PC STORE

The website: http://saifkharoof.epizy.com/

GitHub code: https://github.com/shathaali89/WebsiteDesign2021-S2-seifkharouf19110044

saif
19110044

Contents

1. Hosting and managing the website

a. DNS server

This protocol stands for Domain Name System and it works on the fourth layer of the TCP/IP model the application layer. Its main characteristics:(*DNS - Domain Name System - javatpoint*, no date)

a. It is a directory service that provides a mapping between the name of a host and its numerical address on the network
b. It is required for the functioning of the internet.
c. It is a service that does not let you remember the IP address of the website is being translated to a name and makes it more user-friendly.

The server divides into four types to load a webpage: (*What is DNS, How it Works + Vulnerabilities | Varonis*, no date)

a. DNS recursor: this server is responding to a DNS query and asks another DNS server for the address, or already has the IP address for the site saved.

b. Root name server: it is the name server for the root zone. It responds to direct requests and returns a list of authoritative name servers for the corresponding top-level domain.

c. TLD (Top-Level Domain) name server: it is a high-level DNS server on the internet when a search for a website that ends with a generic domain like com or gov will respond first to the name of the website.

d. Authoritative name server: The authoritative name server is the final stop for a DNS query. The authoritative name server has the DNS record for the request.

Free DNS servers: (*Best Free DNS Servers | 14 Options to Check Out | Allconnect*, no date)

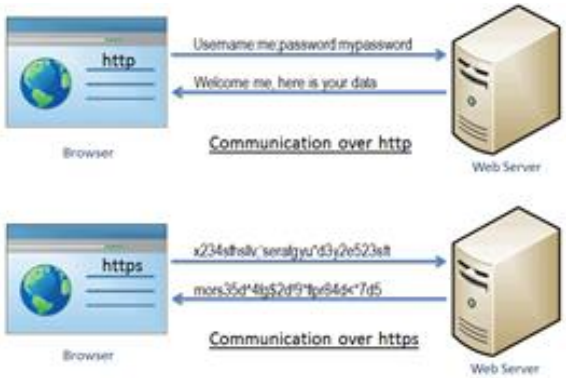
a. Cloudflare: IP address 1.1.1.1. It features unmetered mitigation for DDoS, global CDN, shared SSL certificate, three-page rules, and unlimited bandwidth. And it is designed for mobile devices.
b. Google public DNS: IP address 8.8.8.8. It focuses on the “speed, security, and validity of results.” It only offers DNS resolution and caching — there is no site-blocking with Public DNS.
c. Yandex DNS: IP address 77.88.8.7. It is Russian-based, features faster internet access, and blocks malware and bots.

b. Communication protocols and servers

i. Web servers and its protocols:

(*HTTP vs HTTPS - javatpoint*, no date)

HTTPS	HTTP
It stands for Hypertext Transfer Protocol Secure.	**It stands for Hypertext Transfer Protocol.**
It wrote in the address bar https://.	It wrote in the address bar http://.
Its port number 443.	**Its port number 80.**
It sends secured which makes it more secure (which we need).	It sends the plain text as it is thus this will not be secure.
It is used to transmit sensitive data like the bank account or in our case the national ID number and other personal information.	**It is only used in blogs.**
It uses SSL thus the data is encrypted.	It does not use SSL.
Google gives it a preference because that is a secure website.	**Google does not give it a preference because it is not a secure website.**
Because of the security and other features, it will be slower.	It is faster because of the lack of features and security.
Transport layer protocol.	**Application layer protocol.**



Source:(*https-communication.png (684×451)*, no date)

It is hardware and software that uses HTTP (or HTTPS) protocol and other protocols to respond to client requests over the internet. The hardware is connected to the internet and allows data to be exchanged with connected devices. And it is an

example of the **client/server model**. To host the websites you must have web server software. They are used in web hosting, or to host the data for websites and web applications. It uses also, sends and receives emails, downloads requests for the FTP files, and it builds and publishes webpages. It has two types: (*What is a Web Server and How Does it Work?*, no date)

a. Static web server: it is static because it sends hosted files as is to the browser. And it contains a computer and HTTP software.

b. Dynamic web server: it contains a web server and other software like an application server and database. The reason behind calling it dynamic that the application server can be used to update hosted files before sending them to the browser. And the web server can generate content when the database requests it. Though this is more flexible it is more complicated.

Web server software:

a. Apache HTTP Server: Developed by Apache Software Foundation, it is a free and open-source web server for Windows, Mac OS X, UNIX, Linux, Solaris, and other operating systems; it needs the Apache license.

b. Microsoft Internet Information Services (IIS): Developed by Microsoft for Microsoft platforms; it is not open-sourced, but widely used.

c. Nginx: A popular open source web server for administrators because of its light resource utilization and scalability. It can handle many concurrent sessions due to its event-driven architecture. Nginx also can be used as a proxy server and load balancer.

d. Lighttpd. A free web server that comes with the FreeBSD operating system. It is seen as fast and secure while consuming less CPU power.

e. Sun Java System Web Server. A free web server from Sun Microsystems that can run on Windows, Linux, and UNIX. It is well-equipped to handle medium to large websites.

ii. FTP protocols and its server:

The protocol stands for File Transfer Protocol and it works on the fourth layer of the TCP/IP model the application layer. Its main characteristics: (*FTP - File Transfer Protocol - javatpoint*, no date)

a. It is mainly used to transfer files from their creator to the computer which is a server for other computers on the internet.
b. It is used to download files to computers from other servers.
c. Transfer the data more reliable and efficient and this one of its advantages.
d. It encourages to use on remote computers.
e. It is the fastest way to transfer files.

f. It provides the security the reason behind it that it asks for the username and password.
g. It provides transfer files back and forth. For example, the admin sends a message then the users' reply.

The server works in FTP to transfer data and it works on the client/server model. It needs either a transfer control protocol network or an internet protocol network to function. Its main characteristics:(*FTP Server - javatpoint*, no date)

a. It stores the address of the client files and creates a tunnel to share them.
b. Its connection remains connected all the time.
c. It helps to transfer files via the internet from one user to another.
d. It allows the users to access the data on the server however their some files cannot be accessed only by special users.
e. It provides anonymous access, which lets the user download from the server but not upload.
f. It is useful for people who got bad internet speed.
g. If the download failed you can resume the download.
h. It stores the data in encrypted form to protect it so that it does not fall in the wrong hands.
i. It has no memory limit to store data.

The FTP server got two types:

a. Anonymous server: common FTP server, for all FTP clients, there is no password required to access it.
b. Non-anonymous server: it is a paid server, the user needs a password to access the files.

Free open-source software for the FTP server:

a. FileZilla Server.
b. Xlight FTP Server.
c. Core FTP / SFTP Server.
d. ProFTPD.
e. Rebex Tiny SFTP Server.

iii. Mail protocols and server

- SMTP: stands for Simple Mail Transfer Protocol, and it is a "set of communication guidelines that allow the software to transmit an electronic mail over the internet". (*SMTP - Simple Mail Transfer Protocol - javatpoint*, no date) Its characteristics:

a. It sends messages to other computers using e-mail addresses.
b. It provides mail exchanges between users on the same or different computers.
c. It supports sending a message to one or more recipients, the message can include text or video or graphics, and sending messages outside the internet.
d. It sets up communication rules between servers. Servers can identify themselves and announce what kind of communication they are trying to perform. Also, they can handle errors like incorrect email addresses.

- POP3 vs IMAP:

POP3	IMAP
Stands for post office protocol3.	Stands for Internet Messages Access Protocol.
Simple protocol and used only for downloading messages from the inbox to the local computers.	Advanced protocol compared to the POP3. It allows a user to check all the folders on the mail server and it is used to retrieve the emails.
It listens on port number 110, and POP3DS* listens on port 995.	Listens on port 143, IMAPDS* listens on port 993.
Mail can be accessed by a single device at a time.	Messages can be accessed using different devices.
We can read the message only when it is downloaded.	We can read messages partially before finishing the download.
Mail updated by local email software.	Mail updated by a software or web interface.
It does not allow the user to create, delete, or update the mailboxes on the mail server.	It allows the user to create, delete, or update on the mail server and also allows to create a hierarchy of mailboxes in the folder.
It does not allow to organize the mails on the server.	It allows organizing the mails on the server.
All messages can be downloaded at once.	The message header is previewed before the message is downloaded.
Emails are stored on the server and synced and can be accessed by multiple devices.	Emails are stored on a single device once they are downloaded and removed from the server.

The server main characteristics that it handles and delivers e-mails over the internet and it can receive e-mails from client PCs and send them to other mail servers and vice versa. (*What is a Mail Server and How Does it Work? (Article)*, no date)

Open sources mail servers software:(*16 Free open-source email servers for enterprise and individuals*, no date)

a. IRedMail: it runs on Linux servers like RedHat, Ubuntu, CentOS, Debian, FreeBSD, and OpenBSD. And it supports secure connections with full support for POP3, IMAP, and SMTP. Emails are encrypted using TLS. Also, it features a web client and supports external webmail clients like Reoundcube. It also helps users to manage calendars (CalDav), address books (CardDav). Server admins can choose their favourite database store backends like MySQL, MariaDB, PostgreSQL, and OpenLDAP. Moreover, it has iRedMail has a built-in antispam and antivirus support with third-party extensions like SpamAssassin, ClamAV, SPF, and DKIM.

b. Postal: Postal is a complete Libre free mail server for the enterprise. It is the open-source equalivent for Sendgrid, Mailgun and Postmark. Postal supports all known protocols comes integrated with spam and virus protection. It offers a developer-friendly API.

c. Haraka: Haraka is an open-source SMTP server built with Node.js. It is highly scalable, extensible through plugins. Also, it runs seamlessly on Windows and Linux servers, and it requires minimal configuration.

d. Salmon: Salmon, also known as Python mail server is a free open-source mail server for developers who wish to create robust and complex server-based mail applications. Also, it is released under GNU GPLv3 and works seamlessly with Python web frameworks and libraries like Django and SQLAlchemy.

c. Web technologies and frameworks

(*What Web Technologies Should I Learn?* | *Woz U*, no date)

i. Web technologies:

There are many web technologies such as:

- CSS: also called cascading style sheet it can make the layout the page and how it looks there are frameworks for CSS like bootstrap and tailwind that can speed up the development process. But, the developers can use modular components to reuse them as needed.

- Frameworks: will be discussed in a latter section.

- Programming languages: the most of them used in the back-end like, PHP, python, java, and C#. And the front-end languages used are, HTML, JavaScript. These can help to develop a full website that is fully functional that talks to databases and showing the results through the UI and screens.

- Databases: it used to store the data that is displayed on the web page understanding it can make the transmission of the information efficient. The common used ones that is used are MongoDB which is NoSQL database, oracle which is an enterprise SQL database, and MySQL database which is an open source database.

- Browsers: these will be the information displayed on and the UI of the webpage to the user. Like, google chrome, safari, Firefox, and internet explorer.

- Web servers: discussed above.

The website is built using mark-up languages and programming languages. The mark-up is useful for the front-end and the layout of the website I will be using HTML and CSS mark-up languages. The programming languages is useful for the backend stuff, so we can add the data of the products using database management systems like MySQL and it will be connected to our website through PHP so that users interact with the listed product we have.

ii. Frameworks

(*Top 10 Best Web Development Technologies to use in 2021* | *ISHIR-Software Development Company India*, no date)

There are many frameworks such as:

- Angular: it is created in 2016 by google, it is common features are, dirty checking, two-way data binding, easy to use client side

framework, completely secured, and DOM sanitation. It used if the team have a proper backend experience, developing complex application but less interactive and for enterprises.

- React.js: it is a client side framework based on java script it has a huge popularity. Its main features are, that it implements a view layer for UI, it develops for different kinds of user interfaces, it has a top notch server-side rendering with impressive SEO support, and it is being tested with 2.7 billion users on Facebook to keep up with the industry needs. It is one of the most innovative framework.

- Django: developed in 2005 and it is a python framework which need familiarity with python. It is main features are it is a highly scalable, large enterprise framework the supports MTV architecture and the development velocity is rapid.

- Laravel: it is a PHP based framework created in 2011 and it is a server-side. Its main features that is supported by the MVC that offers high speed web development, session management, middleware, ORM, and simple to use. It used in an enterprise set-up with complex apps and large scale companies.

d. Publishing the website

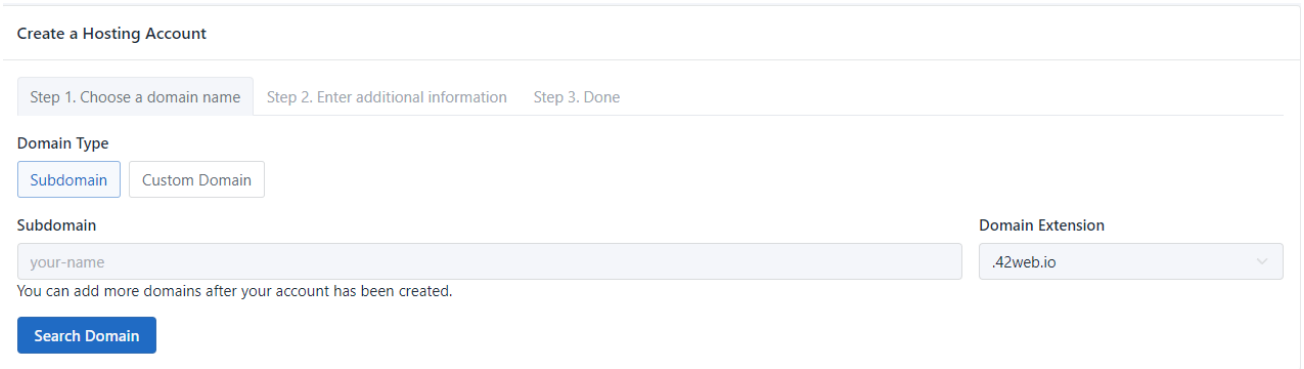
I used infintyfree.com to publish the website so these steps for this domain hosting.

