


## ASSIGNMENT 2

<b>Qualification</b>	<b>BTEC Level 5 HND Diploma in Computing</b>		
<b>Unit number and title</b>	<b>Website Design &amp; Development</b>		
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<b>Student declaration</b> I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		<b>Student's signature</b>	

### Grading grid

P2	P3	P4	P5	M2	M3	M4	M5	D2	D3

☐ **Summative Feedback:**

☐ **Resubmission Feedback:**

**Grade:**

**Assessor Signature:**

**Date:**

**Signature & Date:**

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## Introduction

In this assignment, I received a request that as a leader and my job is Full-stack, I have to create a website and come up with marketing solutions for this website. My job right now is to design and develop a highly interactive website. This will be an e-commerce website. I have chosen, I will design an e-commerce website with technology products such as laptops, PCs, gaming gear, etc.

In the plan, I will describe the initial details before implementation, the objects and functions will be described in detail in the article.

## **I.Create a design document for a branded, multipage website supported with medium fidelity wireframes and a full set of client and user requirements. (P5)**

### **1. Design the structure and components of the website (wireframes)**

To be able to design a complete website on programming tools. I have sketched a web image with the following diagram. This image will present details for each function and object.

#### **HOME**

Here are some pictures I described of the home page under a demo image. As you can see, I designed the logo with the menu located on a header bar. I will design menus with dropdown functions along with effects to create impressive user interfaces. The logo will be designed by me on the left side of the header bar. Inside the Logo, I will hide a <a> tag so that I can link the homepage. This will make the navigation process faster and more convenient. Next, below the header bar I will design a banner with attractive effects, this banner I will take a user-oriented theme to attract them to come and shop at my website. Under this Banner section, I have designed suggestions for the types of products that my website is selling, which are Laptop, Keyboard, Mouse, Monitor, Gaming Chair, and headphones. Below I have added some products that run automatically to advertise to users, these are the most recent and typical products of the store. And next to the last 2 banner sections will be the banners aimed at partner brands to promote the company's products. Finally, I use a slide-out to run partner brands with my sales website such as FPT, Apple, Microsoft, ASUS,...

At the end is the Footer section, I will add sales locations,

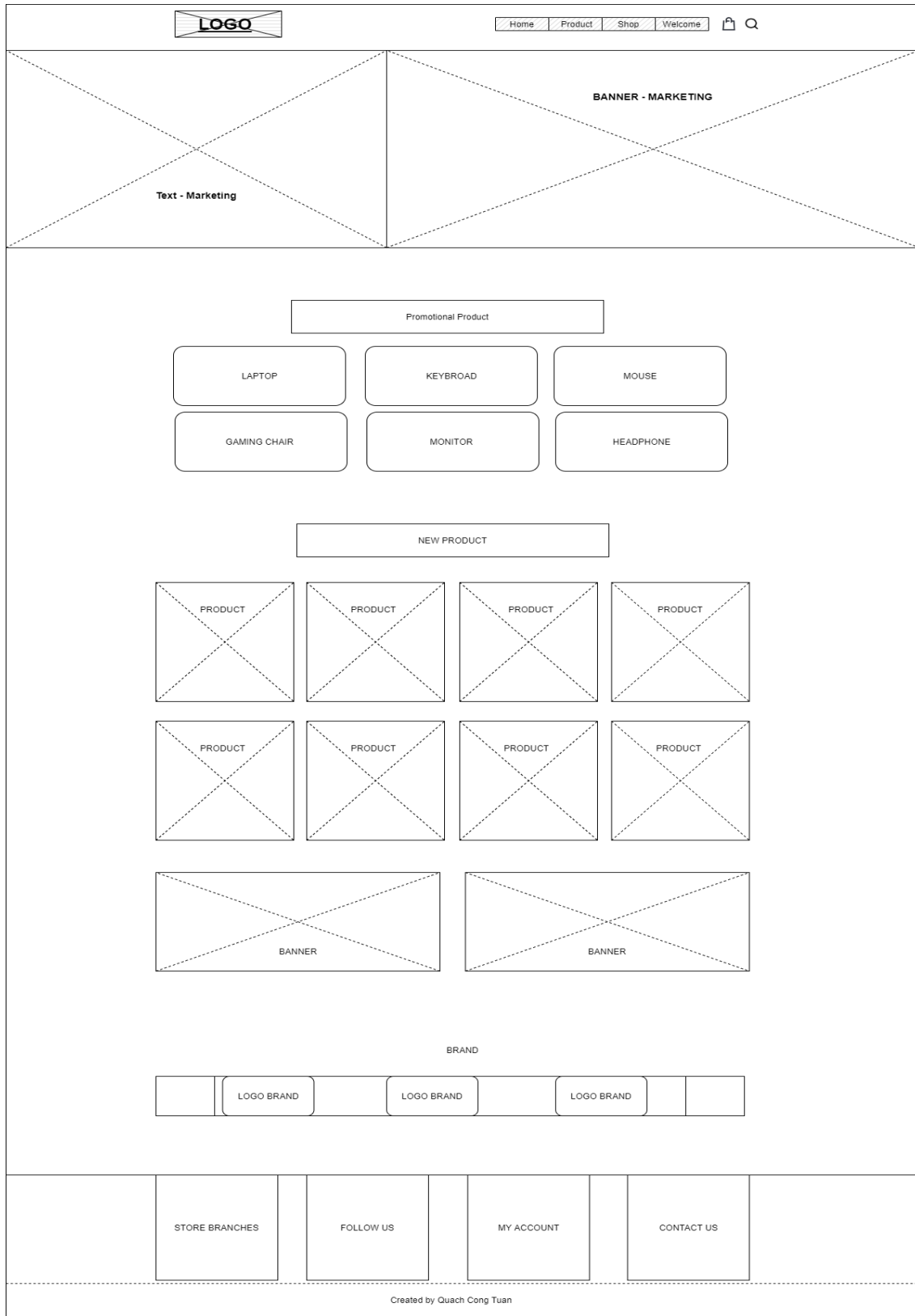


Figure 1 Diagram Home

PRODUCT

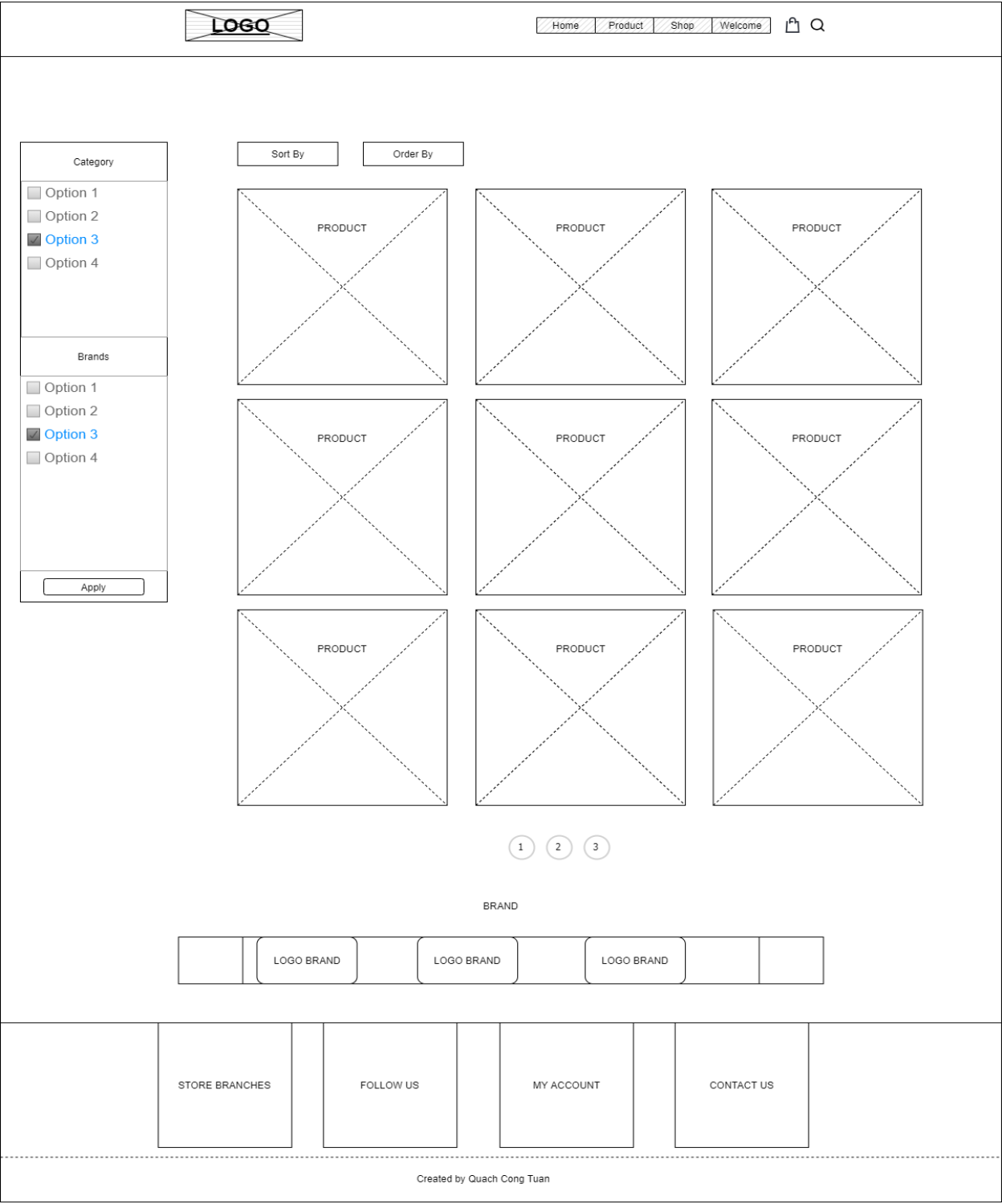


Figure 2 Diagram Product



On the product page, I will create 4 columns to display in which column 1 will have the role of displaying product filters and columns 2 - 3 -4 will display a list of products with 3 rows and 3 columns. Since product numbers can be stretched, I used pagination to make it easier for users to see instead of having to stretch.

## LOGIN AND SIGN-UP

The diagram illustrates a login and sign-up page layout. At the top, there is a header bar containing a logo on the left and a navigation menu with links for Home, Product, Shop, and Welcome on the right, along with a shopping cart icon and a search icon. The main content area is centered and features a login form titled "MEMBER BTECH". This form includes input fields for "USERNAME" and "PASSWORD", a "Forgot Password?" link, a "LOGIN" button, and a link for "Not a member? Signup now". Below the main content area, there is a footer section divided into four equal-width columns: "STORE BRANCHES", "FOLLOW US", "MY ACCOUNT", and "CONTACT US". The footer also includes a small text credit: "Created by Quach Cong Tuan".

