Lizveth Lambern

"natsullythreads gave me a comfortable and fashionable way to express my hobbies and interests to others."

Gabe Murphy

"natsullythreads is my favorite because of the quality designs. Nat gives you the option to customize and personalize designs for almost anything!"

Abby Sparkman

CONNECT WITH US @NATSULLYTHREADS

Load More   Follow on Instagram

Homepage

ABOUT NATSULLYTHREADS

I started embroidering on basic hoops around 3 years ago. In April of 2020, I decided to embroider on a few shirts for a couple of my friend's birthdays. They turned out so cute that I decided to make an Instagram page to maybe sell a few. I had no idea that I would end up selling so many shirts!

I am currently a senior in college studying computer science and graphic design, with a minor in marketing. I am also on the volleyball team!

Thank you for supporting me and checking out my page! I hope you find something you like!!!

♡ ♡ ♡ Nat

About

Free shipping on all orders over $85 !!

SHOP ALL PRODUCTS

Macramé Rainbow
$16.00

Custom T-Shirt
$55.00

Bloom T-Shirt
$32.00

Custom Long Sleeve
$45.00

Custom Crewneck
$55.00

"Happy Place" Banner
$25.00

Lavender Keychain
$14.00

Shop

SHIPPING

All products are shipped out of Idaho, USA. Orders (except customs) will be shipped out within 3-5 business days. You will be supplied with a tracking number through your email. Please allow 3-4 weeks for the custom products to be ordered, created, and shipped out! Remember, handmade takes time!

RETURNS

We are currently not accepting returns. However, if there is a problem with your order, please contact us directly by email, natsullythreads@gmail.com, or message us via our contact form and we will help you the best we can!

NOTICE

Due to the coronavirus pandemic, shipping times might be delayed.

Shipping & Returns

Contact

Contact Success Message

		Product	Price	Quantity	Subtotal
×		Custom T-Shirt Size: medium Placement: middle Color: pretty in pink : dfdfd $0.00 : dfdf $0.00	$35.00	1	$35.00

Update cart

Cart totals

Subtotal	$35.00
Shipping	● Flat rate: $8.00 ○ Local Pickup - Nampa, Idaho ○ Local Delivery - Treasure Valley: $5.00 Shipping to MT. Change address
Total	$43.00

Proceed to checkout

Cart

Your natsullythreads order has been received!   Yahoo/Inbox ⭐

natsullythreads <natsullythreads@gmail.com>   🖨 Tue, Mar 16, 2021 at 1:04 PM ⭐
To: nataliesullivan103@yahoo.com

Thank you for your order

Hi Natalie,

Just to let you know — we've received your order #1669, and it is now being processed:

[Order #1669] (March 16, 2021)

Product	Quantity	Price
"Happy Place" Banner	1	$25.00
Subtotal:		$25.00
Shipping:		$8.00 via Flat rate
Payment method:		Credit card

Order Email Confirmation

<div align="center">**Appendix B – Code**</div>

This document contains all of the code used to complete this project. Because WordPress uses Divi Builder as a drag and drop method of designing, most of the code is already hardcoded in. The code can then be modified or edited in the back end. The code within this appendix was used when needing to overrule something, applying to all pages within a document, or editing a specific section. All of the code is usually used to fix something small that was unable to be changed with Divi.

Header

The header appears at the top of every page on the website and is very customizable through Divi. This CSS code changes the width of the header content.

```css
header .container {
    max-width: 100% !important;
}
```

Background

The background appears on every page and will show where there is not a section. This allows for all background pages to be the cream color that is in the color palette.

```css
#main-content {
        background-color: #ecefeb;
}
```

Menu

This code fixes an overlay that was occuring when the user hovered over the menu pages. It made things difficult to read.

/*take out background overlay*/

.et_slide_menu_top {

background: none;

}

/*take out background opacity*/

.et_header_style_fullscreen .et_slide_in_menu_container.et_pb_fullscreen_menu_opened

{

opacity: 1;

}

Smaller Screens

When the screen size gets smaller or changes, this CSS code decreases the size of the columns so that they do not overlap and disappear.

@media only screen and (max-width: 980px) {

.three-columns .et_pb_column {

width: 33%!important;

} }

Slider Section

      This CSS code fixes the text for the Divi slider section and makes sure there is no text-shadow.

```
.et_pb_slide_description {

text-shadow:none !important;

}
```