- First step:

Sing in or sign up to the website

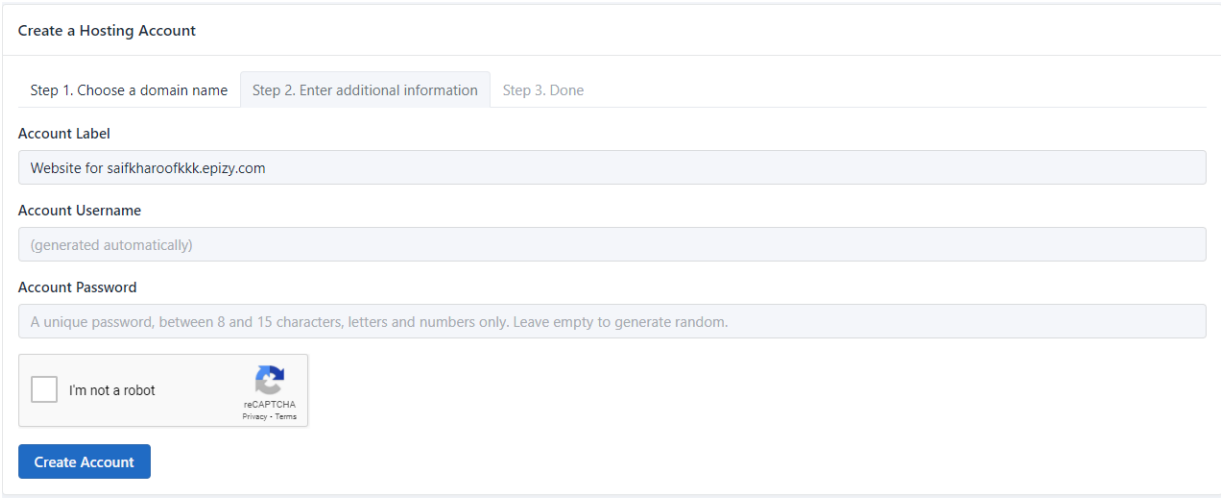
- Second step:

After creating an account choose a domain name for the website



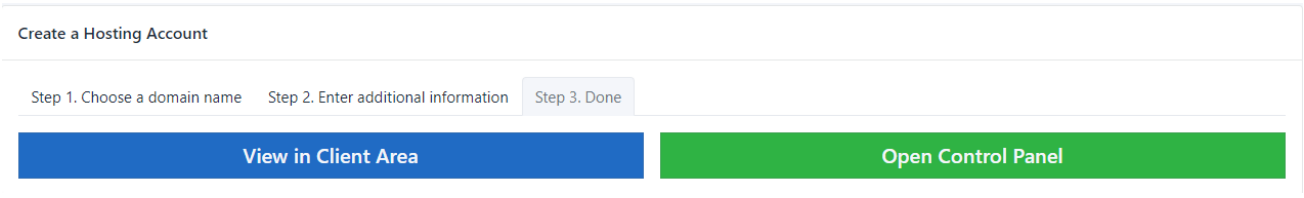
- Third step

After choosing a domain name add an account name a password (or leave it empty it will generate a password)



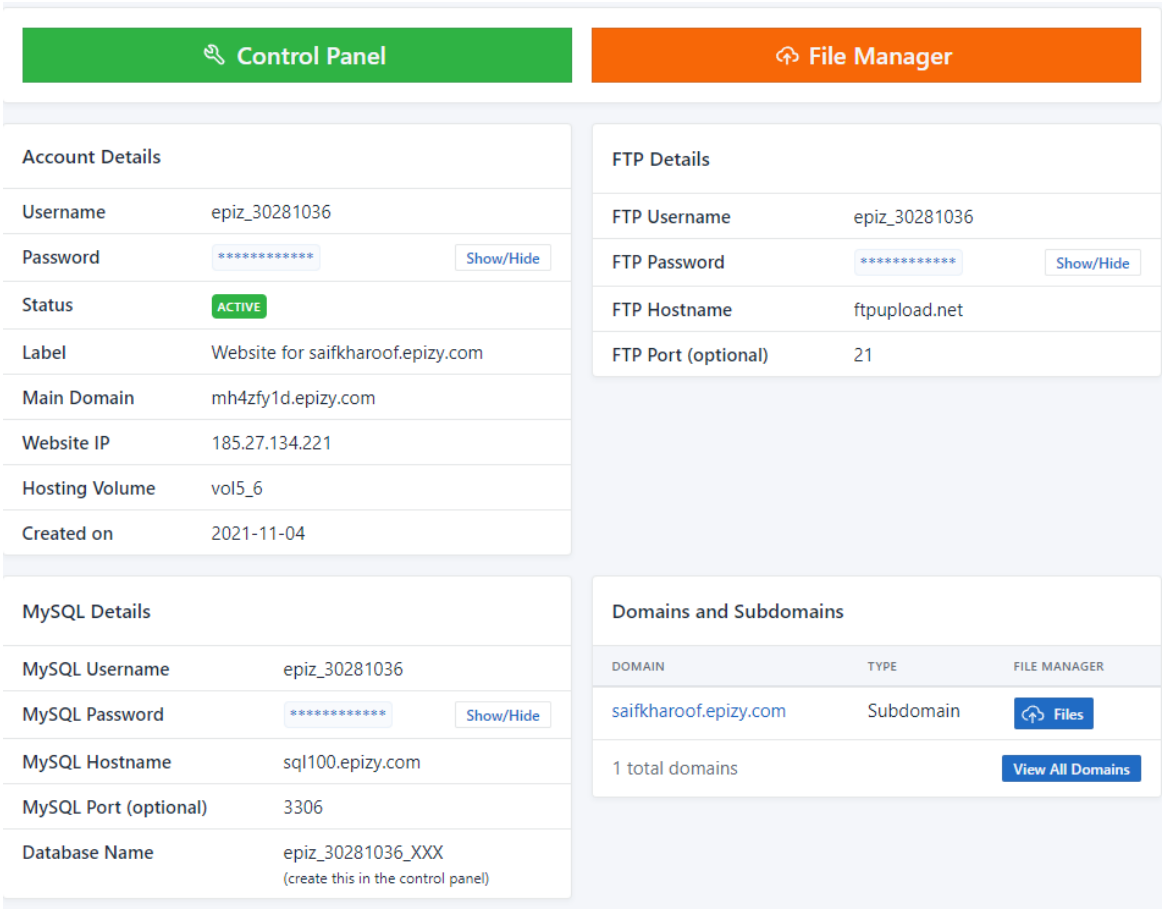
- Fourth step:

After adding the name and password go the client area



- Fifth step:

When going in this page you will see first of all the status it should be active to be ready for the next steps. The second thing we will need is the MySQL details the host and username and password. And you will find your domain name

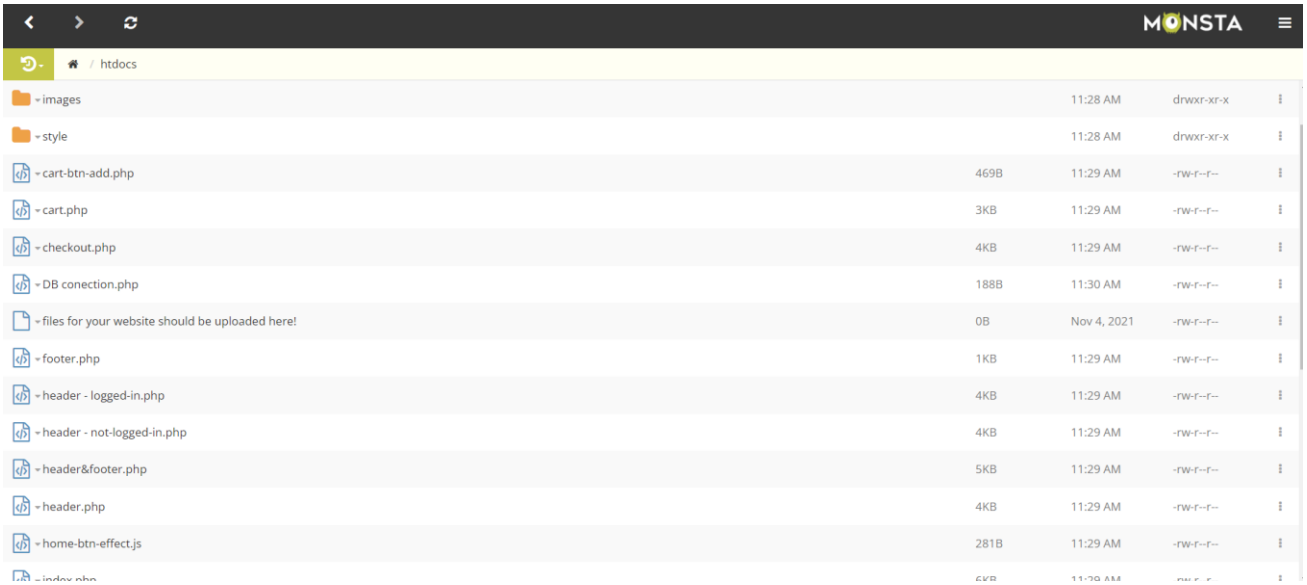


- Sixth step:

From the previous step go to the files beside the domain name or to the file manager to upload the files needed. When going there click the folder htdocs.

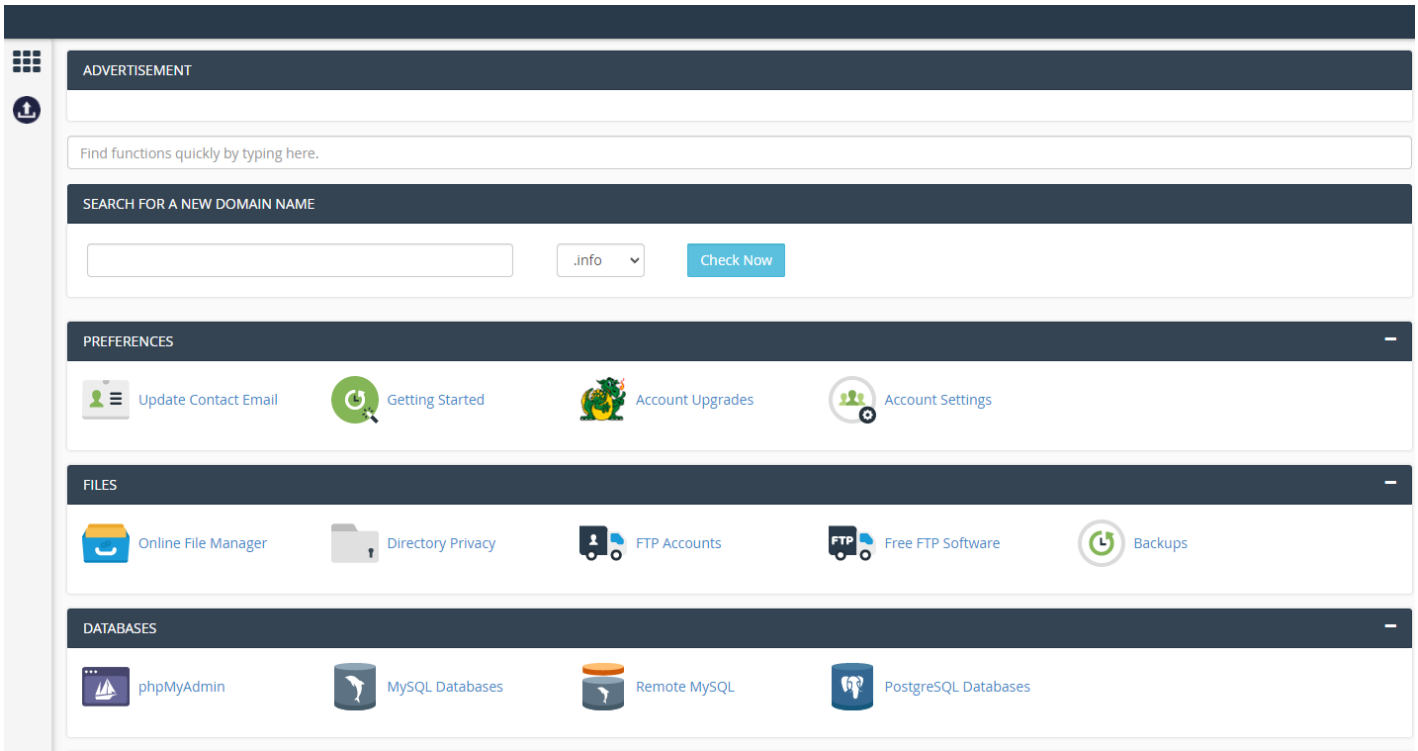
- Seventh step:

From the previous step when entering the folder you need to upload your files here



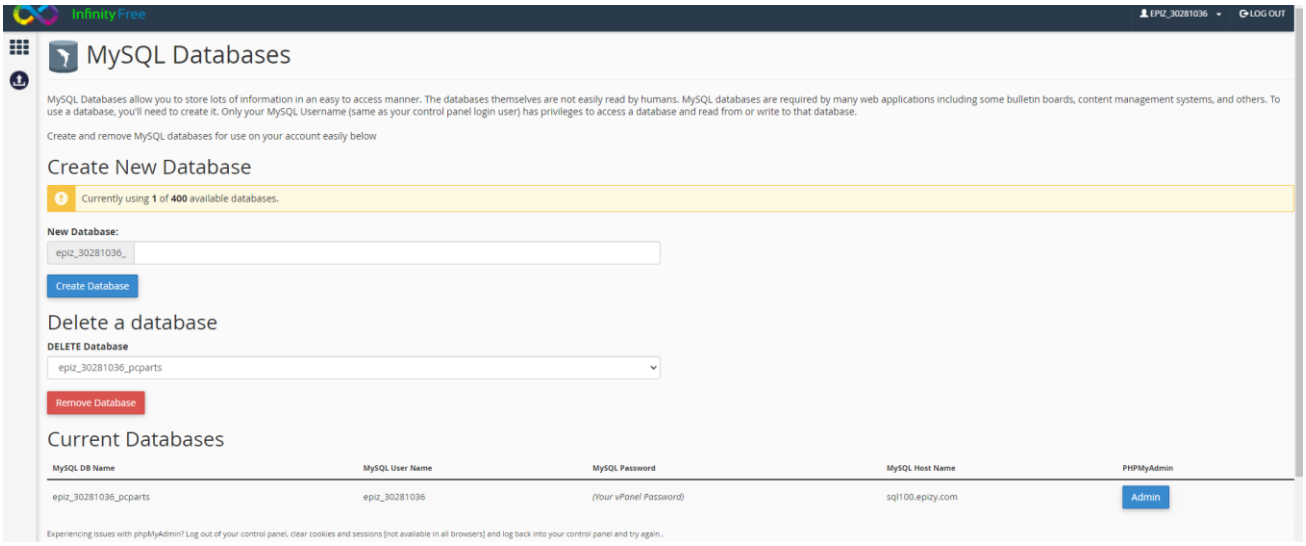
- Step eight:

To add the database we need to go back to the [fifth step](#) and go to the control panel and scroll down to the databases and go to the MySQL database.