Figure 3 Diagram Login

LOGO

Home

Product

Shop

Welcome

Q

Sign-Up Member

USERNAME

PASSWORD

FULL NAME

☐

I agree to provide information to BTECH.

LOGIN

STORE BRANCHES

FOLLOW US

MY ACCOUNT

CONTACT US

Created by Quach Cong Tuan

Figure 4 Diagram Sign-up

# CART

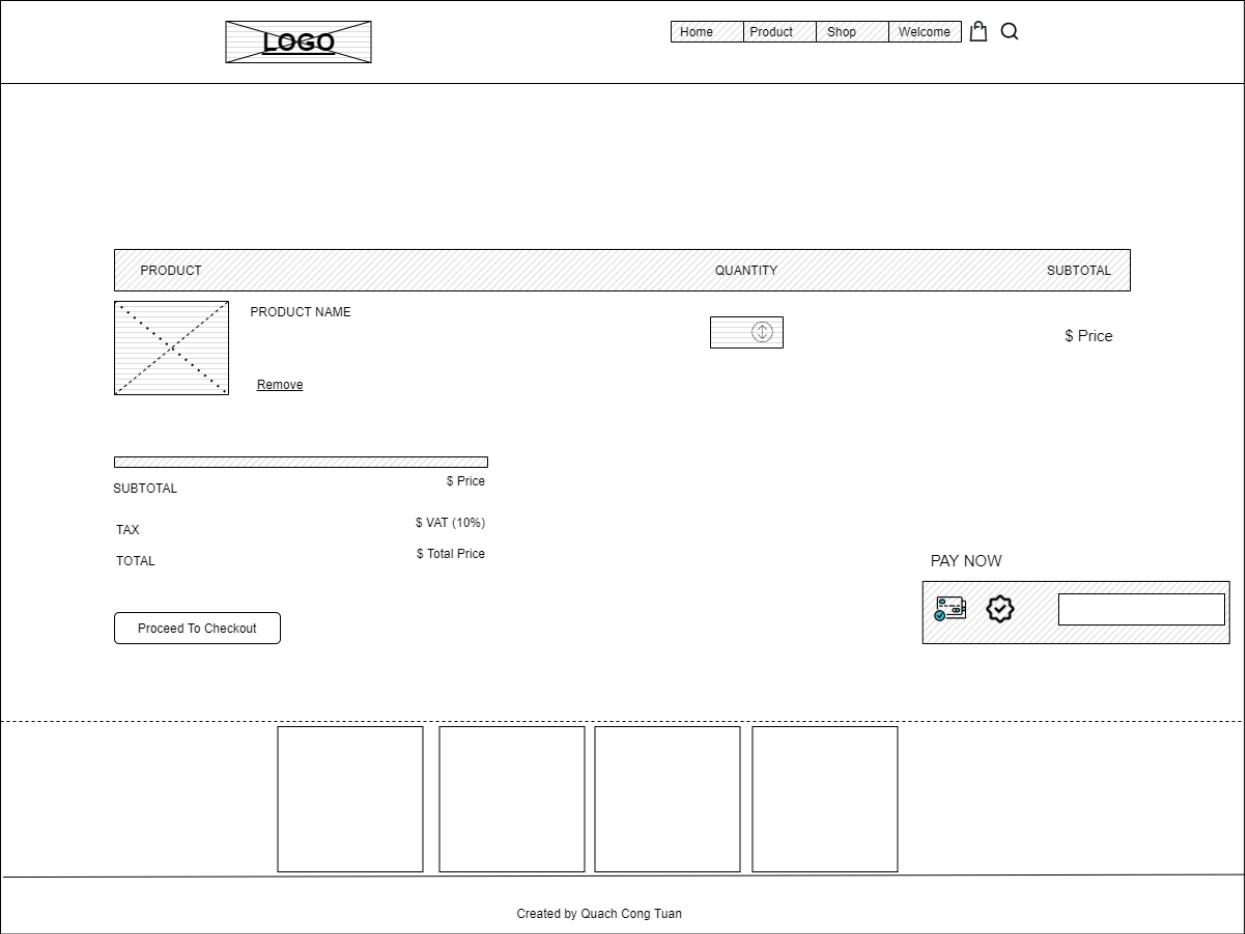


Figure 5 Diagram Cart

## 2. Design Database

Entity	Description of Entity	Attribute	Description of Attribute
User	All user in website	USERID	As the primary key of the table to help us manage and query data easier.
		USERNAME	This is the user's login name
		FULLNAME	This is the user's full name, this is the name on the ID card
		PASSWORD	This is the password that helps users log into the system with the same username
		EMAIL	Email will help users update information about orders and promotions of the website.
		PHONENUMBER	Used to contact customers
		ADDRESS	Used to deliver goods to the customer's address.
		ID	As the primary key of the table to help us

Product	All product in website		manage and query data easier.
		PRODUCT_NAME	Product's name
		TYPE	The type that helps us filter out products according to user requirements.
		BRAND	Brands make it easy to filter products and distinguish brands from each other.
		PRICE	Price of a product
		DESCRIPTION	Describe the features of that product in detail
		IMAGES	Pictures of the product

#### USER TABLE:

#	Tên	Kiểu	Bảng mã đối chiếu	Thuộc tính	Null	Mặc định	Ghi chú	Thêm	Hành động
<input type="checkbox"/> 1	USER_ID	int(50)			Không	Không		AUTO_INCREMENT	Thay đổi  Xóa  Thêm
<input type="checkbox"/> 2	USERNAME	varchar(50)	utf8mb4_general_ci		Không	Không			Thay đổi  Xóa  Thêm
<input type="checkbox"/> 3	PASSWORD	varchar(50)	utf8mb4_general_ci		Không	Không			Thay đổi  Xóa  Thêm
<input type="checkbox"/> 4	FULLNAME	varchar(50)	utf8mb4_general_ci		Không	Không			Thay đổi  Xóa  Thêm
<input type="checkbox"/> 5	EMAIL	varchar(50)	utf8mb4_general_ci		Không	Không			Thay đổi  Xóa  Thêm
<input type="checkbox"/> 6	PHONENUMBER	varchar(50)	utf8mb4_general_ci		Không	Không			Thay đổi  Xóa  Thêm
<input type="checkbox"/> 7	ADDRESS	varchar(250)	utf8mb4_general_ci		Không	Không			Thay đổi  Xóa  Thêm

Figure 6 Database User

## PRODUCT TABLE:

#	Tên	Kiểu	Bảng mã đối chiếu	Thuộc tính	Null	Mặc định	Ghi chú	Thêm	Hành động
<input type="checkbox"/> 1	ID	varchar(20)	utf8mb4_general_ci		Không	Không		Thay đổi	Xóa  Thêm
<input type="checkbox"/> 2	PRODUCT_NAME	varchar(50)	utf8mb4_general_ci		Không	Không		Thay đổi	Xóa  Thêm
<input type="checkbox"/> 3	BRAND	varchar(20)	utf8mb4_general_ci		Không	Không		Thay đổi	Xóa  Thêm
<input type="checkbox"/> 4	TYPE	varchar(50)	utf8mb4_general_ci		Không	Không		Thay đổi	Xóa  Thêm
<input type="checkbox"/> 5	IMAGE	varchar(500)	utf8mb4_general_ci		Không	Không		Thay đổi	Xóa  Thêm
<input type="checkbox"/> 6	PRICE	decimal(50,0)			Không	Không		Thay đổi	Xóa  Thêm
<input type="checkbox"/> 7	DESCRIPTION	varchar(700)	utf8mb4_general_ci		Không	Không		Thay đổi	Xóa  Thêm

Figure 7 Database Product

## **II. Use your design document with appropriate principles, standards and guidelines to produce a branded, multipage website supported with realistic content. (P6)**

### **1. Tools and languages used for development**

To design and develop a commercial website, I have combined various programming languages to create a fully functional website. During the build and development, I did not use any additional frameworks and used basic and self-written programming languages.

- Front-End: I have used HTML and CSS to design the external interface, all the products I have used add another tool to design to ensure consistency with the product (Canva).
- Back-End: I use PHP and MySQL, PHP will help me get and send commands to the Database at MySQL. I use mostly GET and POST commands, it helps me get data from the database and print it out to the interface. This saves me time and manual work with HTML.
- Tool: I used Visual Studio Code to practice and build. To combine with VSC I have additionally used XAMPP to be able to connect PHP and MYSQL with my pages in Visual Studio Code.