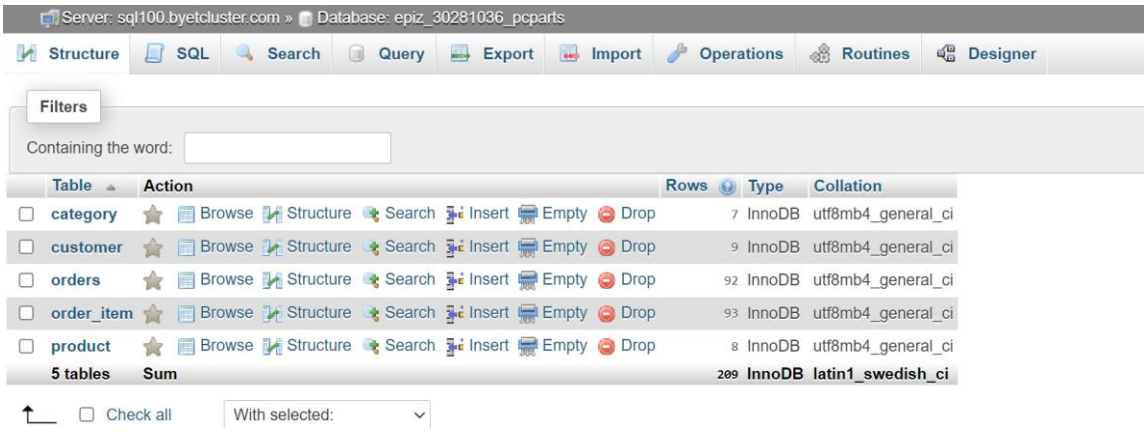
- Ninth step:

From the previous step you will find this page and then add a database to the system



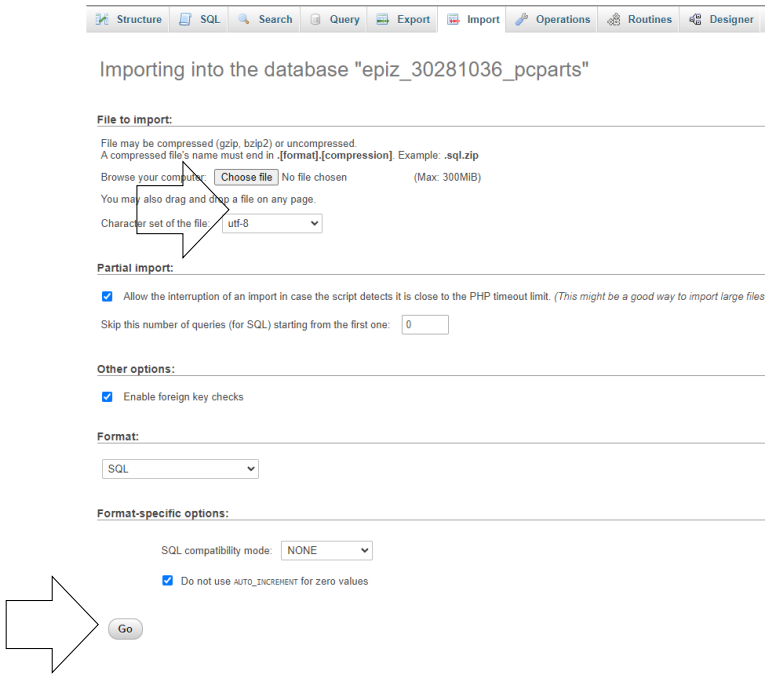
- Tenth step:

When adding a database click admin and this page will open go to import



- Step eleven:

When going to this page select choose file the go to add a database you recently did



- Step thirteen:

Go to the connection file and rename the host name and the user name and password with the database details as shown in the fifth step and the database name from the ninth step.

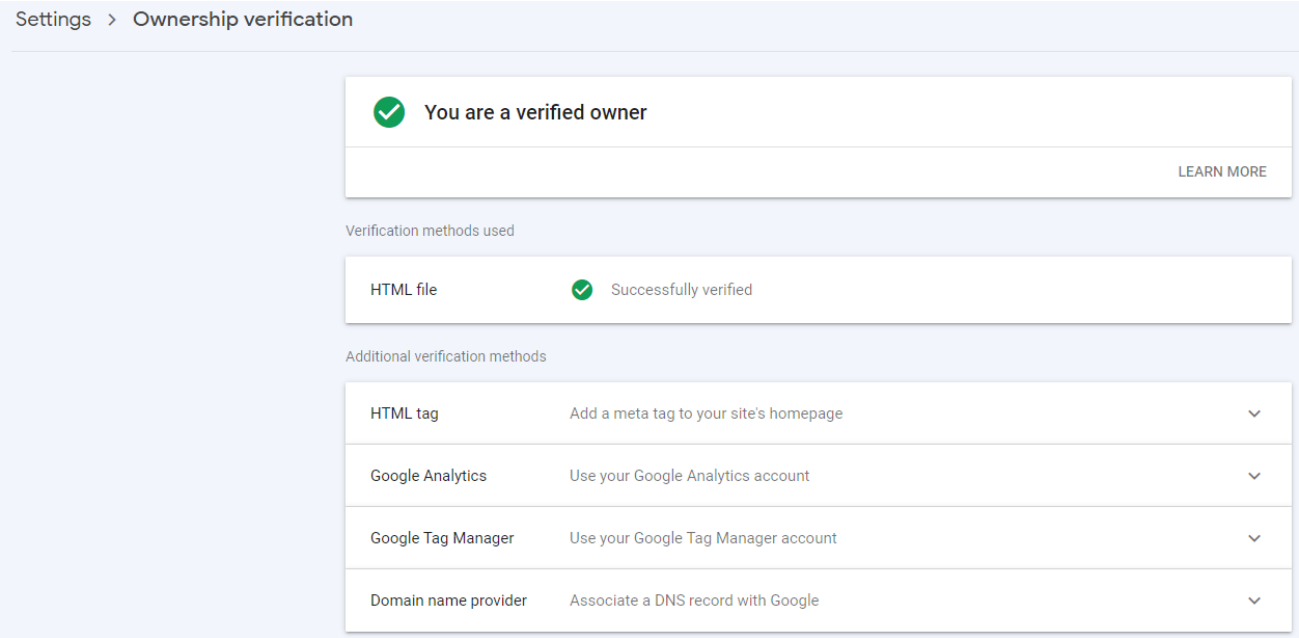
```php
<?php

$host = 'sql100.epizy.com';
$dbname = 'epiz_30281036_pcparts';
$user = 'epiz_30281036';
$pass = [redacted];

$pdo = new PDO("mysql:host=$host;dbname=$dbname",$user,$pass);

?>
```

e. Search engine optimization (SEO)

(*Top 10 Benefits of SEO For Businesses in 2022 | IIDE*, no date)

It is a way to increase the website search engine rank. We need to make changes to the website so the search engine can detect the information type like words, phrases, documents and images. If the website is ranked high enough the people most likely will click on the website link and visit. Making the search simpler on the costumers is an essential part of SEO and is connected to the ranking.

I used google search console to monitor the website's organic search presence and find how will it is doing in terms of performance:



Also I used html tags to increase the ranking of my website and the SEO:

First of all I used the title tag and the meta viewport to give a title to all of my pages to increase the ranking and the keywords and description used in most of the pages:

```
<meta name = "viewport" content = "width = device-width , initial-scale =1.0">
<link rel="stylesheet" href="style/header&footer.css">
<link rel="stylesheet" href="style/cards.css">
<meta charset="UTF-8">
<title>pc components</title>
<?php foreach($data as $row){ ?>
<meta name = 'keywords' content = '<?php echo $row['title'];?>'>
<meta name = 'description' content = '<?php echo $row['description'];?>'>
<?php }?>
<meta name="author" content="saif edeen kharouf">
<script src="home-btn-effect.js"></script>
<style>
```

Second of all I used the alt attribute inside the images to give them names and to increase the SEO rank:

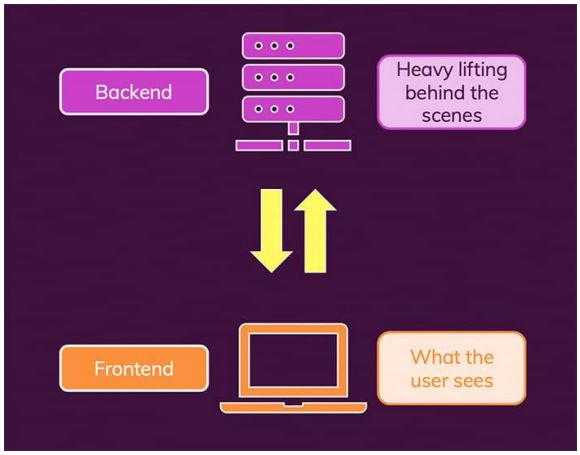
```
<?php foreach($data as $row){ ?>
<a href='product-showcase.php?id=<?php echo $row['id'];?>' class='click'>
    <div id="image1" class="img">

        <img src="<?php echo $row['image'];?>" class="img2" alt='<?php echo $row['image'];?>'>
        <span> <?php echo $row['title'];?> </span>
        <span> <?php echo $row['price'];?> </span>

    </div>
</a>
    <?php }?>
```

2. Technologies, tool, software

(*Frontend vs Backend*, no date)

a. Front-end back-end relationship

The frontend what the user sees from the HTML and CSS and the JavaScript, the backend responsible for the behind the scenes of the process and storing the data. And the relationship works by sending Http requests from frontend to backend for transferring data and fetching from the database. It is called the backend works on a remote server not in the users' device. Frontend-backend called client-server.



Let's talk about my website for example the user can see my products and interact with them. The data of the products is not stored on the client device or the browser. It is stored in my servers what the backend does that it provides a way to add or update or remove the data as needed. Anything that is rendered to the users' device it is frontend work and controlled and responsible for the showing and updating the data. The backend will be validate the data again when the data is entered because the frontend can be tricked.

b. Web creation tools vs custom built ones

(*Advantages of Custom Built Sites vs Online Website Builder Tools*, no date)

- Unique customization of the websites

  If the business is trying to be unique and distinctive between others the web creation tools is not the option here. And the UI and UX are looked thoroughly to increase effectiveness with the custom built website.

- Better SEO

  Website designers planning and research about the keywords and creates sitemaps and variety of other tools. On the other hand the web creation tools does not have these tools and have less benefits.

- Faster page loading

  The developers can address JavaScript, CSS, and browser cache, CDN (content delivery network) to provide a better speed for loading. Web creation tools does not have control over these which will reduce the loading speed of the page.

- Own your website

  When you make a website using the web creation tool you will not own it instead the company will have it like wix.com it makes the domain name like this (your website name).wix.com not like when building a website and buying the domain name which domain name will look like this (your website name).com and you can switch to a new server with ease.

c. Tools used for custom built website

(*50 Great Web Development Tools Devs Actually Use in 2022*, no date)

(*Top 13 BEST Front End Web Development Tools To Consider In 2022*, no date)

- Figma: it is a free tool and accessible from any browser and it is a LEGO for the web developers. It is all in one platform for the design needs from UI, UX, and graphic design to wire-framing and mock up a mobile app. This why I used it in my project to do my wire-frames.

- ChromeDevTools: we can use it to debug the JavaScript code and the CSS and manipulate the DOM and see what is the problem with the website and can be accessed through right clicking on the browser then inspect element. I used this tool to solve my problems with the front-end.

- Visual studio code (VS code): is built by Microsoft and open source code editor runs everywhere and allows to do anything from debugging to create Sass code. This is why I used it in my project.

- Sass: it is an extension for CSS it allows to use variables and nested rules and it organize large stylesheets.

- GitHub: it helps with managing the projects and allows a review processes for the code and it can be integrated to the tools that I am using and it can be self-hosted or cloud-hosted solution. It used by the developers to share their projects. That is why I used it in my project.

- NPM: open source and free will be able to publish unlimited OSS packages and install public packages and will give automatic warnings about unsafe code. But there is a paid version for the organisations that will be enable them to manage team permissions.

3. Website design and development

a. Client and user requirements.

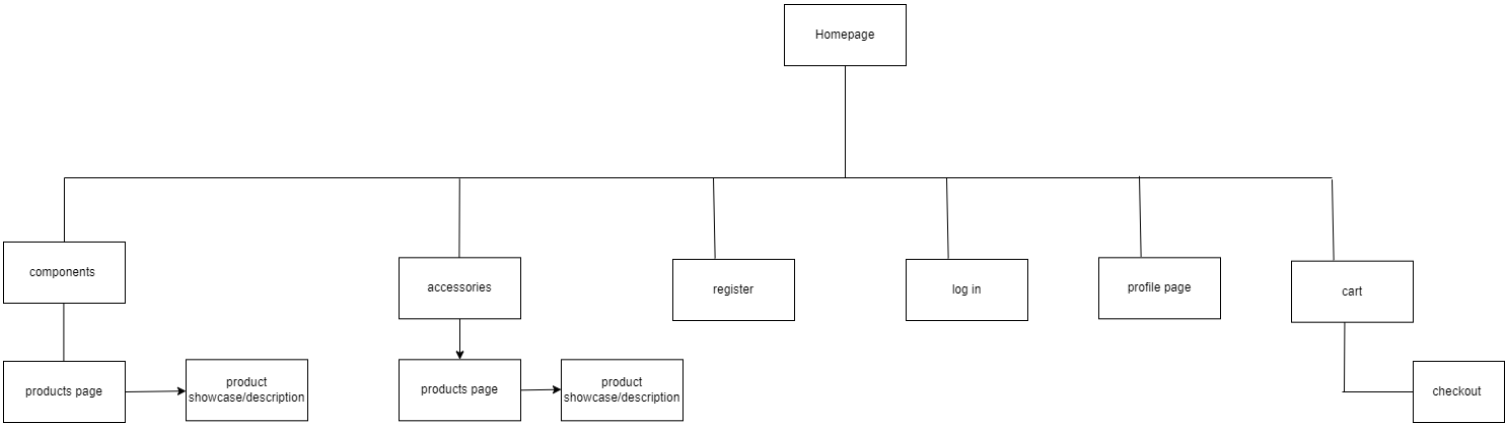
The design document is a process that you present the document elements so the message of the document is being understood and clear. When it is well written, the readers will feel more positive and accept the message from the documentation and they will be understating the information quickly.(*WC127/WC127: Document Design*, no date)

Our PC store main goal is to interact the customers with the store through an e-commerce website that is selling accessories and parts for PCs. The website will have log in or register. In the checkout, you will be entering the delivery method (same-day and after two days) and the payment method (for now it is cash on delivery). If he log in or register an account he will be able to see orders he made and the current ones and review the products.

This process will help us to understand the project we are doing quickly and easily, and it will show step by step all the modifications that we will do during the project. Every wireframe will showcase the layout and help to visualize the website better and let us make any modifications before going to building process so it will help to save the time and effort for us. Also, the sitemap will help to show each page where it leads to and it will help to visualize the process and the path of the website this will also save time and effort. Also, we will see every element what will do in the website so there will be a bigger understanding of the workflow of the website.

b. Sitemap

"A sitemap is a file that lists all of the pages of a website and how they're related to each other. Sitemaps can be lists of pages, media or files on a website. Your website may have one sitemap for your pages, one sitemap for your blog posts, one sitemap for your images and so on."(*What Is a Sitemap? (and How To Upload One to Search Console)*, no date). My sitemap is from the homepage then he will go through either the components, accessories, register, log in, profile, and cart. Components and accessories will go to the products page then to the product showcase and from the cart to the check out.



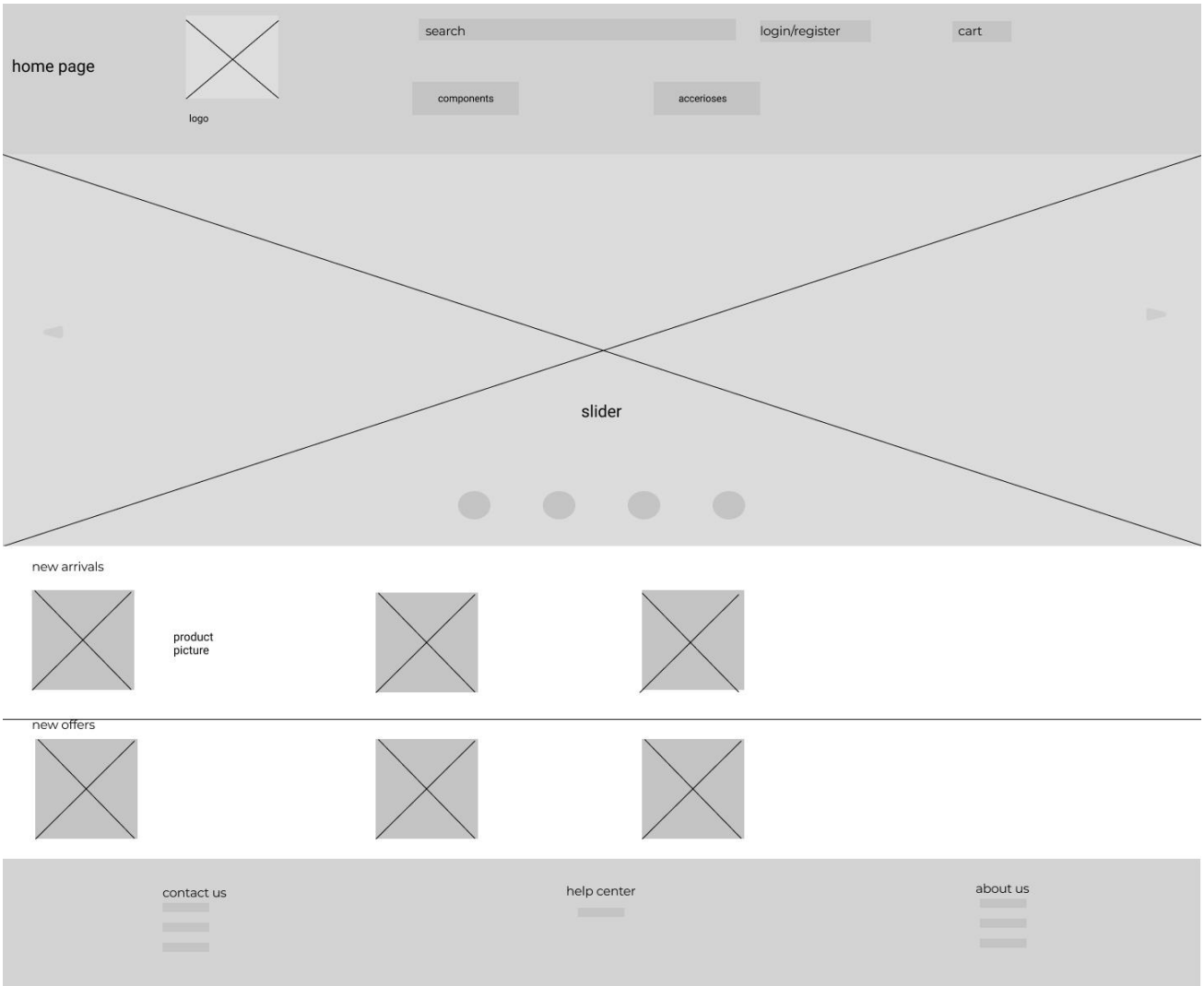
c. Wireframes

It is a two dimensional illustration that does not include any colours or stylings or graphics. Moreover, it mainly focuses on space allocation and prioritization of content, functionalities available, and the behaviours that are wanted. It also helps to make a relationship between multiple website templates. (*Wireframing | Usability.gov*, no date)

The wireframes for the website: (they would have some changes in the future)

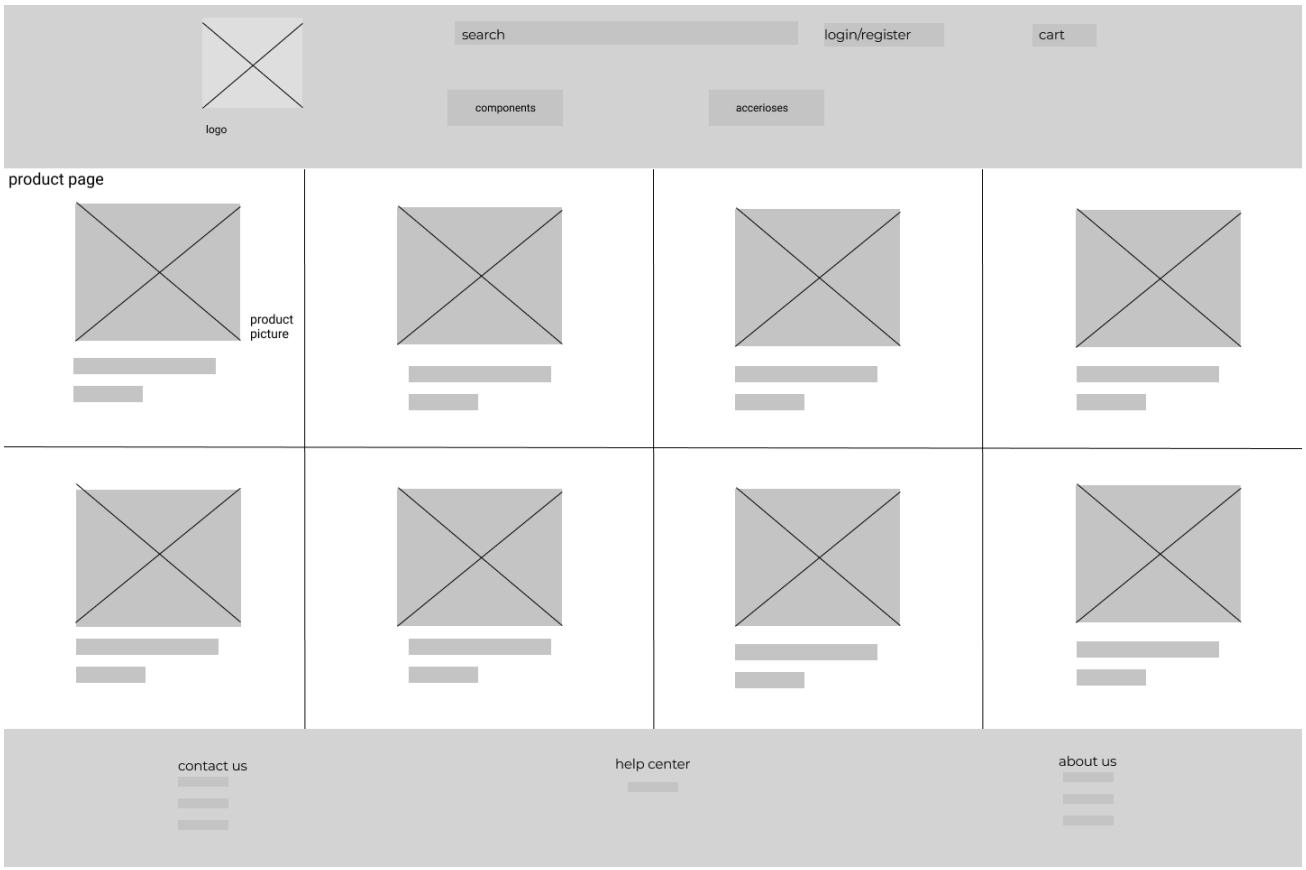
- Home page

This page will have an image slider that will showcase main brands we will work with and their products. Also, it will have new arrivals for the newly add products and the new offers that will be featured also.



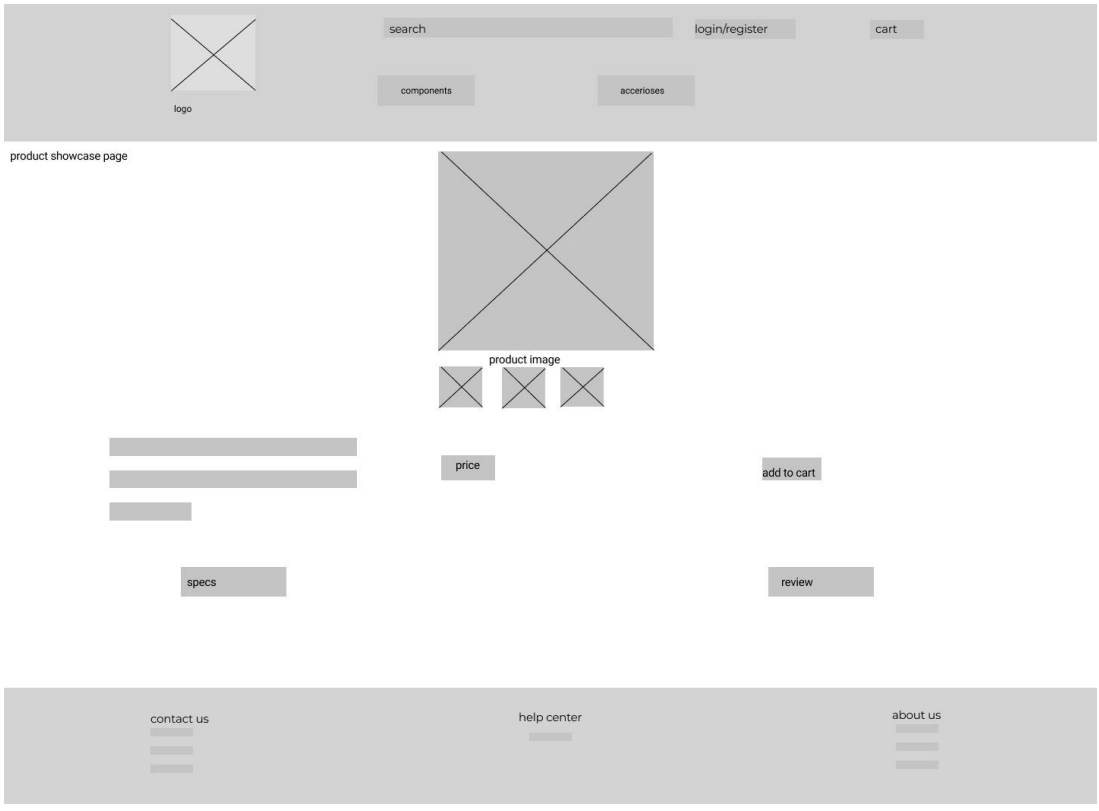
- Products page

This page will showcase all of the products under certain categories like the PC accessories or the PC components