## 2. Description of the site

### HOME

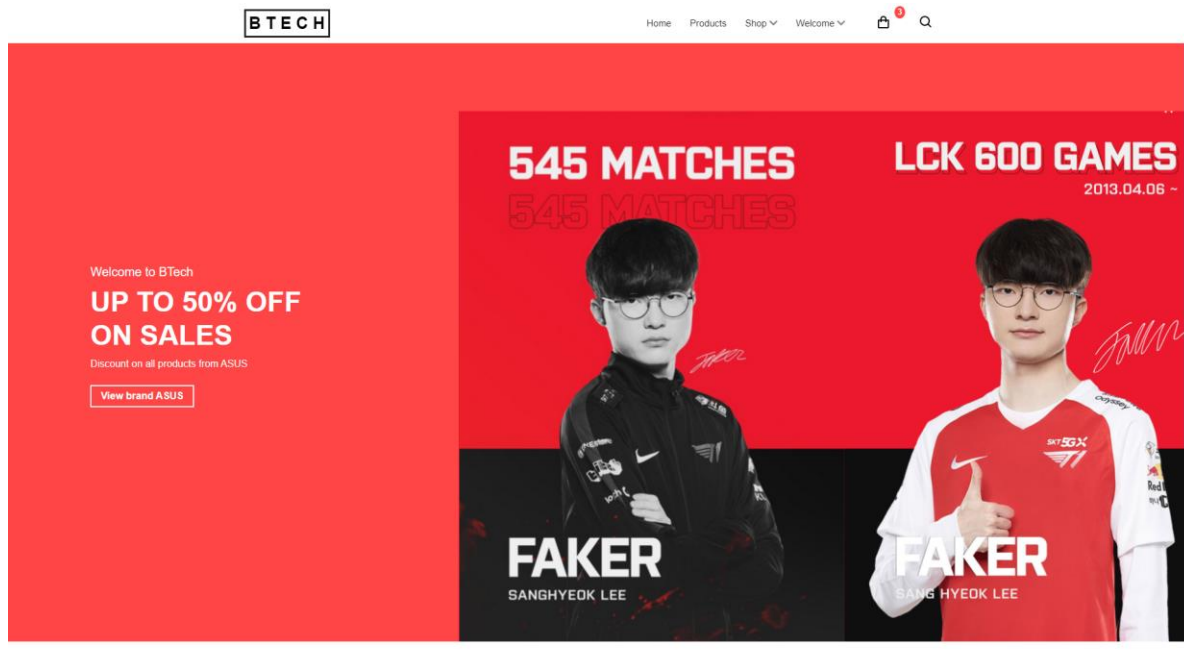


Figure 8 Home Part 1

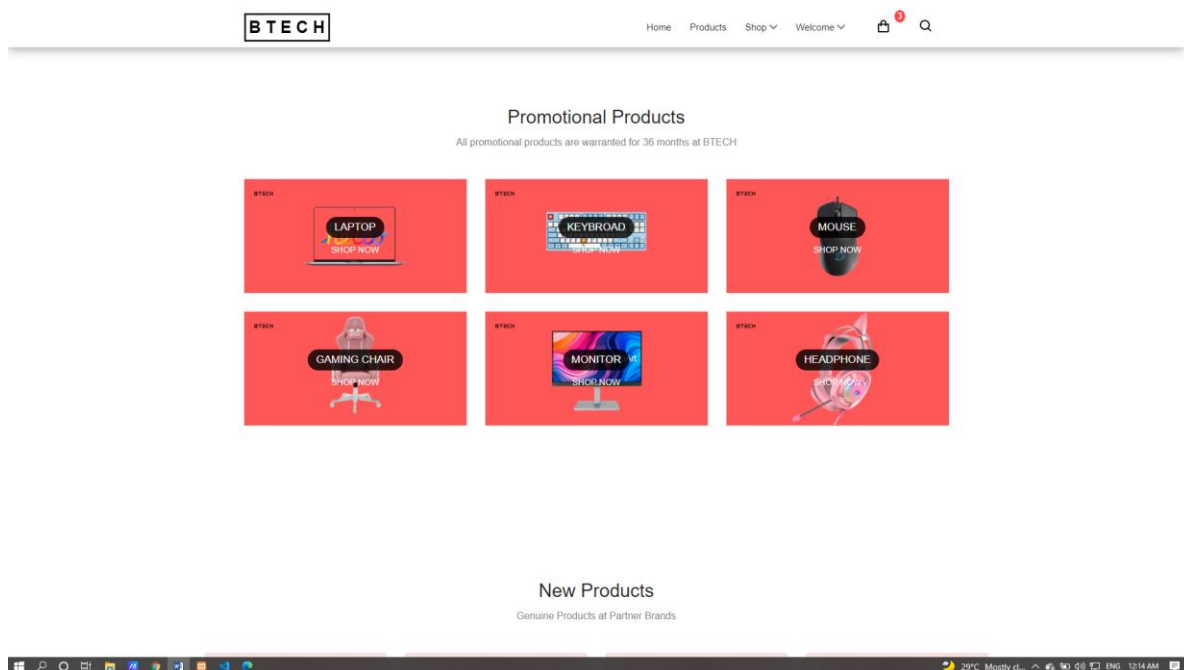


Figure 9 Home Part 2 (Content)



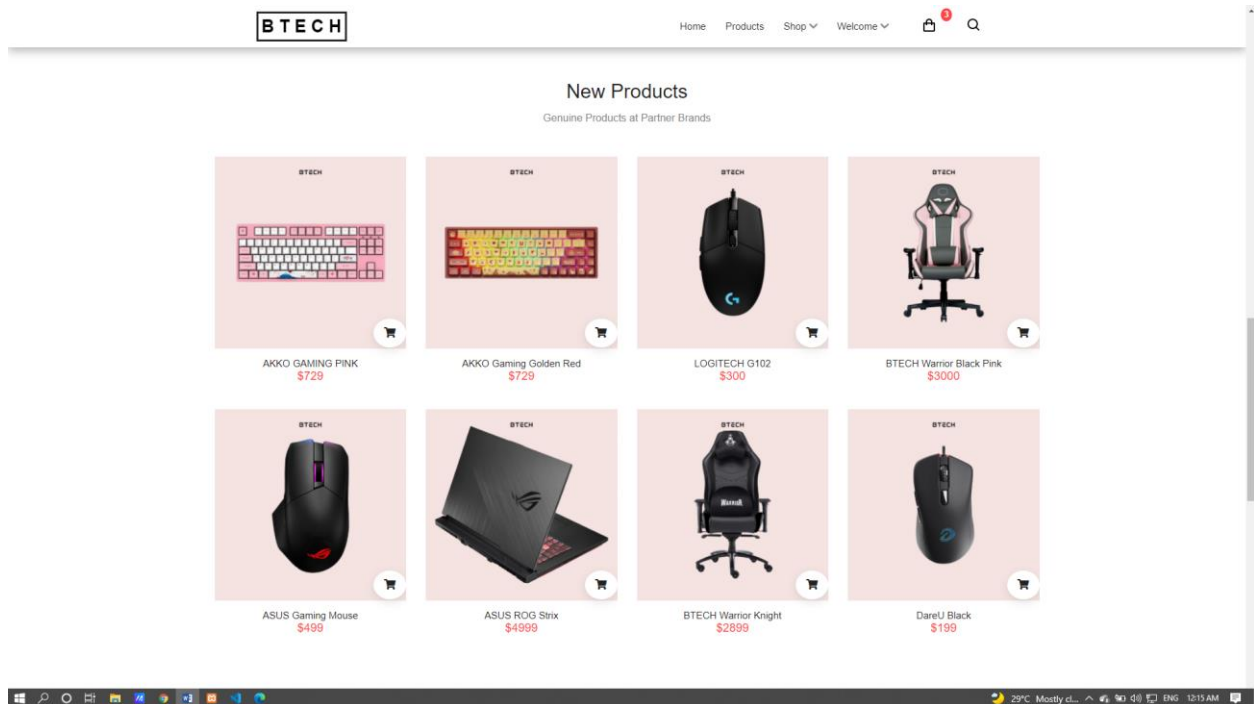


Figure 10 Home Part 3 (Content)

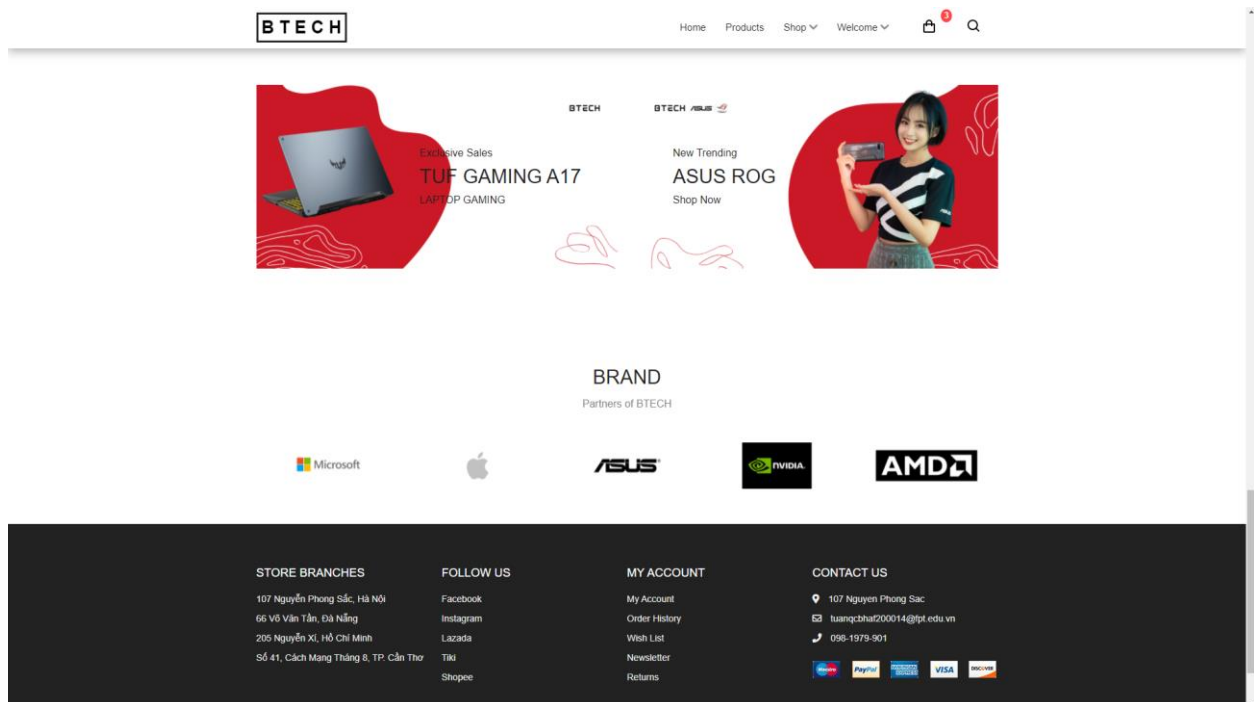


Figure 11 Home Part 4 (Footer)