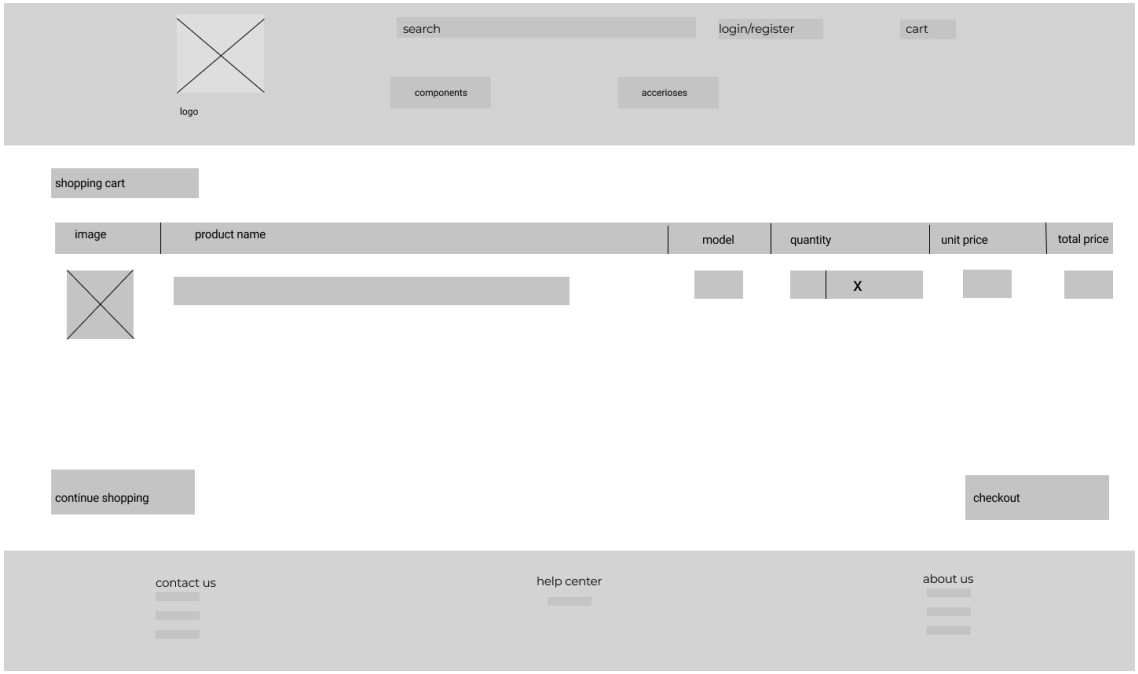
- Product showcase

This page will showcase the product itself from the price to the description to the specs and the review of the products from the costumers also the images of the product



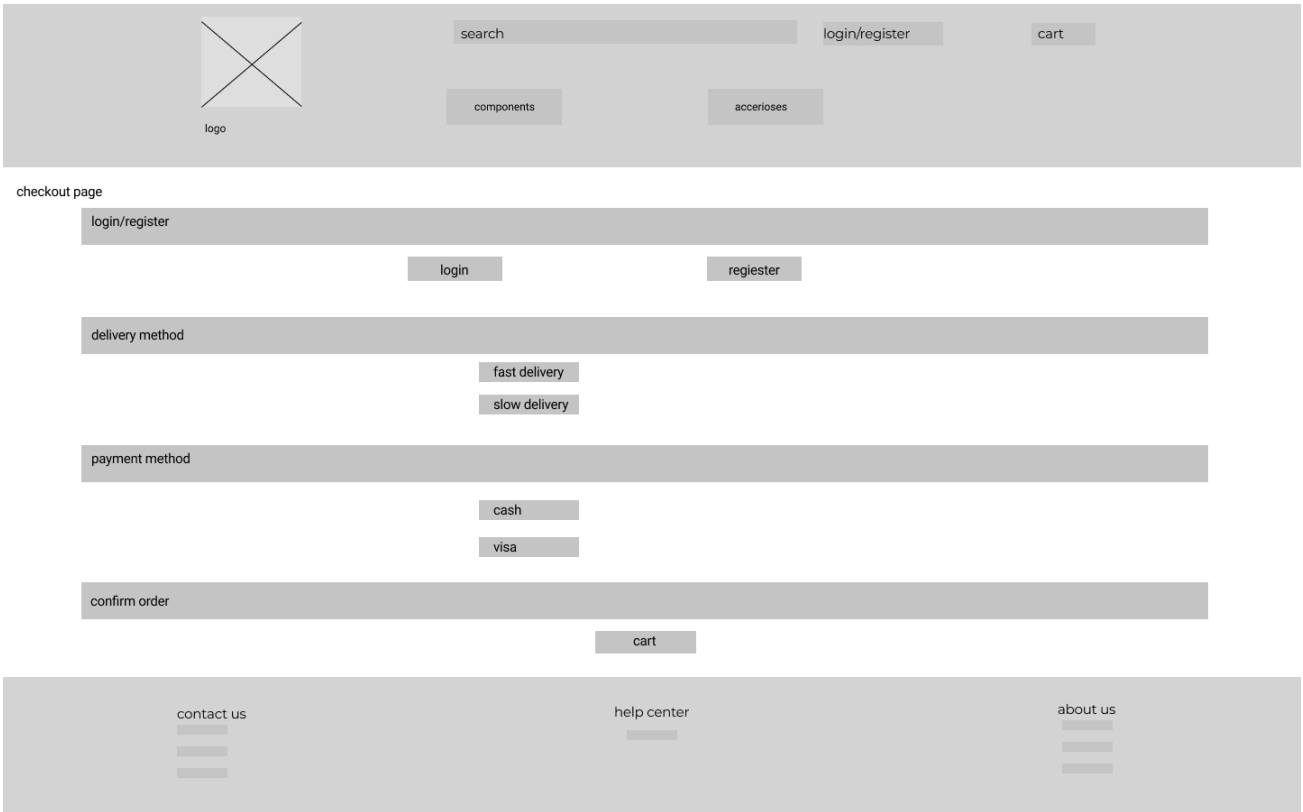
- Cart page

This page will show the image of the product and the name with the model number and how many and the price with the total price and it will allow you to continue your shopping.



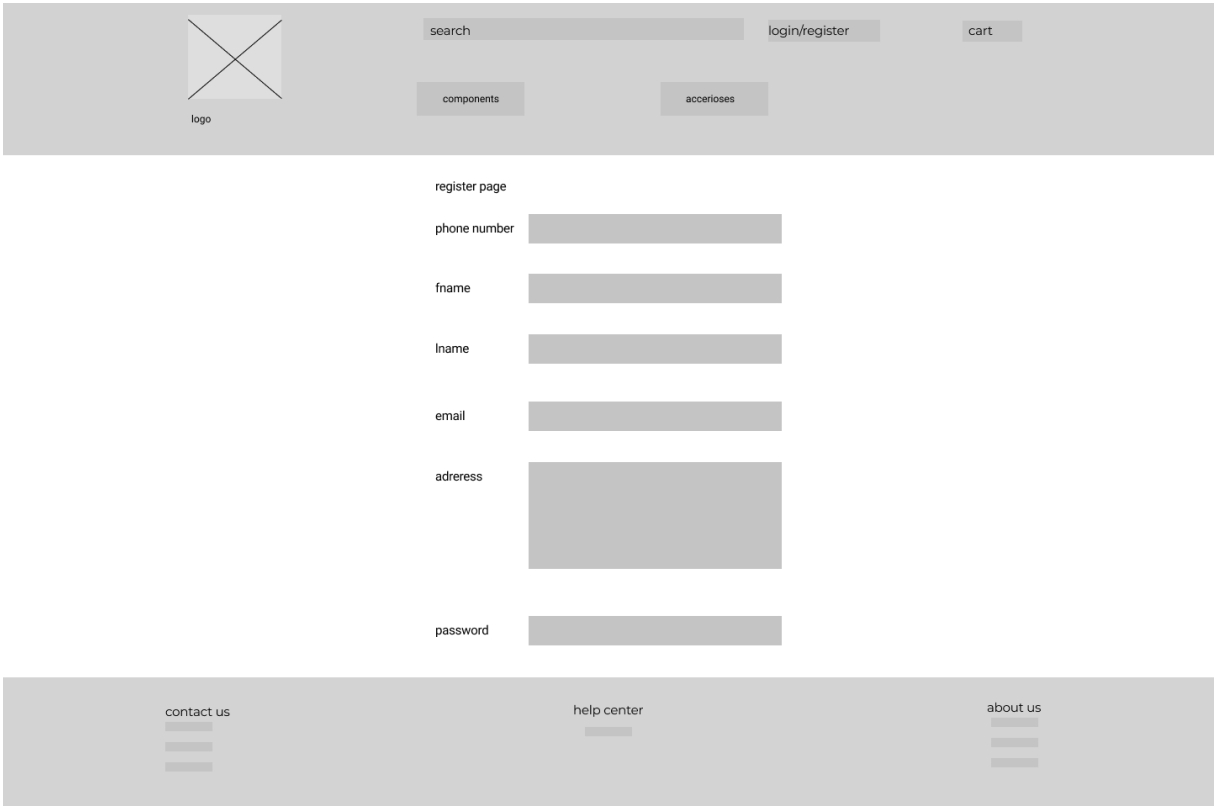
- Checkout page

This page is the end of the user shopping and it will ask to log in or register but it is optional. Also, he will choose how he wants the delivery fast or take two days, the payment method will ask him visa or cash on delivery. The confirm order will re-showcase the same page layout of the cart.



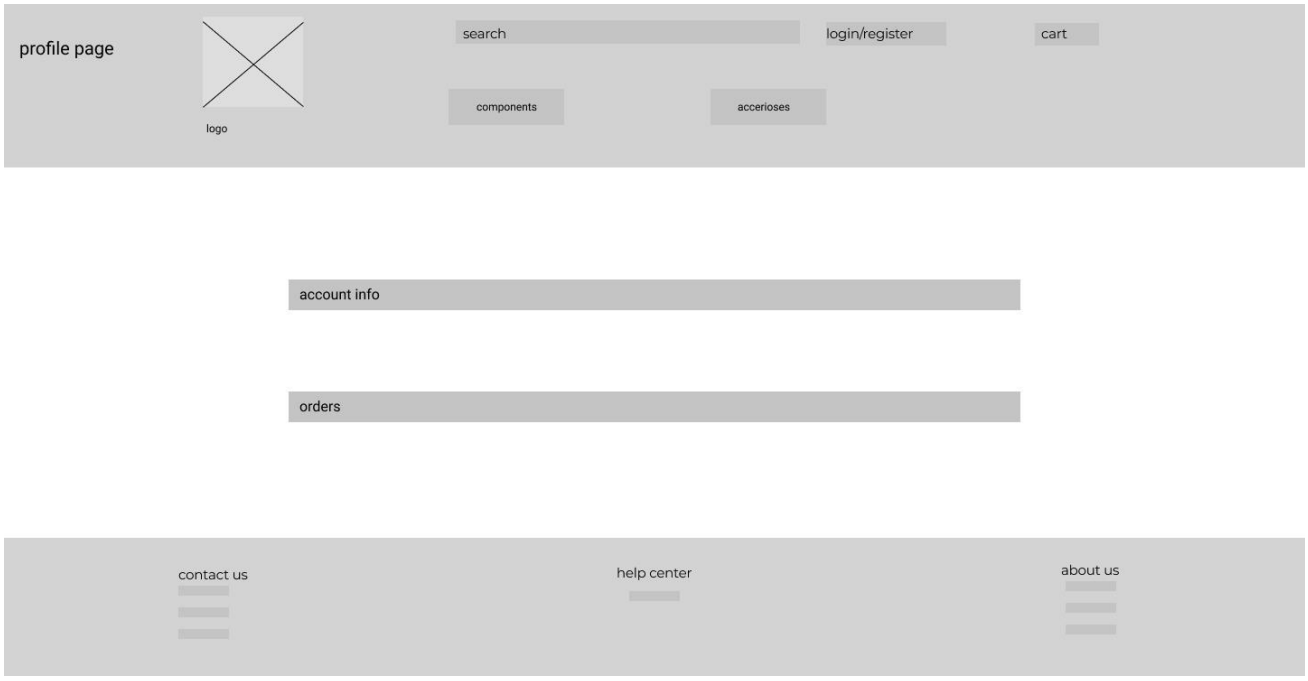
- Register page

This page will ask for a phone number and his name, email, address and password which will be required if wants to sign in