## PRODUCT: PAGE 1

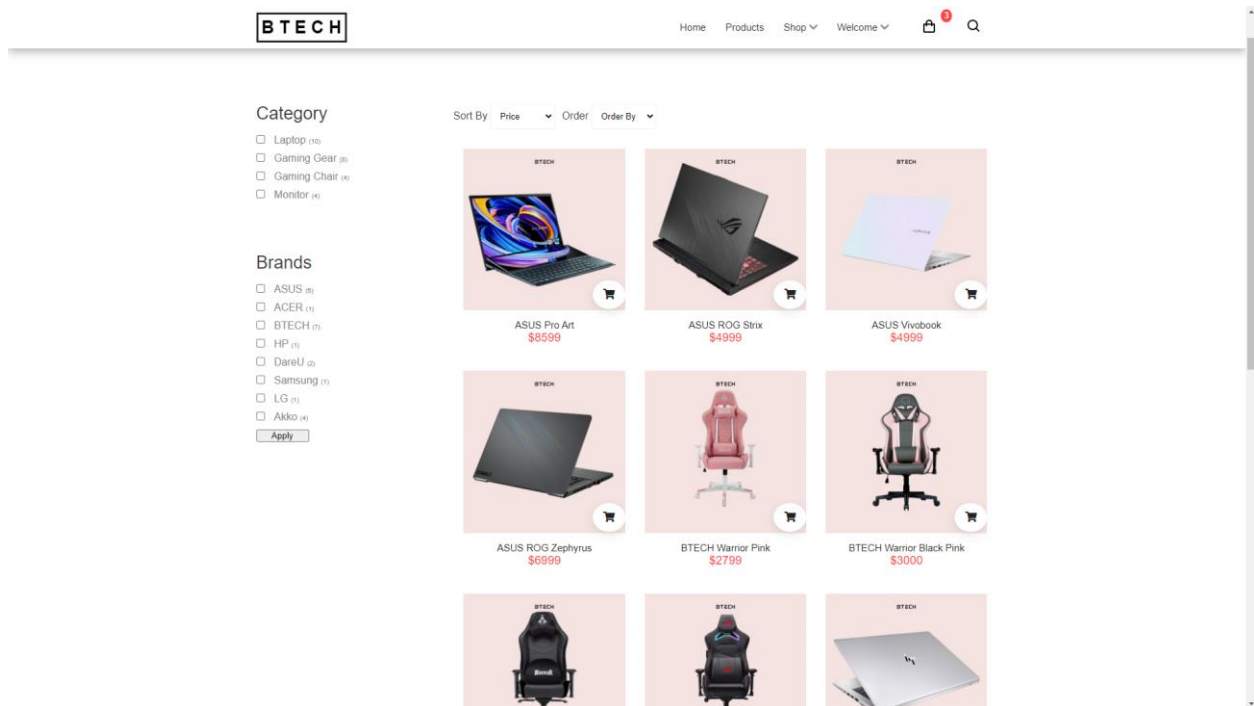


Figure 12 Product PAGE 1

## LOGIN

BTECH

[Home](#)
[Products](#)
[Shop](#)

MEMBER BTECH

[Forgot password?](#)

Login

Not a member? [Signup now](#)

**STORE BRANCHES**

107 Nguyễn Phong Sắc, Hà Nội

66 Võ Văn Tần, Đà Nẵng

205 Nguyễn Xi, Hồ Chí Minh

Số 41, Cách Mạng Tháng 8, TP. Cần Thơ

**FOLLOW US**

Facebook

Instagram

Lazada

Tiki

Shopee

**MY ACCOUNT**

My Account

Order History

Wish List

Newsletter

Returns

**CONTACT US**

107 Nguyễn Phong Sắc

tsuanoqbfat200014@tpt.edu.vn

098-1979-901

Figure 13 Login

## SIGN-UP

BTECH

[Home](#)
[Products](#)
[Shop](#)

Sign-up Member

☐ I agree to provide information to BTECH.

Submit

STORE BRANCHES

FOLLOW US

MY ACCOUNT

CONTACT US

Figure 14 Sign-up

## PRODUCT DETAIL:

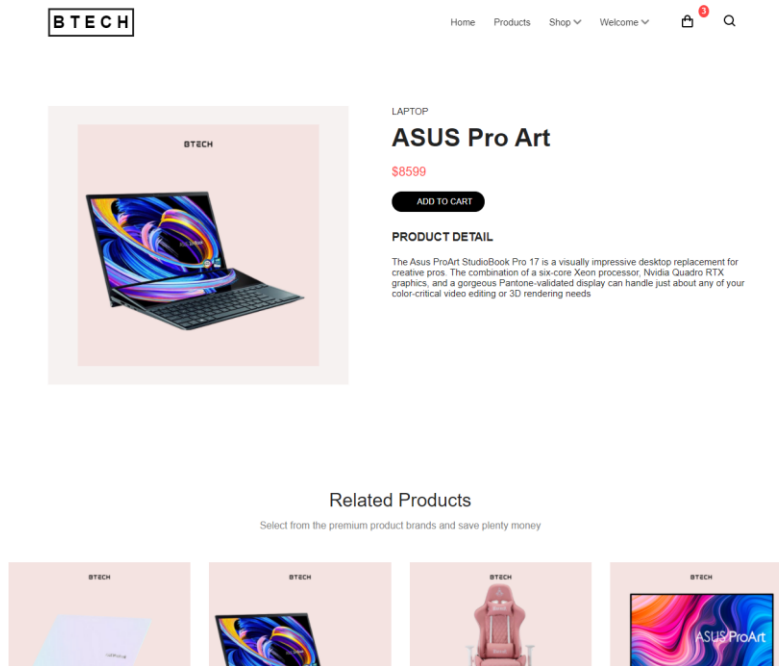


Figure 15 Product Detail

## CART:

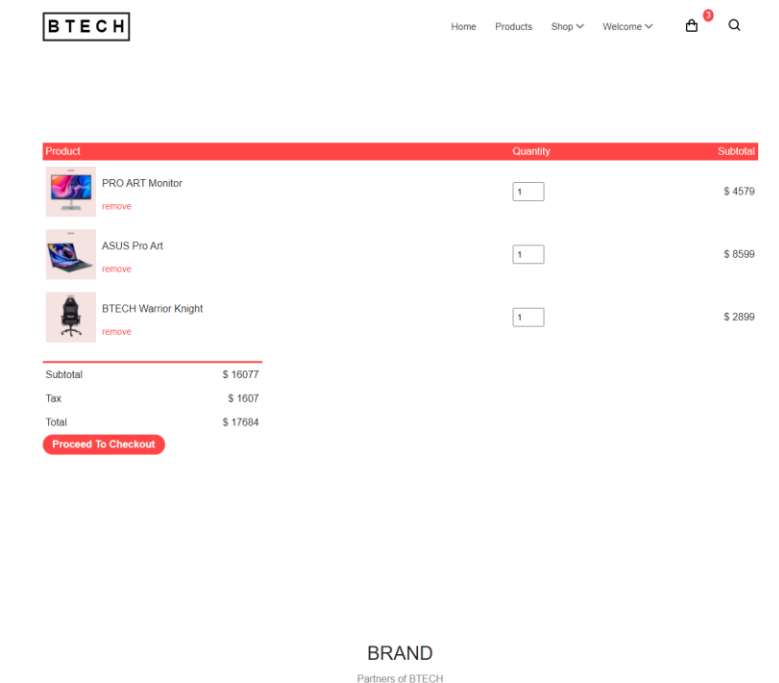


Figure 16 Cart

Below I will use my admin role to add a product to the system.

The screenshot shows the BTECH website interface. At the top, there's a navigation bar with 'Home', 'Products', and 'Shop' links, along with a shopping cart icon and a search icon. Below this, the 'ADMIN INSERT-PRODUCT' form is displayed. The form has the following fields: PRODUCT ID (MAC-LightBlue), PRODUCT NAME (Mac Light Blue), BRAND (MACBOOK), TYPE (LAPTOP), IMAGES (Choose File 1.png), PRICE (9999), and DESCRIPTION (Mac is a family of all-in-one M...). A 'Submit' button is at the bottom of the form. Below the form, a message 'Added successfully' is shown. The footer of the website contains sections for 'STORE BRANCHES', 'FOLLOW US' (with social media links for Facebook, Instagram, Lazada, TikTok, and Shopee), 'MY ACCOUNT' (with links for My Account, Order History, Wish List, Newsletter, and Returns), and 'CONTACT US' (with address, phone number, and email). Payment logos for Mastercard, PayPal, and Visa are also present.

Figure 17 Add Product Data

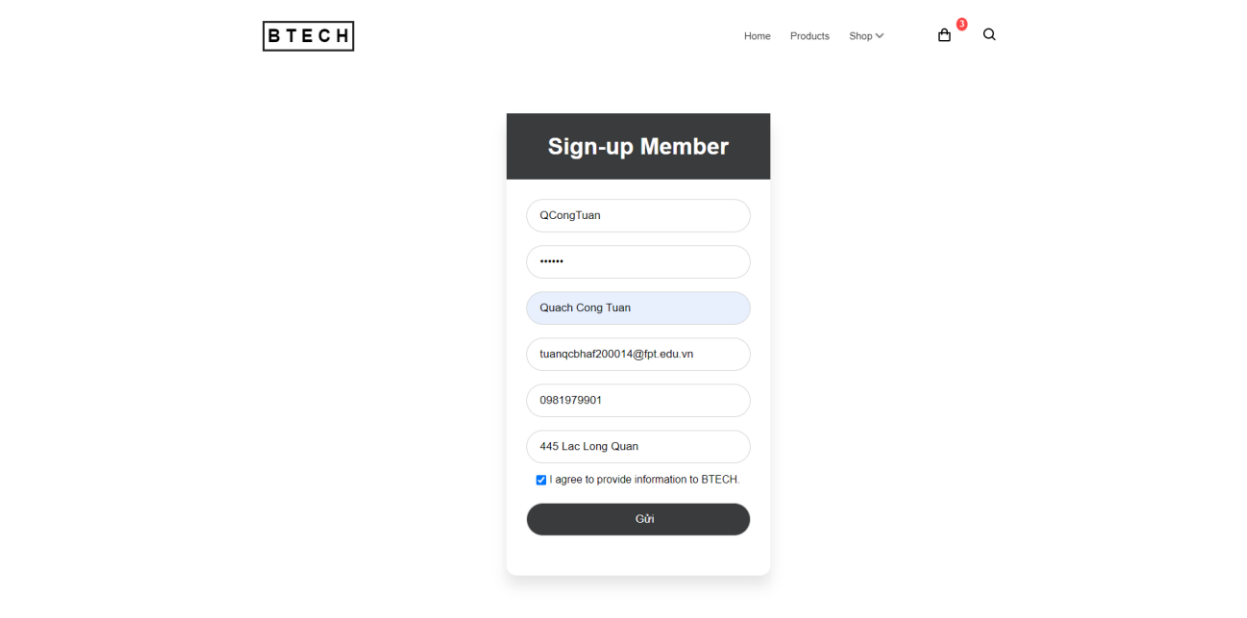
After successfully entering the data and adding the product, I checked the database and the results were displayed.

The screenshot shows the phpMyAdmin database interface. The 'product' table is selected, and the data is displayed in a table. The table has the following columns: ID, PRODUCT\_NAME, BRAND, TYPE, IMAGE, PRICE, and DESCRIPTION. The data is sorted by PRODUCT\_NAME (ASC). The product 'MAC-LightBlue' is highlighted in red.