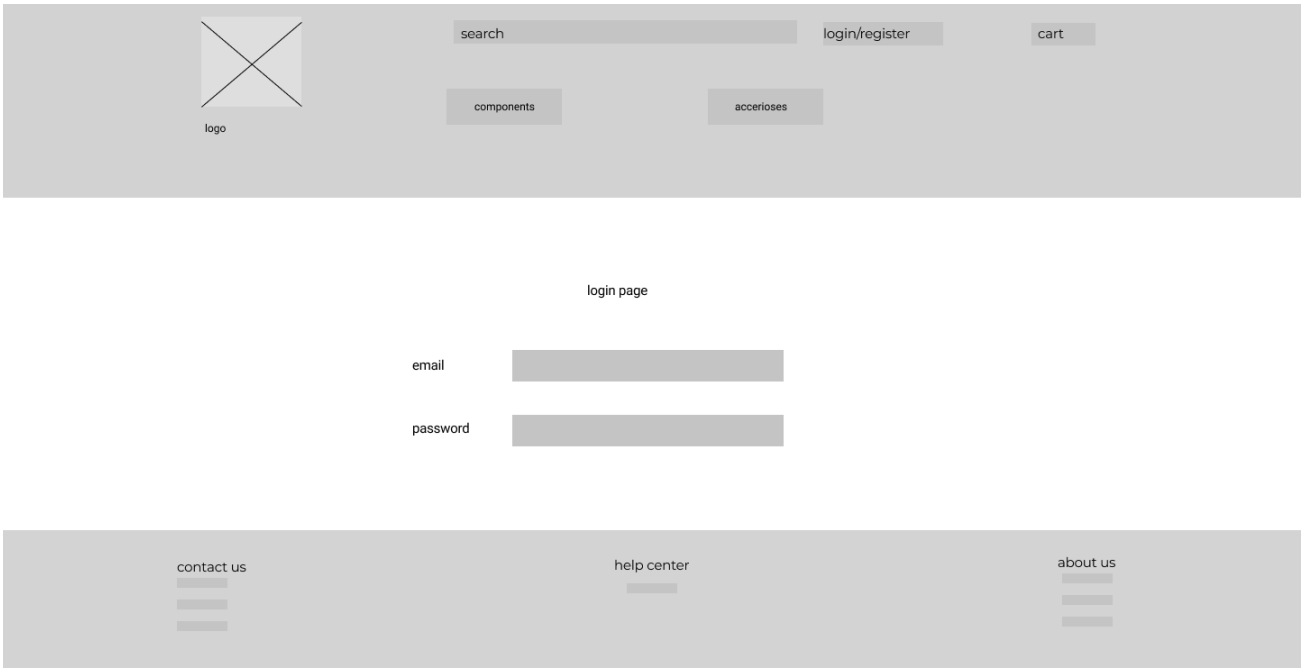
- Profile page

This page will showcase the account info and the orders if he have an account.



- Login page

This page is for the users to login to the website to view his information and orders that he did.



d. Screenshots and design elements

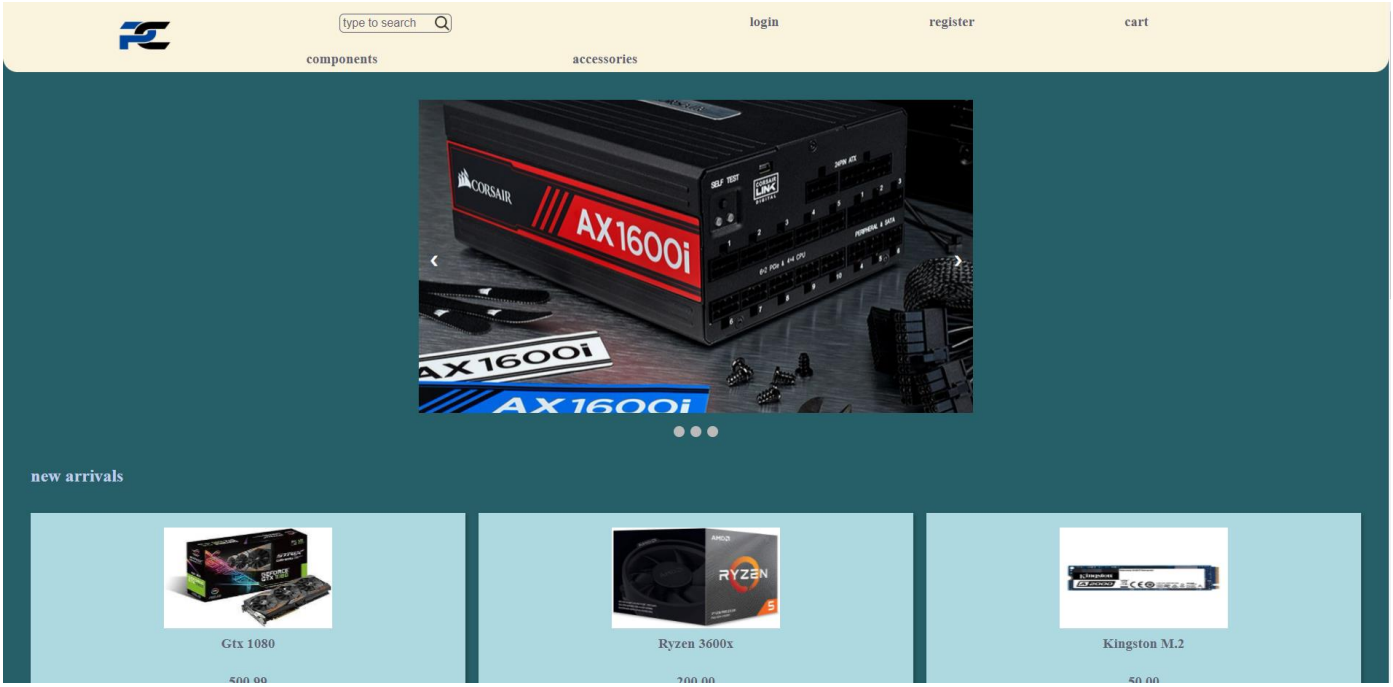
▪ Main elements

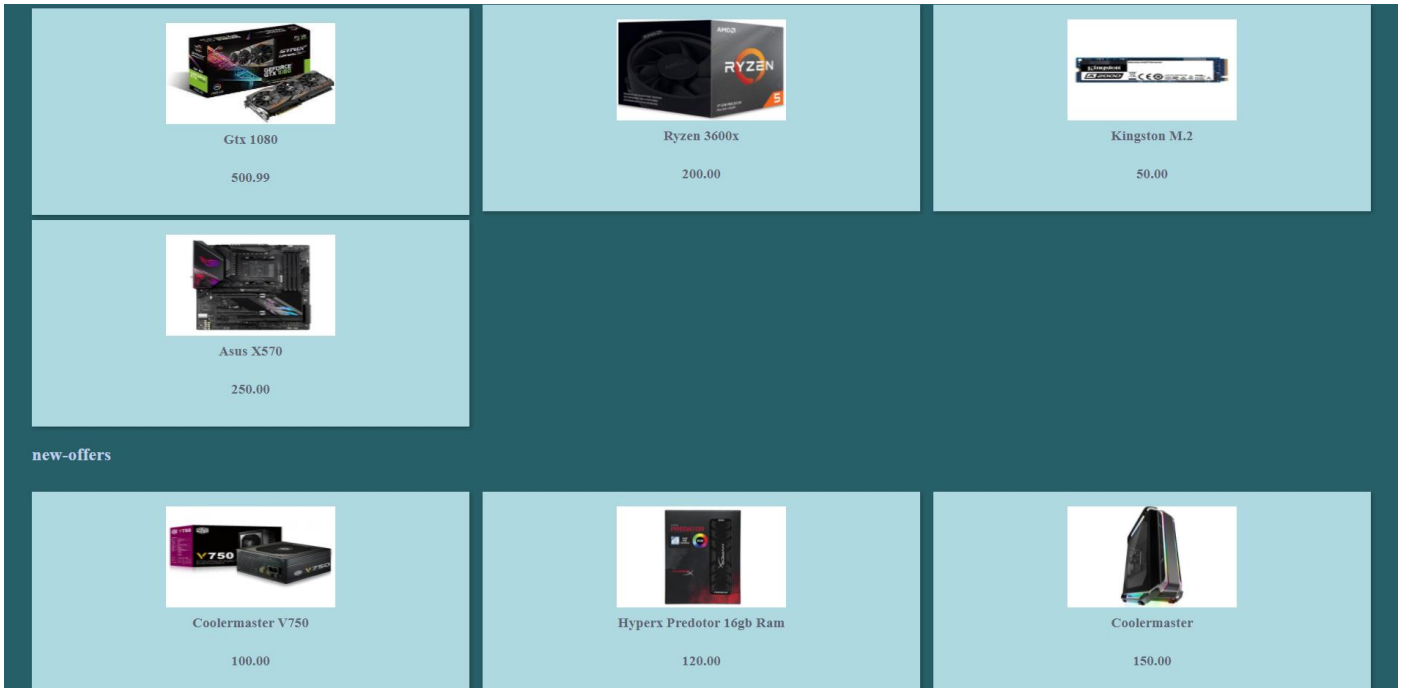
NO.	Name	Place	Type	Description	Message
1.	Logo	Top of the page (header)	Image/link	Icon for the store. Or a link to the homepage	
2.	Header	Top of the page	Menu/navigation bar	Buttons to go to the pages of the website.	
3.	Footer	Bottom of the page	Menu	Buttons to go to the less important elements.	
4.	Search bar	Top of the page (header)	Search bar (input)	Search for the products in the website	

NO.	Name	Place	Type	Description	Message
1.	account	Top	link	It will lead to the account page(it will show when he sign in)	
2.	logout	Top	link	It will lead to get out of the session and logout of the system(it will show when he sign in)	
3.	login	Top	link	It will lead to the login page (it will show when he is not sign in)	
4.	Register	Top	link	It will lead to the register page (it will show when he is not sign in)	
5.	Logo pic	Top	Link	Lead to the index page (always shown)	
6.	Components/ accessories	Top	Link	Lead to the products page	

- Homepage

This page will have an image slider that will showcase main brands we will work with and their products. Also, it will have new arrivals for the newly add products and the new offers that will be featured also.

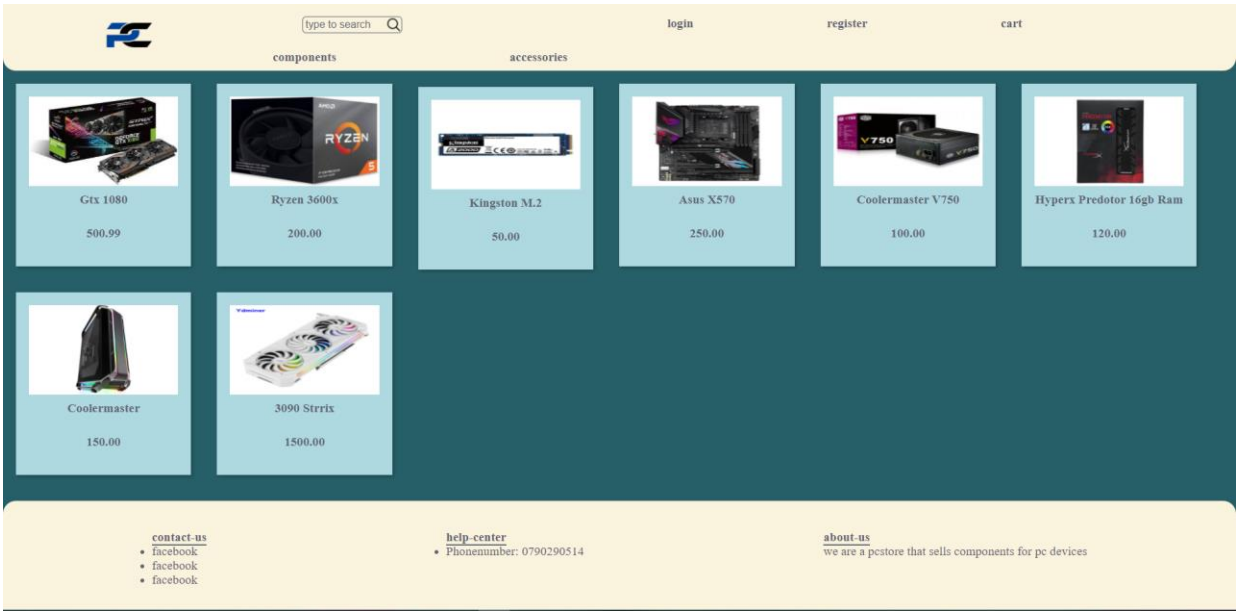




NO.	Name	Place	Type	Description	Message
1.	Slider	Top-middle	Image	It will showcase the brands we working with and the products	
2.	Product picture(box)	Bottom-middle	Image	It will lead to the products showcase page	

- Product page

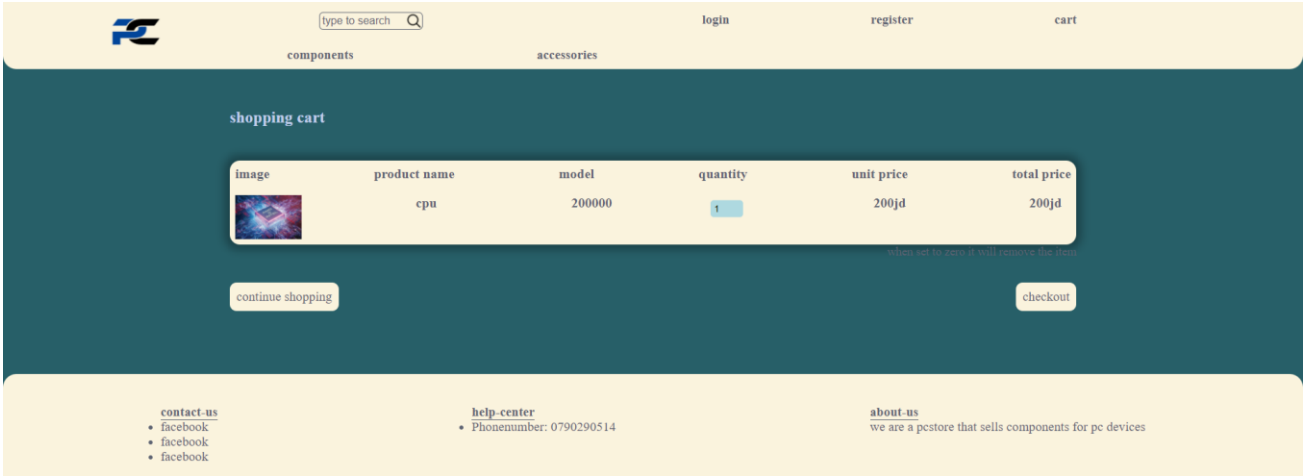
This page will showcase all of the products under certain categories like the PC accessories or the PC components.



NO.	Name	Place	Type	Description	Message
1.	Product picture(box)	Middle	Image	It will lead to the products showcase page	

- Cart page

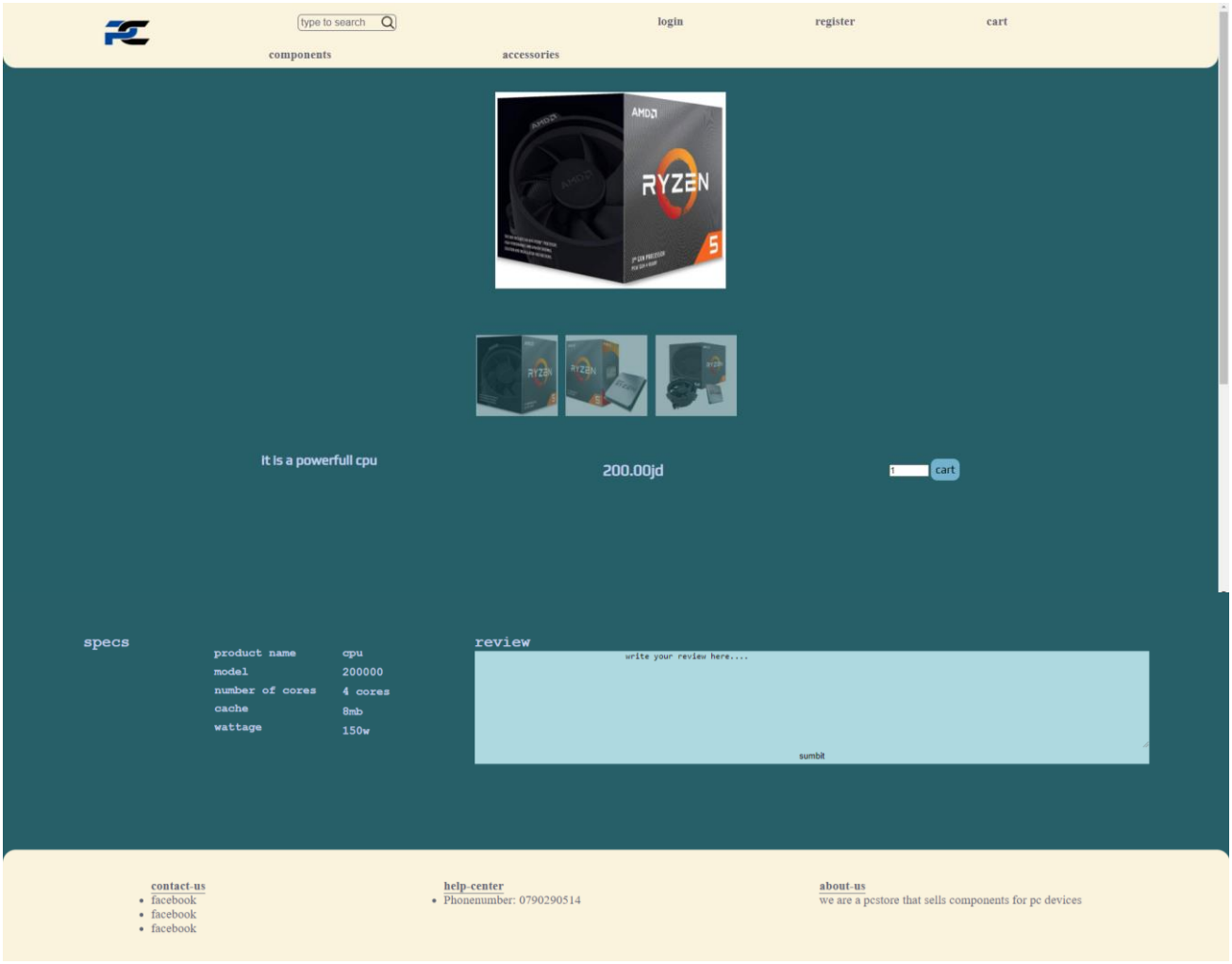
This page will show the image of the product and the name with the model number and how many and the price with the total price and it will allow you to continue your shopping.



NO.	Name	Place	Type	Description	Message
1.	Continue shopping	Middle	Link	Goes to the homepage	
2.	Checkout	Middle	Link	Goes to the checkout page	
3.	Counter	Middle	Input	Increase the quantity	

- Product showcase

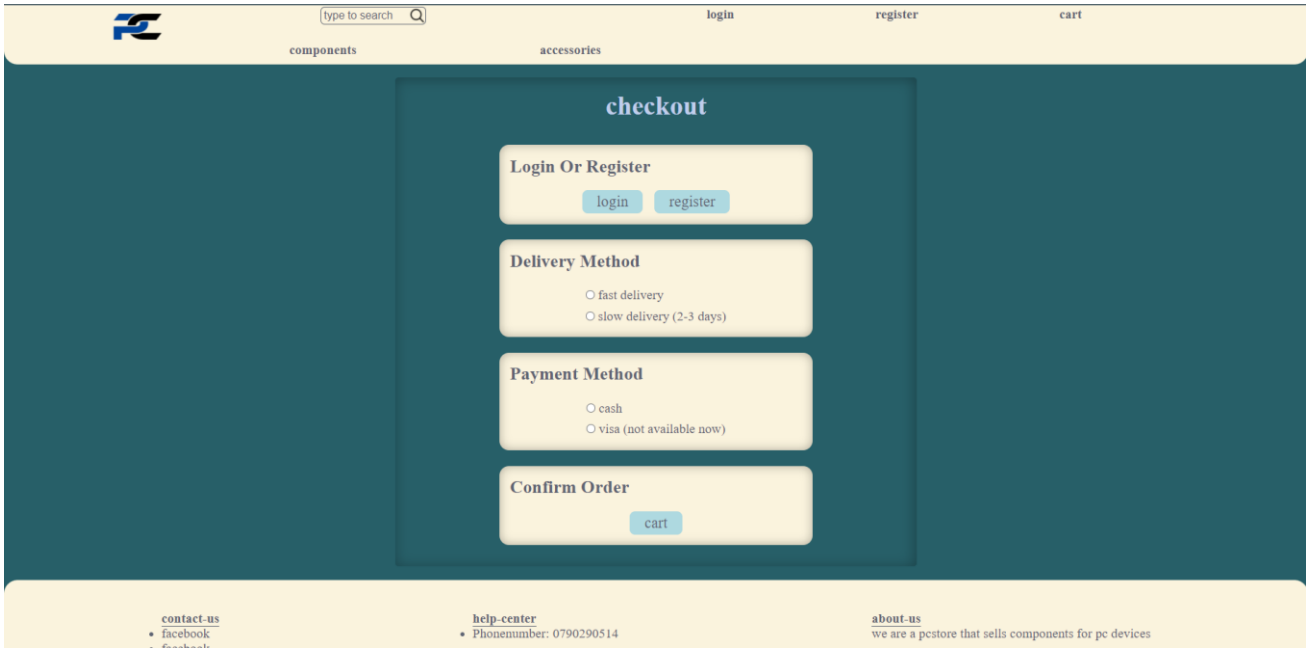
This page will showcase the product itself from the price to the description to the specs and the review of the products from the costumers also the images of the product.



NO.	Name	Place	Type	Description	Message
1.	Add to cart	Middle	Button	Adding the product to the cart	
2.	Submit	Middle	Button	Submit a review	
3.	counter	Middle	input	enters the quantity number	

- Checkout page

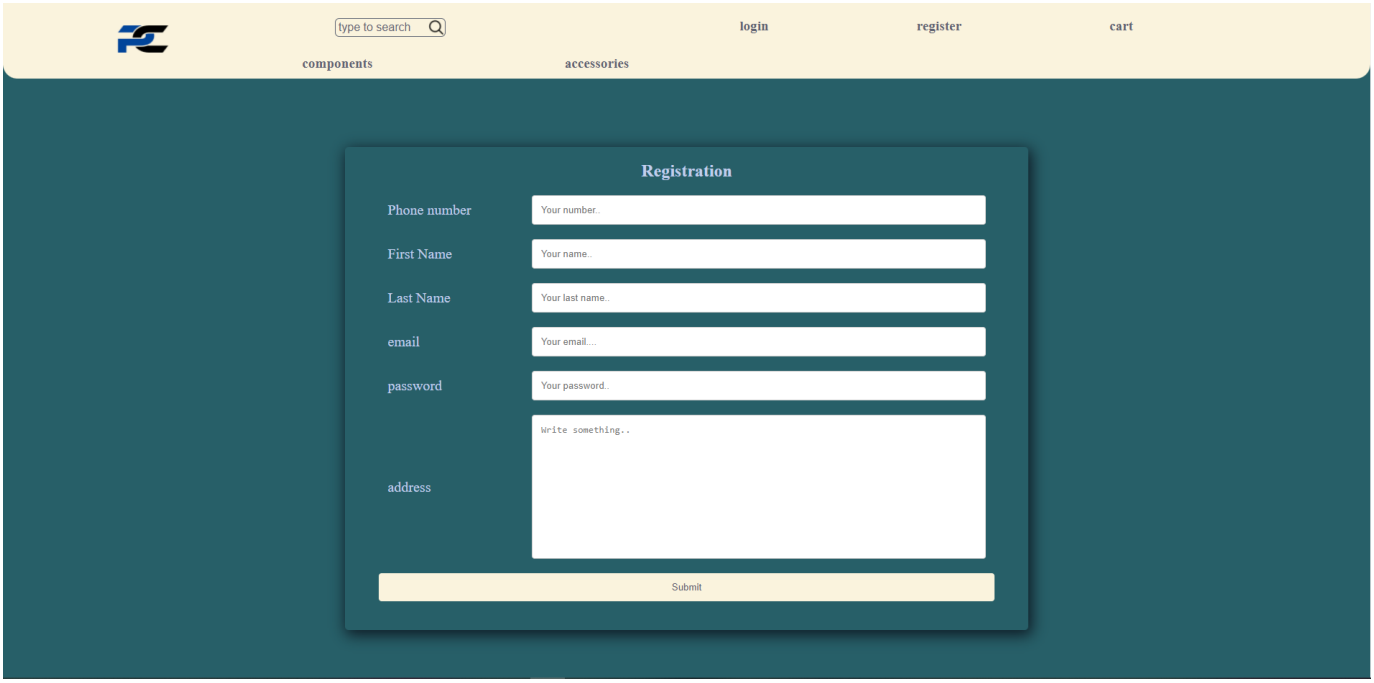
This page is the end of the user shopping and it will ask to log in or register but it is optional. Also, he will choose how he wants the delivery fast or take two days, the payment method will ask him visa or cash on delivery. The confirm order will re-showcase the same page layout of the cart.



NO.	Name	Place	Type	Description	Message
1.	Login/register	Middle	Link	Leads to a page to log in or register (will show only if he is logout)	
2.	Delivery method	Middle	Radio button	Selecting the ways of delivery	
3.	Payment method	Middle	Radio button	Selecting the ways of the payment	
4.	Confirm order	Middle	Link	Lead to the cart page	

- Register page

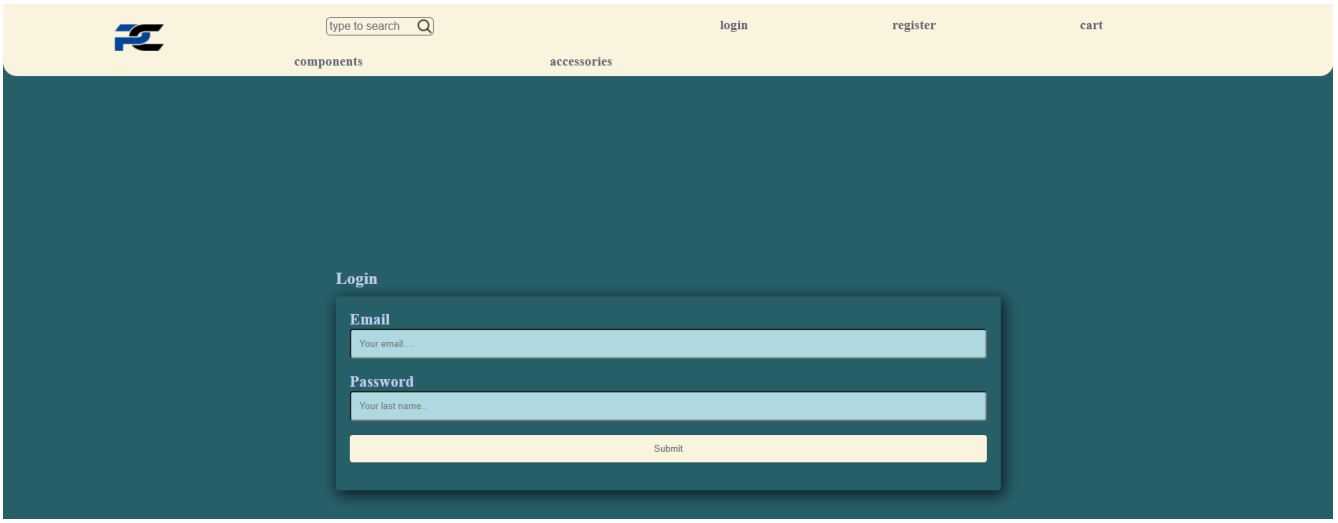
This page will ask for a phone number and his name, email, address and password which will be required if he wants to sign in.