ID	PRODUCT_NAME	BRAND	TYPE	IMAGE	PRICE	DESCRIPTION
1	DAREU Gaming Keyboard	DareU	GAMING GEAR	3.png	619	As for keyboards, something such as the DareU will...
2	DAREU Pink	DAREU	GAMING GEAR	product14.png	229	DareU EM908 is an advanced RGB backlit gaming mous...
3	Fulhen Gaming RGB	Fulhen	GAMING GEAR	1.png	699	Fulhen D mechanical keyboard is a completely new m...
4	BTECH GAMING GEAR	BTECH	GAMING GEAR	product7.png	739	Gaming headsets are used with all types of gaming ...
5	Gaming Headset Blue	BTECH	GAMING GEAR	product6.png	749	Gaming headsets are used with all types of gaming ...
6	Gaming Headset S1	BTECH	GAMING GEAR	6.png	899	THE ICONIC GAMING HEADSET HAS EVOLVED. Since its l...
7	Gaming Headset S2	BTECH	GAMING GEAR	10.png	899	THE ICONIC GAMING HEADSET HAS EVOLVED. Since its l...
8	Gaming Headset White	BTECH	GAMING GEAR	product9.png	789	Gaming headsets are used with all types of gaming ...
9	HP Pavilion	HP	LAPTOP	product3.png	4959	HP Pavilion Notebook is a Windows 10 laptop with a ...
10	HP Pavilion X360	HP	LAPTOP	5.png	4799	HP Pavilion X360 is a Windows 10 laptop with a 14...
11	MAC-LightBlue	MACBOOK	LAPTOP	1.png	9999	iMac is a family of all-in-one Macintosh desktop c...
12	LOGITECH G162	LOGITECH	GAMING GEAR	product17.png	300	G162 sensor is capable of sensitivity up to 8,000 ...
13	Apple MacBook Air	MACBOOK	LAPTOP	16.png	5299	Apple MacBook Air is a macOS laptop with a 13.304...
14	Apple MacBook Pro	MACBOOK	LAPTOP	4.png	9599	Apple MacBook Pro is a macOS laptop with a 13.304...
15	SAMSUNG MONITOR	SAMSUNG	MONITOR	product24.png	4599	Uncover every detail with maximum clarity. Packing...
16	ASUS ProArt Monitor	ASUS	MONITOR	product22.png	4579	The ASUS ProArt™ professional monitors are factory...

Figure 18 Database Product - insert

Below, I will create an account and try the login process.



The image shows a web browser window with the BTECH logo in the top left corner. The navigation menu includes 'Home', 'Products', and 'Shop' with a dropdown arrow. There are also icons for a shopping bag with a red notification badge and a search icon. The main content area features a 'Sign-up Member' form. The form has a dark header with the title 'Sign-up Member'. Below the header, there are several input fields: a text field for 'QCongTuan', a password field with masked characters '.....', a text field for 'Quach Cong Tuan' (highlighted in blue), an email field for 'tuanqcbha200014@fpt.edu.vn', a phone number field for '0981979901', and an address field for '445 Lac Long Quan'. At the bottom of the form, there is a checkbox labeled 'I agree to provide information to BTECH.' which is checked, and a dark 'Gửi' (Send) button.

Figure 19 Sign-up

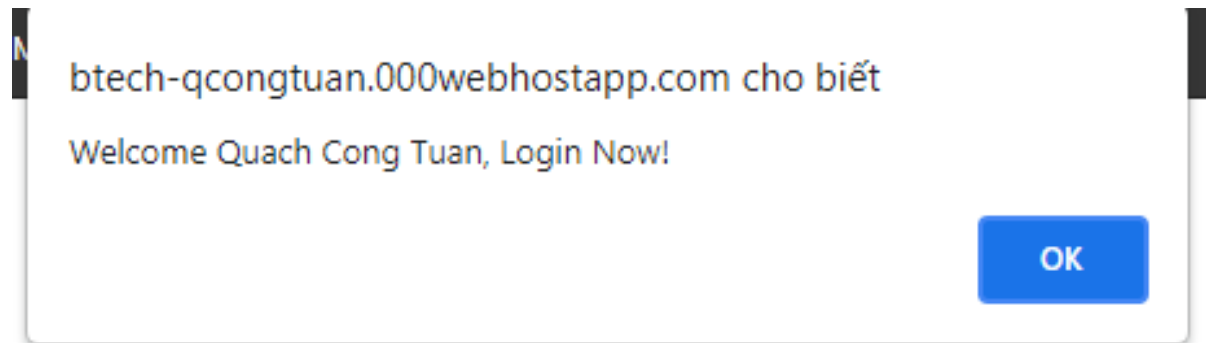


Figure 20 Warning: Sign-up Successfully

After the registration is complete, the system will have a message that the registration is successful, and welcome [name], Login now. After clicking OK, the system will automatically redirect to the login page for users to log in.

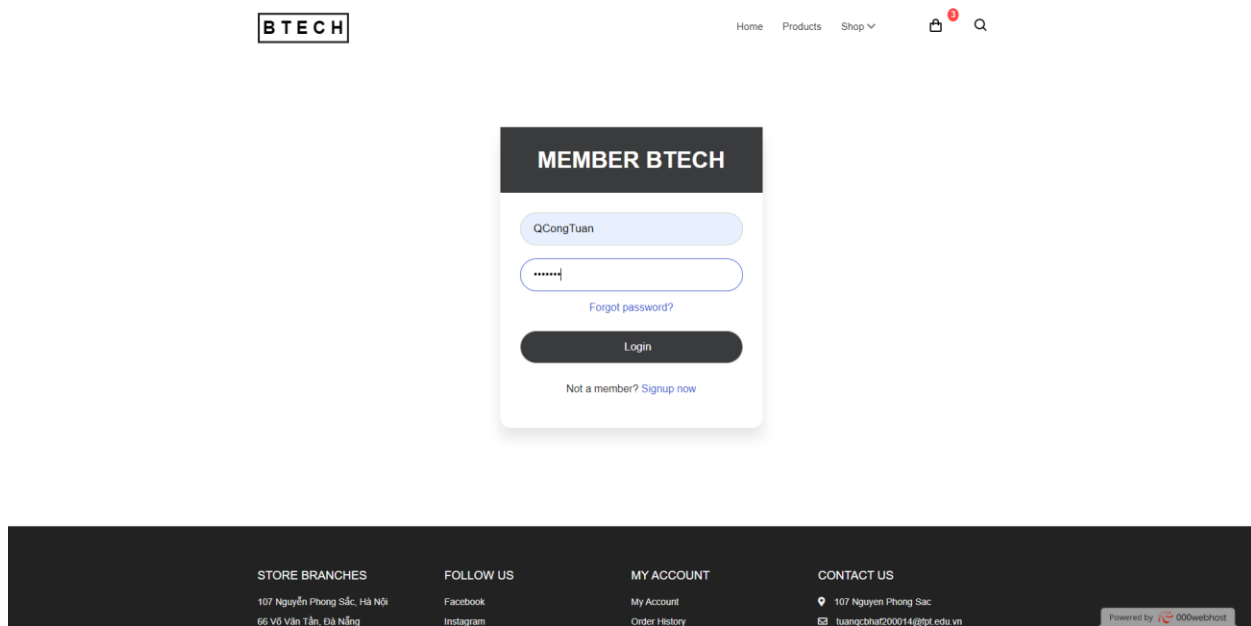


Figure 21 Login-Data

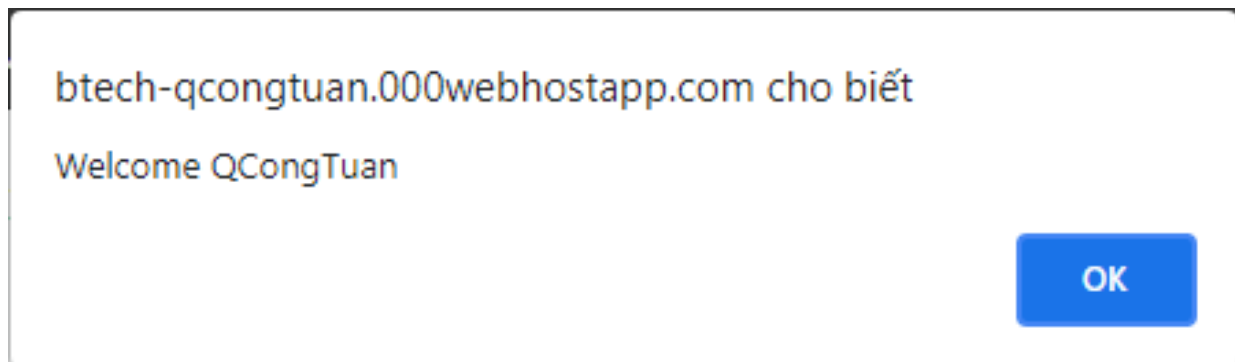


Figure 22 Warning Login Successfully

After successful login, the system will notify and redirect to Product page.

As you can see, the data is stored in the database and the username is displayed in the menu bar.

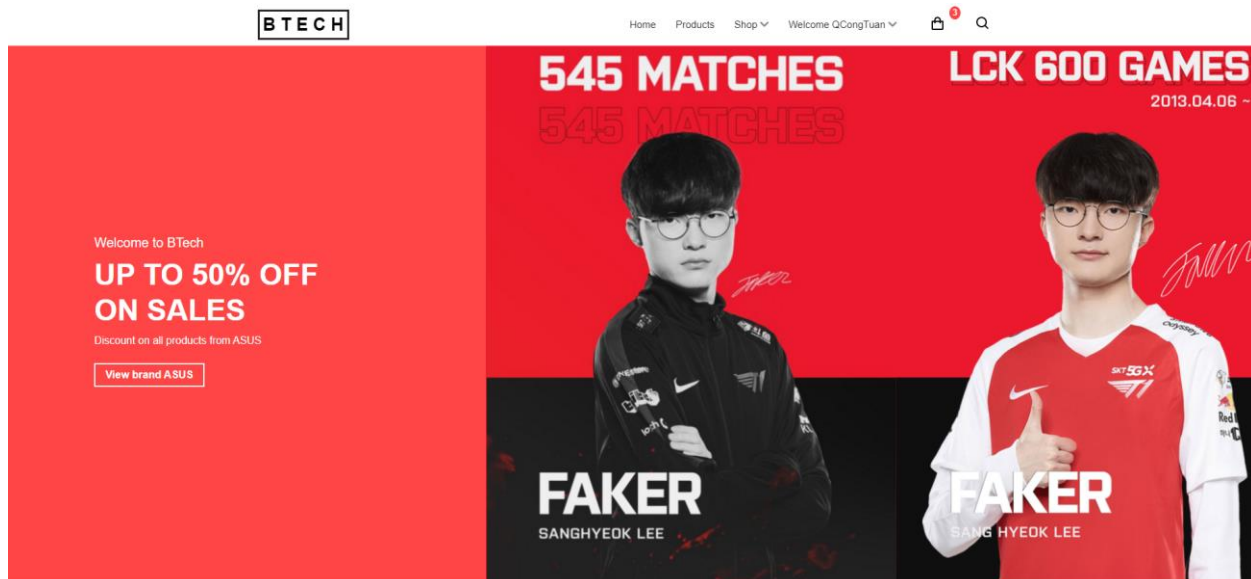


Figure 23 Home <Menu User>

I have checked the Database again and the system has recorded the user's login information corresponding to the data I entered in the account registration form.

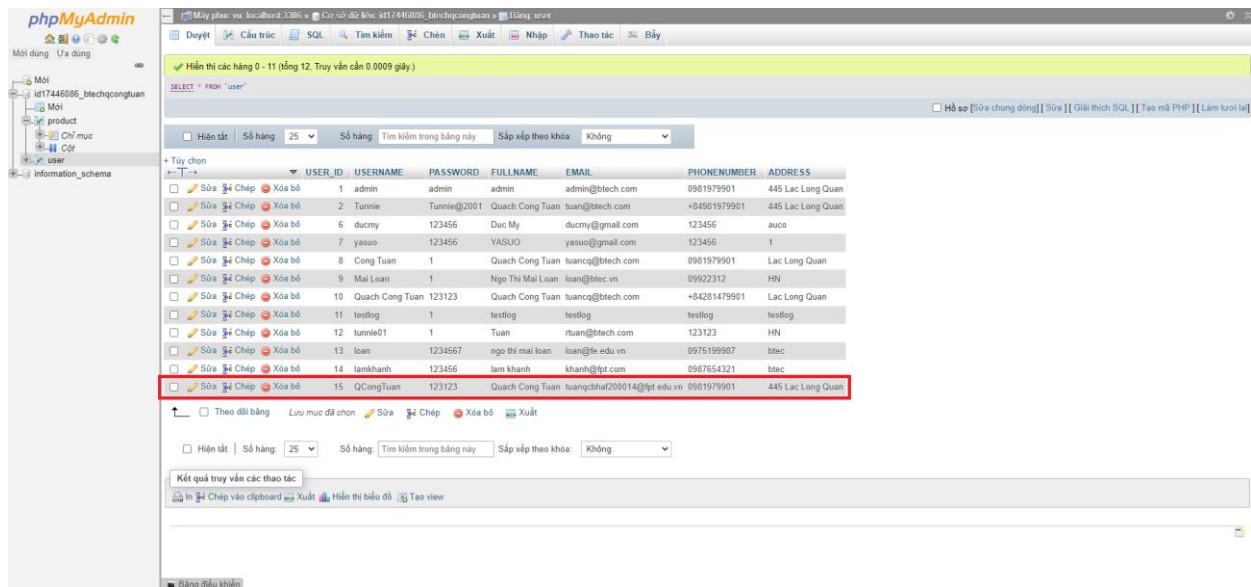


Figure 24 Insert Database user



### III. Create a suitable Test Plan identifying key performance areas and use it to review the functionality and performance of your website. User Experience (UX) and User Interface (UI). (P7)

#### 1. TEST UI

Element	Detail
COLOR	<ul style="list-style-type: none"><li>- solid rgba(255, 255, 255, 0.09);</li><li>- --primary: #ff4545;</li><li>- --white: #ffff;</li><li>- --black: #222;</li><li>- --grey1: #3a3b3c;</li><li>- --grey2: #828282;</li></ul>
FONT	<ul style="list-style-type: none"><li>- "Open Sans", sans-serif;</li><li>- h1, h2, h3, h4, h5: Font-Weight: 600</li></ul>
IMAGE	<ul style="list-style-type: none"><li>- banner-home: max-width: 61%</li><li>- product: width: 100% -- 248.34px x 248.34px</li><li>- banner-cate: 360px x 184px</li><li>- product-home: 295px x 295px</li><li>- banner-brand: 555px x 281px</li><li>- logo-brand: 220px x 71px</li></ul>
SIZE, POSITION, WIDTH, DIMENSION HEIGHT OF THE ELEMENTS.	Media only screen: Height: 747px Max-Width: <ul style="list-style-type: none"><li>- 996px: grid-template-columns: repeat(2, 1fr);</li><li>- 768px: grid-template-columns: 1fr;</li><li>- 650px: grid-template-columns: 1fr;</li><li>- 567px: grid-template-columns: 1fr;</li></ul>
INTERFACES	Friendly interface, ease of use, use of color tones blending red and white / pink helps users attention and attract more users.

## 2. TEST UX

Element	Detail
Responsive	The website is suitable for devices with sizes: 996px, 768px, 650px, 567px. Tested on iPhone XR, iPhone 12, iPhone XS Max...
Loading Time	Average website latency measured across devices is 445-478ms
User Experience	I had a small survey on Facebook. User ratings about the usability and user experience on the website feel satisfied to ~ 98%

Here are some typical user reviews after experiencing the website at:

<https://btechqcongtuan.000webhostapp.com/home.php>

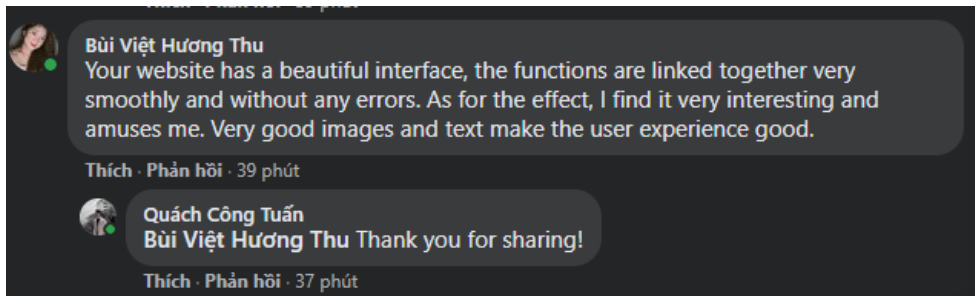


Figure 25 Feedback 1

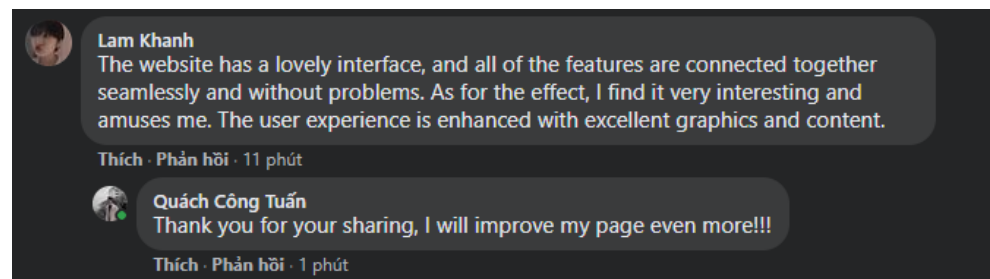


Figure 26 Feedback 2

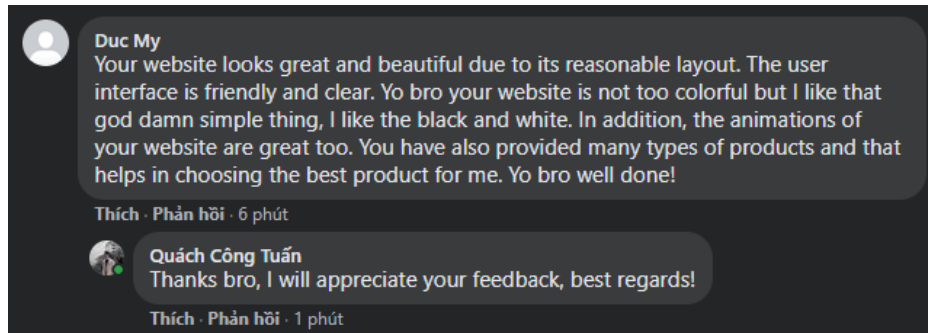


Figure 27 Feedback 3

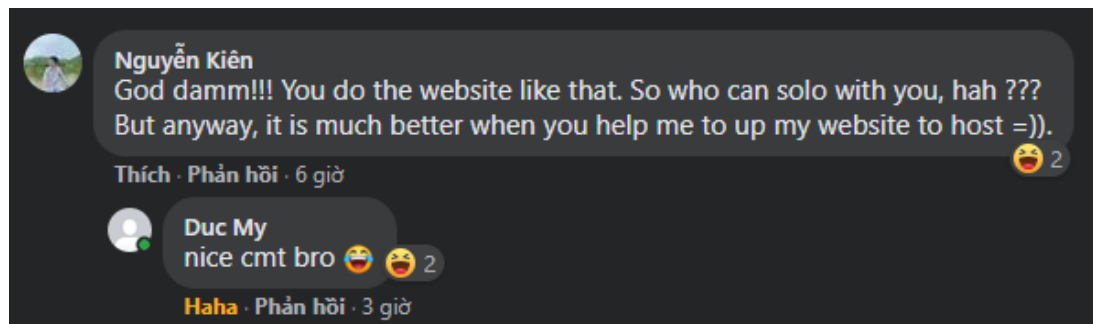


Figure 28 Feedback 3

### 3. TEST LOG

MODULE TEST	WEBSITE BTECH
TESTER	Quach Cong Tuan
CREATE DATE	20/08/2021
TEST ENVIROMENT	Website: <a href="https://btech-qcong Tuan.000webhostapp.com/home.php">https://btech-qcong Tuan.000webhostapp.com/home.php</a>