NO.	Name	Place	Type	Description	Message
1.	Phone number	Middle	Textbox	Input for the phone number of the user	
2.	Fname	Middle	Textbox	Input for the first name of the user	
3.	Lname	Middle	Textbox	Input for the last name of the user	
4.	Email	Middle	Textbox	Input for the phone email of the user	
5.	address	Middle	Textbox	Input for the address of the user	
6.	Password	Middle	Textbox	Input for the password number of the user	
7.	Submit	Middle	Button	To submit the info	

- Login page

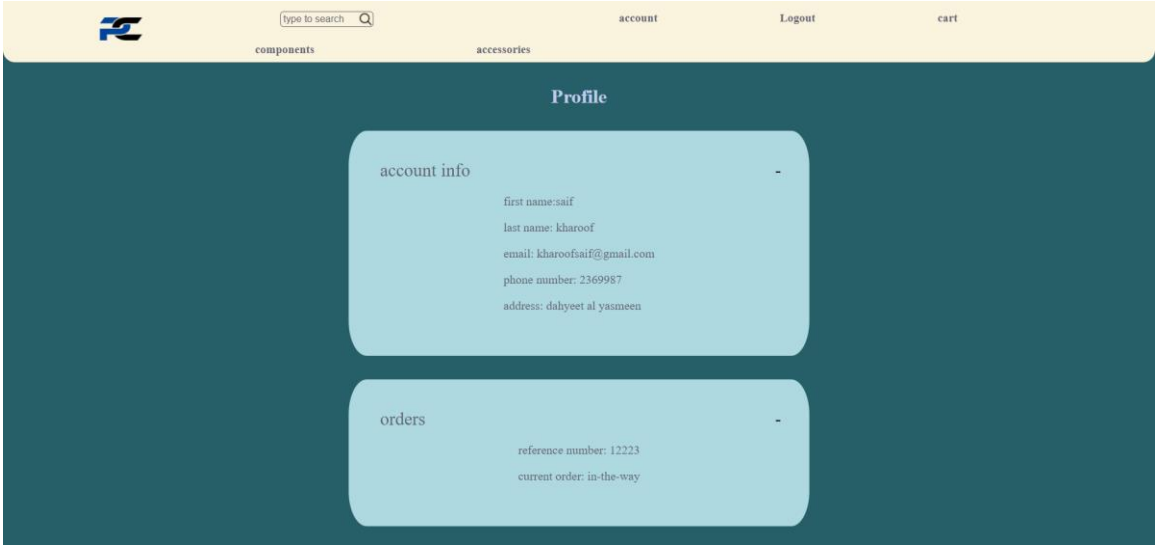
This page is for the users to login to the website to view his information and orders that he did.



NO.	Name	Place	Type	Description	Message
1.	Email	Middle	Textbox	Input for the phone email of the user	
2.	Password	Middle	Textbox	Input for the password number of the user	
3.	Submit	Middle	Button	To submit the info	Error(if the info is wrong)

- Profile page

This page will showcase the account info and the orders if he have an account.



NO.	Name	Place	Type	Description	Message
1.	Account info	Middle	Button	Shows the info of the user	
2.	Orders	Middle	Button	Shows all the orders that have been made	

e. Evaluation between the GUI and wireframes

First page to compare is the homepage between its wireframe and the real page. First difference is the products it is on one row on the wireframe and the real page it is on two rows the reason why that the styling appeared different and I wanted to do four products instead of three. The similarities in the header, footer and the slider.

Second page to compare is the products page between its wireframe and the real page. The difference is the number of the products on the row because of the screen size and the styling I used in the code. The similarities in the header, and footer.

Third page to compare is the cart page between its wireframe and the real page. The only difference is the X button I did not do it because I did in JavaScript when its set to zero it deletes the item. The similarities in the header, footer and the layout.

Fourth page to compare is the product-showcase page between its wireframe and the real page. The difference is the quantity counter I felt the need of it and it is better for the user experience. The similarities in the header, footer and the layout.

Fifth page to compare is the checkout page between its wireframe and the real page. There is no differences between them they all the same from the header to the layout, elements and the footer.

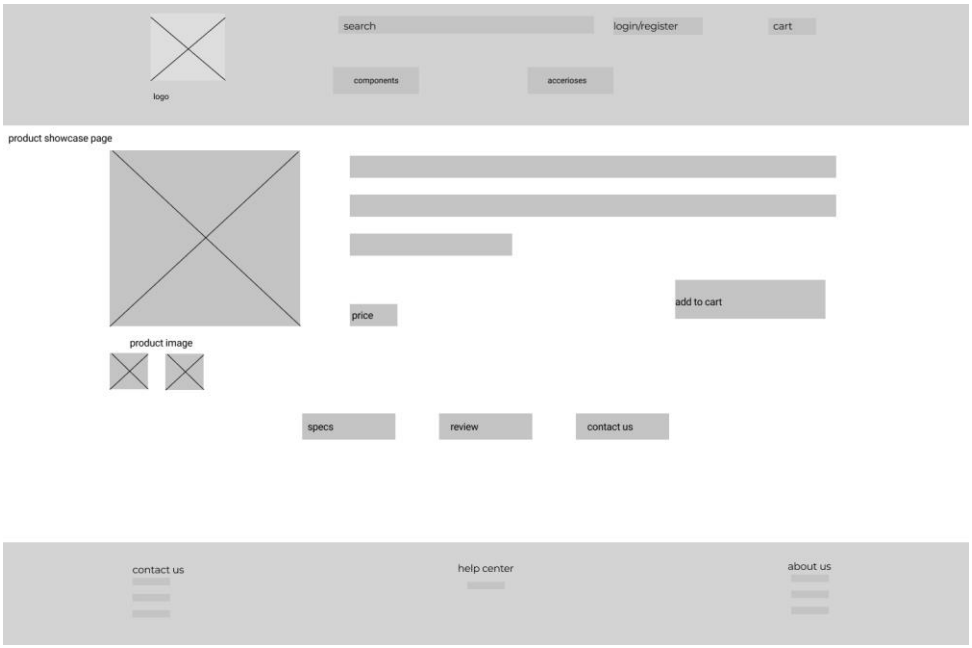
The six page to compare is the login page between its wireframe and the real page. There is no differences between them they all the same from the header to the layout, elements and the footer.

The seventh page to compare is the register page between its wireframe and the real page. There is no differences between them they all the same from the header to the layout, elements and the footer.

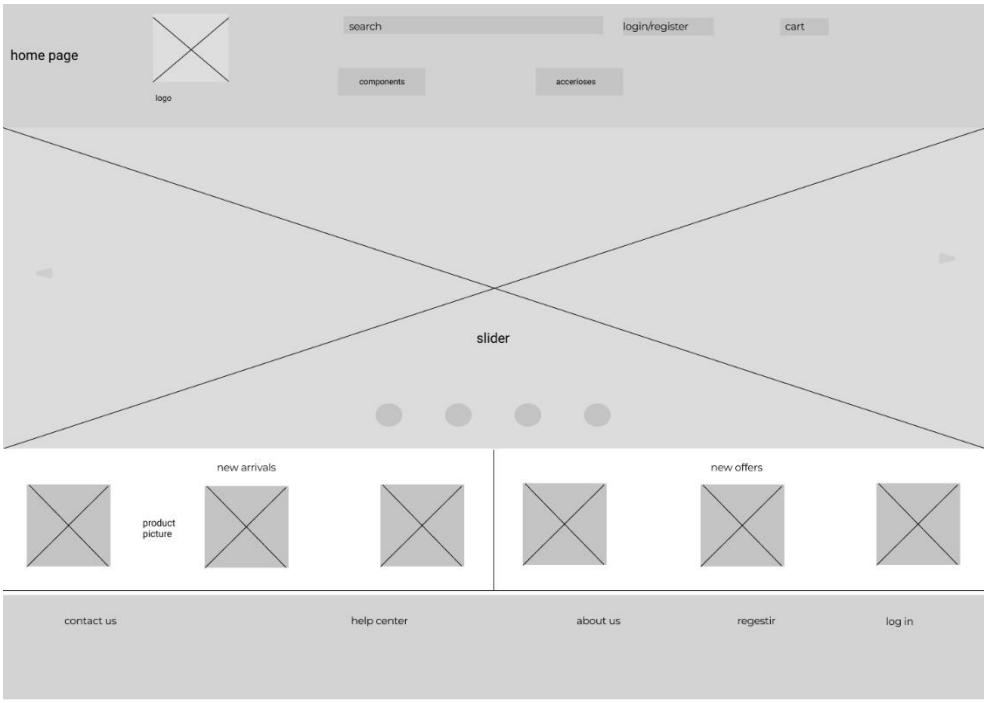
The eighth page to compare is the profile page between its wireframe and the real page. There is no differences between them they all the same from the header to the layout, elements and the footer.

f. Technical challenges

First technical challenge occur and changes made to my wireframe that I forgot to put an account page and layout to view the orders and the account info. The second thing in the development stage I found out that my first wireframe of the product showcase that I made in the early designing stage was not easy as I thought it had some problems in the styling and the responsiveness this was the before:



Also the homepage was hard to implement from the early design process from the cards aspect, so it was looking like this:



In the late development stages in the backend, the database design I did was not normalized so I had some problems inserting the data. Also, the PHP language was a hard to deal with and learn from and especially the errors that was popping in they were hard to figure out and time consuming what is the original problem was.

4. Testing

a. The objective of the testing

The main goal of the testing is to make sure that is the front end is working as properly and everything is showing as intended from the responsiveness to the functionality and will be tested by trying them and make sure they provide me the results I want or not. Moreover, the backend main goal is that the connection between the website and the backend is working as intended and the data is being fetched from the servers is working properly, this will be tested by trying every aspect and see how well it performed.

b. Testing process

I will be testing the backend and the frontend as the same every piece of the code when it is finished I test it. For example, I finished styling the layout of the header I see if this is the layout I wanted then I go for the styling elements and see each one if they are as I want or not. Or in the anchors if they leading to the correct page or not. In the database for example I finished inserting code for the register does it store data as intended or not and so on….

c. Testing schedule

In the early frontend development each page took me approximately two days to do and make sure there is no errors and everything is working as intended. In the late frontend development the JavaScript testing on all of the website took four to five hours in total and each code took me from half to an hour to make sure they are working as intended and showing the right results. In the backend development it took in the login page and the register two days total to make sure the data is correct is inserted and fetched correctly in the database, and the products page took me two to three days to test the errors and solving them.

d. Test cases

Test case type	Description	Test step	Expected result	Status
Functionality	The register should insert data to the input boxes and in the database.	Put data on the input boxes and go to the database if the data is there or not.	That the data inserted as intended to the database and into the table.	Pass
Functionality	Fetch products to the products page that have all the products.	Entering the products page.	To see the available products and display them.	Pass
Functionality	Fetch the products' id and goes to the product showcase page.	Enter the product showcase page from any product from the product page	To see the exact product that has been clicked on and being showcased and displayed	Pass
Functionality	Fetch the product and go to the cart.	From the product showcase click the cart button.	To see the products that's added to the cart and in the cart page.	Fail
Usability	All links should work properly.	Clicking on all the links.	Goes to the page we want and the correct one.	Pass
Security	Error message with the login page.	Enters wrong password and email or any one of them.	Shows an error message when enters wrong data.	Pass
Functionality	The search button works.	Enters the product name.	Shows and displays the product showcase page of this product.	Pass
Functionality	The slider showing the pictures.	Click on the buttons to move the photos.	The photos must be appears in the slideshow way.	Pass
Functionality	The user can review the product	Type a review and see it in the database.	The data should be fetched and stored in the database.	Pass
Functionality	Image gallery	Click on the images and see if the big image changes	The images should swap and moves to the big image.	Pass
Functionality	Account details page.	Enter the account page and check if the same user data has been entered.	The account detail should be fetched for this customer and be displayed.	Pass
Functionality	Logout button.	Click on it when logged in and makes the user loges out	The user should be logged out of the website.	Pass

e. Assessment

- ### QA process

When I finished styling the layout of the pages I see if this is the layout I wanted then I go for the styling elements and see each one if they are as I want or not. Or in the anchors if they leading to the correct page or not. In the database for example I finished inserting code for the pages that user will insert the data does it store data as intended or not. Also, if any pages that needed fetch from the database I checked if they do show and display as intended or not.

- ### Results

Referring to the test cases above there was one fail for the cart page this was the most page was having the difficulties on the insert data it was inserted properly and I spent time researching and debugging the problem and how to do it. It will be in the recommendation section to improve it. The passes was done prior to the experience I had while using the languages and researching the problems that I had and debugging them.

- ### Success areas

I found that my website has a different design from the other websites like the layout of the pages. And I done a close Functionalities and designs without using any frameworks or libraries.

- ### Recommendations

I would recommend using these improvements in the future:

  - Adding the filtering option to the products so the user can find what he wants easier.
  - Adding a new page for suggestions if he entered a non-existing product in the search bar.
  - Fixing the cart button and page to make the user see the data and the orders he made.
  - Adding the option to purchase via visa option.
  - Adding the security options to the published website like the SSL certificate to make more secure and be using the HTTPS protocol instead of the HTTP.

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