TEST NO	Purpose	Test Data User	Expected Result	Actual Result	Note	Date
1	Sign Up	Username: tunnie Password: Tunnie@2001 Fullname: Quach Cong Tuan Email: tuan@btech.com PhoneNumber: 0981979901 Address: Lac Long Quan	Data saved in database	Pop-up: Welcome: Quach Cong Tuan, Login now!		8/20/2021
2	Log In (Successful)	Username: tunnie Password: Tunnie@2001	Login Successfully	The system announces successful login and redirects to the homepage		8/20/2021
3	Log In (Unsuccessful)	Username: tunnie Password: Tunnie@	Login Unsuccessfully	System says login failed due to incorrect ID or Password!		8/20/2021
4	Header (Dropdown)	None	Dropped	automatically drop down when pointing to the position of the menu		8/20/2021
5	Header (Directional)	None	Successful navigation	navigate to the correct request page		8/20/2021
6	Home(Category-Banner)	None	Successful navigation	navigate to the correct request page		8/20/2021
7	Home(Product)	None	Successful navigation	Taken to product detail page successfully		8/20/2021
8	Home(Brand-Banner)	None	Successful navigation	Go to the product filter of successful brands!		8/20/2021
9	Product (Click-Product)	None	Successful navigation	Taken to product detail page successfully		8/20/2021
10	Product (Sort By)	None	Sort products with prices in order from lowest to highest	Sort products with prices in order from lowest to highest		8/20/2021

Figure 29 Test Log

11	Product (Sort By)	None	Sort products with prices in order from highest to lowest	Sort products with prices in order from highest to lowest		8/20/2021
12	Filter products LAPTOP	Checkbox Category: Laptop	Out related products.	Print laptop products		8/20/2021
13	Filter products ASUS	Checkbox Category: ASUS	Out related products.	Print brand of ASUS products		8/20/2021
14	Filter products SAMSUNG	Checkbox Category: Samsung	Out related products.	Print brand of Samsung products		8/20/2021
15	Filter products GAMING GEAR	Checkbox Category: Gaming Gear	Out related products.	Print Gaming Gear products		8/20/2021
16	Filter products DAREU	Checkbox Category: DareU	Out related products.	Print brand of DareU products		8/20/2021
17	Filter products MONITOR	Checkbox Category: Monitor	Out related products.	Print Monitor products		8/20/2021
18	Filter products BTECH	Checkbox Category: BTECH	Out related products.	Print brand of BTECH products		8/20/2021
19	Filter products HP	Checkbox Category: HP	Out related products.	Print brand of HP products		8/20/2021
20	Filter products LG	Checkbox Category: LG	Out related products.	Print brand of LG products		8/20/2021
21	Filter products AKKO	Checkbox Category: Akko	Out related products.	Print brand of Akko products		8/20/2021
22	Filter products GAMING CHAIR	Checkbox Category: Gaming Chair	Out related products.	Print Gaming Chair products		8/20/2021
23	Filter products ACER	Checkbox Category: ACER	Out related products.	Print brand of ACER products		8/20/2021
23	Pagination/Page Switching	None	Go to the next page with new products	Page 1 --> Page 2 --> Page 3		8/20/2021
24	Product Detail	Click Add to card	Add product in cart	Go to Cart with selected product	Unfinished (Cart)	8/20/2021
25	Follow Us	Click Follow us	Go to the follow us page	Show my facebook profile page		8/20/2021

Figure 30 Test Log 2

## M4 Compare and contrast the multipage website created to the design document.

On the design part, I sketched an image that is 90% similar to the one I created. Besides, on the new page, my emphasis on more details is the effect and color. This has a big impact on the user interface. In the part I designed in I.1, I have not designed the shopping cart part. As in this initialization, I have designed the shopping cart with a simple but easy-to-use and understandable interface suitable for users.

At the design, I have not thought about how my website will look to users on other devices. Therefore, that user can use my website with any device. The first thing I set in mind when I started this website was the user interface and responsiveness to the user.

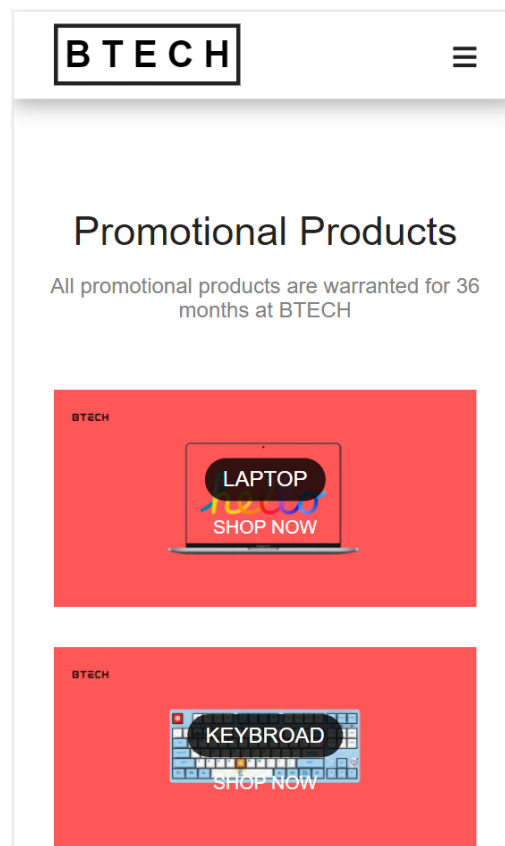
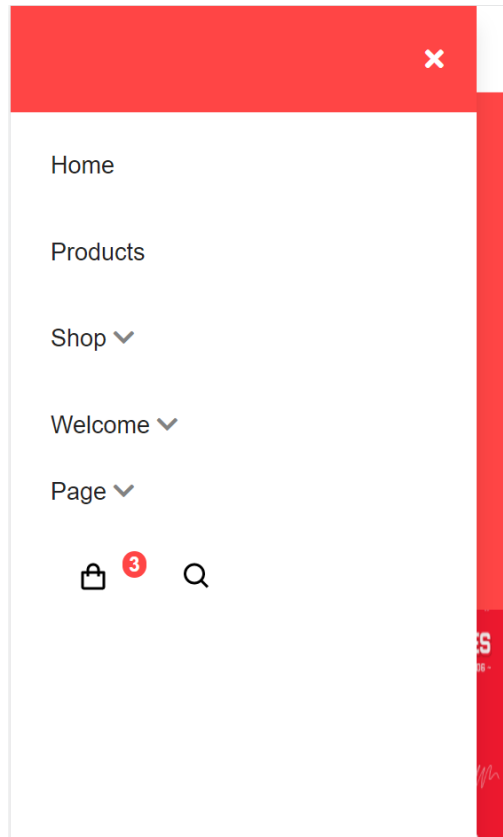


Figure 31 Responsive 1



*Figure 32 Responsive 2*

On this website, I have added some features to make it easier for users to choose products. Creating filters for products and prices from high to low or from low to high will be one of the utilities to help users categorize products and choose the most optimal product.

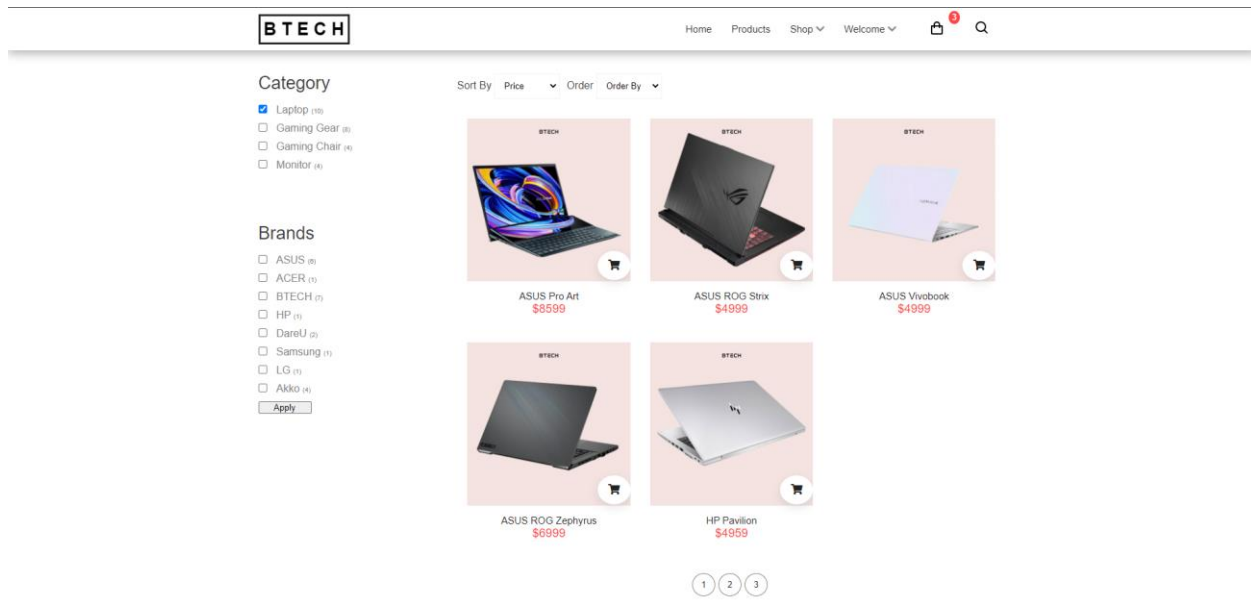


Figure 33 Product M4-1

Classify LAPTOP with other products. This helps users quickly select the product they want. I will soon develop another feature such as search; users only need to enter the product name to be able to find the products they want. Users can also select products according to their desired brand or combine product selection between brands and product types. Besides we can find products by price from low to high and from high to low. (Category: Gaming Gear – Brands: BTECH)

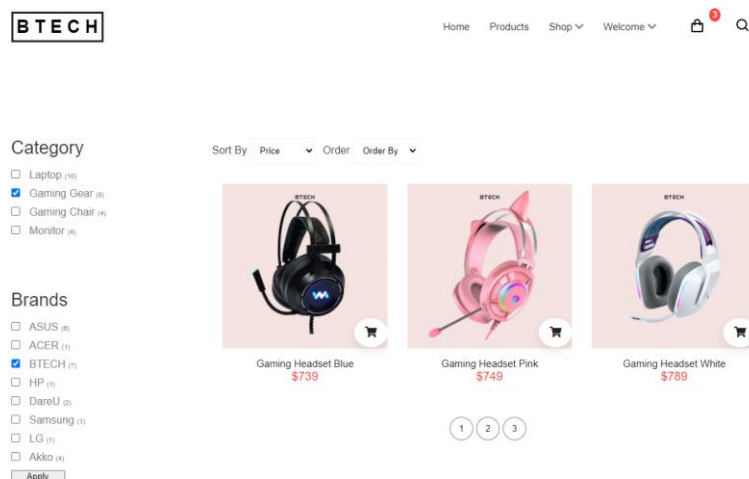


Figure 34 PRODUCT M4-2



In the design, I have given features such as setting the status of adding products to the cart, then the products will be automatically calculated by the cart and + 10% (VAT) and - discount code ( If any). Users can then choose to pay after receiving the goods or pay online. I have a script for Check-out, after the customer check-out, the system will have an invoice if the customer pays online or confirms the order. Invoice will be sent to customer's email and then order status will also be updated according to customer's Order\_ID code. However, with the current site, I have not been able to create this feature. But in the future, I will develop this feature.

## **M5 Evaluate the Quality Assurance (QA) process and review how it was implemented during your design and development stages.**

During the creation and development of the website, I incorporated the 8 steps of quality assurance (QA). Quality assurance and software testing is not just about finding bugs in “as soon as possible” mode. I have the web product up and running during the estimation process, detecting any issues that might hinder the successful operation of the software or even affect the user experience. Here are 10 steps I used in the QA process:

### **1. Review of requirements**

In this section, I have reviewed the requirements that the assignment is given in this Assignment

2. I work as a full-stack web team leader for a leading creative web solutions and marketing company. My team is about to have a big contract to develop an online shopping mall.

### **2. Test planning / writing test cases**

I have scheduled a Website Test and the test cases have been clearly listed in the Test Log section. My test plan covers all functions, images, links, buttons, or data even the smallest errors like font consistency or not. During testing, I became a user so I could feel and perform the actions that customers take when entering the site. Besides, I invite other friends to experience the page and help me find the error. However, there are no flaws to worry about it.

### **3. Integration testing**

I have checked the integration for errors on this website, the database system I connected from the server: Localhost has returned the correct results. The system is also checked and password set to ensure security. The combination of PHP and HTML/CSS will make the website more beautiful and give the user a friendly interface that is easy to use and attractive.

### **4. System testing**

The system I have uploaded to the site up to this point is 000webhostapp.com. This system will manage the .php files that I have uploaded from my server. Besides, the system also integrates the database so that I can easily import data from MySQL localhost on my Xampp to Localhost of the web. I checked the system and fixed the error files. After checking and testing, I make sure that my system is error-free and certainly, no more errors arise.

## 5. Performance testing

I have checked the performance of the web with 4 times: and the results show that the website is not performing well compared to other websites, I have investigated the cause and found that it is due to the domain and server system of the website. I compress the loading speed of the page. After 4 times of testing, I have selected the average result of 590ms and the performance is only 21%.

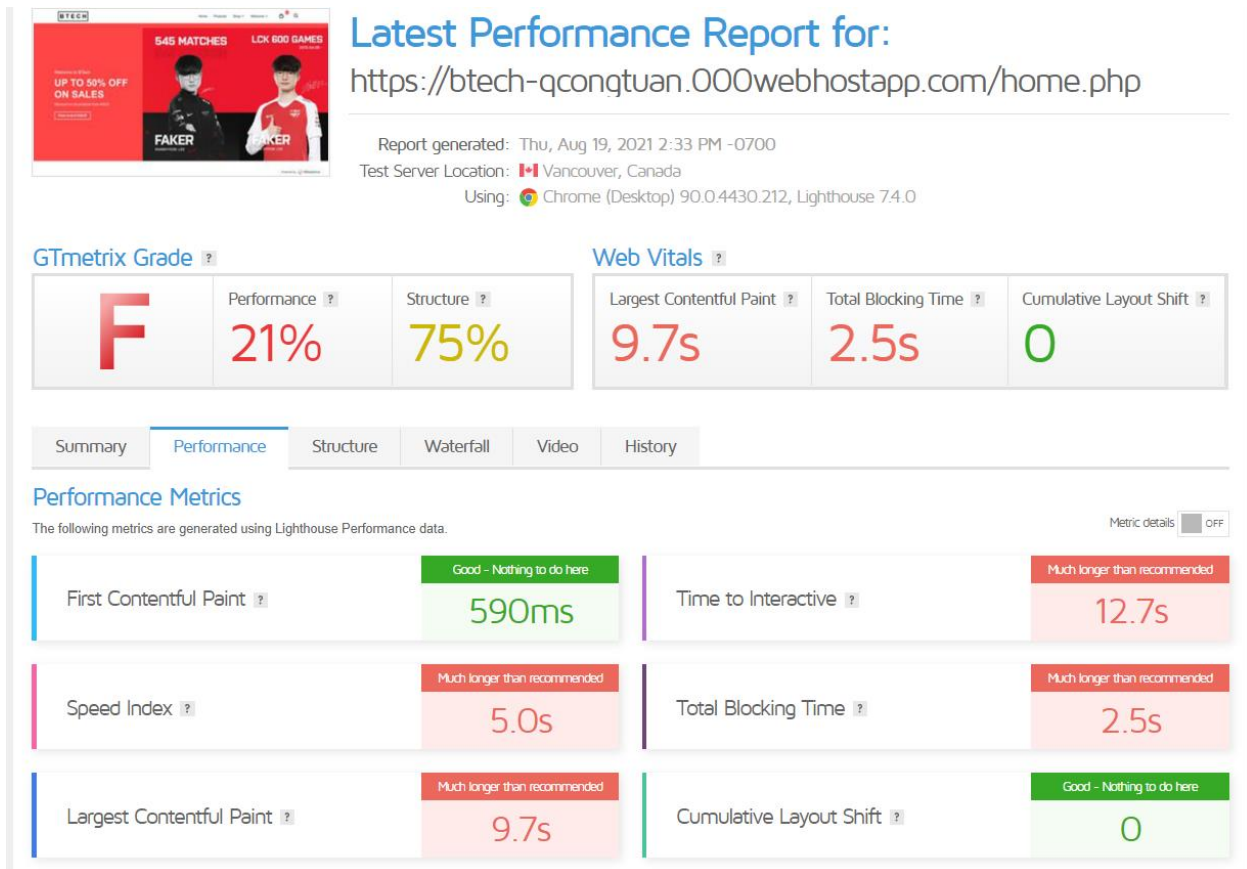


Figure 35 TEST Performance

(<https://gtmetrix.com/reports/btech-qcongquan.000webhostapp.com/QWViNGNb/>)

After further analysis, I got another parameter, the performance effects in my website account for 84.5% due to inappropriate image size.

**Opportunities** — These suggestions can help your page load faster. They don't **directly affect** the Performance score.

Opportunity	Estimated Savings
▲ Properly size images	27.52 s ▼
▲ Serve images in next-gen formats	10.2 s ▼
■ Eliminate render-blocking resources	0.31 s ▼

Figure 36 Result Performance

## 6. Security testing

I have checked login and signup to make sure that there are no SQL injection related vulnerabilities. Users will be kept confidential information safely and without any risk. Security system on database with password reset by date with difficult to identify characters. Therefore, it is not feasible to make customers' personal information exposed or stolen from the web.

## 7. Cross-browser testing / cross-platform testing

I have tried using the website on two platforms, Google Chrome and Microsoft Edge. In both browsers, the results are similar, but in Microsoft Edge the performance is improved by 3-10% compared to Chrome browser.

## 8. Updating test cases

I have updated other cases at TEST LOG. These cases are all test cases, no errors.

## D2 Critically evaluate the design and development process against your design document and analyse any technical challenges.

In this assignment, from my personal point of view there are many challenges I faced during the design and development process. As mentioned above in section M5, there are major technical challenges that we need to tackle namely UX and UI. Besides that there are also many technical factors I need to consider further such as scalability, speed and performance or web security threats. Those are all big challenges for a developer like me.

**UX: User experience (UX)** encapsulates the reactions, perceptions, and feelings your users experience while engaged in your application. It's the feeling of ease and simplicity that you get from great design. It's also the frustration that you feel when interacting with poor design. Therefore, I needed to design a website with high interaction and customer response, meticulously organized, and properly designed designs.

**UI: User Interface (UI)** design includes all the visual elements your users interact with on your web application. It is everything that your users see on their screens and everything they click on to guide them through the experience. I have created more effects, interactions for them to click to increase responsiveness to the user. That will make for an engaging and enjoyable user experience.

I have listed out three factors that affect the user interface:

- Clear navigation
- Engaging visuals
- Easy-to-read typography

**Speed and Performance:** No user likes slow load times. Moreover, they can have real consequences for your business. If your application is slow, users will not wait. They will leave. This is the reality of web application development issues today.

**Scalability:** The challenge of scalability relates to how you want your application to develop over time. If I want my application built right today, I'll need to know as much as possible about what I need it to do in the future.

**Web Security Threats:** In the future I will try to develop more security systems and these are some of the things I will prioritize developing for my website and the people who use it.

- Choosing the right development infrastructure is one. Make sure that the infrastructure I build on has enough security services and options so can implement the proper security measures for my application.
- SSL certificates are a global standard security technology that enables encrypted communication between my web browser and server. When integrated in my website, they enhance its security and eliminate the chance it is flagged as unsecure by web browsers. SSL certificates also help protect credit-card numbers in ecommerce transactions and other sensitive user information like usernames, passwords and email addresses.

**D3 Critically evaluate the results of your Test Plan and include a review of the overall success of your multipage website; use this evaluation to explain any areas of success and provide justified recommendations for areas that require improvement.**

During the site review and test in the Test Log section, I had a basic assessment of the system running very smoothly. Besides, I need to improve more features like shopping cart or search.

Recommendations for areas that require improvement:

- In the Profile section on the menu bar, if in case the user uses the name with the maximum limit (50 characters), this will make the display of the username become unsightly and unsightly on the website. I will improve changing the username to a profile icon. In this icon will contain all user information that they can easily edit. This icon image will be replaced when the user uploads their profile picture.
- I will add and develop more Cart and Add to cart sections. The user will not be redirected to the Cart page when selecting a product and adding it to the cart.
- I will set up more warnings about password and username limits. The account will need to be authenticated by the user's phone number and email, increasing the security of the site.

## Conclusion

In this assignment I have given the website design and development to build a complete website. These websites basically meet the needs of users with friendly and easy-to-use interfaces. Users will have the highest level of interaction with the website. However, there are still some shortcomings I am looking to fix as soon as possible. This will not affect the operation of my website. I have updated one of my website on website: <https://btech-qcongtuan.000webhostapp.com/home.php>

With the basic criteria and requirements given in Assignment 2, I have tried to complete and put the website to work with the most optimal and attractive interface. Regarding the marketing function, I will have SEO articles to help the website stand in search rankings at Google or Microsoft servers.

There are a ton of challenges in web application design and development that I'm bound to face with anything I build.



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