PORTFOLIO WEBSITE SERVER BUILD AND TROUBLESHOOTING GUIDE

PURPOSE OF DOCUMENT:

This document provides a step-by-step guide to rebuild my personal portfolio website and troubleshoot common issues. The website is a one-page static portfolio using the free bootstrap 4 template. The page also has some custom student information, manual JavaScript and CSS scripts. The java scripts were used to show real time to the users as they are in my portfolio website. The server runs on ubuntu 22.04 LTS Droplet using Digital Ocean with Nginx and Let's Encrypt SSL. This document will help any IT professional to recreate my site or restore my site in approximately 2 hrs. It will include instruction on deploying my site, configuring domain and SSL Lastly best practices using backup tips to resolve any issues that might come up.

PERSONAL SITE CONFIGURATION TABLE

CONFIGURATION	DETAILS
Operating System	Ubuntu 22.04 LTS
Droplet used	1 vCPU, 1 GB RAM, 25 GB SSD (Basic tier) (adjust as needed)
Domain Name	krishnaajay.online (registered on Namecheap)
Site Directory	/var/www/krishnaajay.online (website files location)
Site Content	Static HTML/CSS/JS also uses Bootstrap 4 one-page template
Web Server	Nginx
Hosting Provider	Digital Ocean (Virtual Cloud Server)
Nginx Config	/etc/nginx/sites-available/krishnaajay.online (with symlink in sites-enabled)
SSL Certificate	TLS/SSL using Let's Encrypt
Firewall	UFW (Ubuntu firewall) – Ports 22 (SSH), 80 (HTTP), 443 (HTTPS) open
DNS Configuration	Namecheap DNS and the A record is pointing towards Droplet's IP
Backup	Not currently enabled but would be useful

STEP BY STEP SERVER BUILDING INSTRUCTION

- Sign up in Digital Ocean and click on control panel and click on create droplet
- Choose Ubuntu 22.04 (LTS) x64 as the droplet (operating system).
- Select correct droplet Basic droplet with 1 GB RAM, 1 CPU, 25 GB SSD (enough for my site)
- Pick a datacentre region (Sydney)
- For authentication I used a root password for easy access.
- Give the droplet a name (ICT 171)
- Click Create Droplet public IP address of the new Droplet (170.64.229.201)

CONNECTING TO THE SERVER VIA FOR EASY ACCESS

Open cmd or any terminal on your local machine and connect to the Droplet using its IP

Linux command

ssh root@170.64.229.201 (log in using SSH key or root password)

(In case of an issue, recheck that the Droplet was created with the correct SSH key or password, and that the IP is correct.)

INSTALL REQUIRED PACKAGES AND UPDATE

Linux command

```
apt update && apt upgrade -y
```

This ensures the system is up to date. The -y flag automatically accepts prompts for installing updates. This might take some time if packages to update (important for security and stability)

INSTALL NGINX WEB SERVER

Next step is to install Nginx web server that will server my portfolio website. Ubuntu already has repository includes Nginx. On the server, install Nginx using apt:

Linux command

```
sudo apt update

sudo apt install nginx -y
```

After running the command, it will download Nginx and any required dependencies.

Nginx is started automatically you can verify that Nginx is running by checking its status

Linux command

```
systemctl status nginx
```

Here it would show Active: active (running). You can also test that Nginx is serving the default page by visiting the droplet's IP (170.64.229.201) in a browser. You should see Nginx's default "Welcome to Nginx" page, indicating the server is working.

SETTING UP THE PROJECT DIRECTORY

Set up a directory to hold the portfolio website's files. By default, the web content on Ubuntu is served from /var/www/). We now create a dedicated directory for the new subdomain portfolio.krishnaajay.online under /var/www.

Linux command

```
sudo mkdir -p /var/www/krishnaajay.online/main

sudo chown -R $USER:$USER /var/www/krishnaajay.online/main
```

directory for our site. We use the -p flag to ensure parent directories exist (though /var/www already exists, this flag just avoids errors if it didn't).

NEXT STEP IS TO DEPLOY THE FREE TEMPLATE (RONALDO BOOTSTRAP 4 PORTFOLIO TEMPLATE)

Editing the template to match my portfolio information, add manual JavaScript and CSS scripts and remove sections that is not needed. The java scripts were used to show real time to the users as they are in my portfolio website.

Download the Bootstrap 4 portfolio template from https://themewagon.com/themes/free-bootstrap-4-html5-one-page-personal-portfolio-website-template-ronaldo/

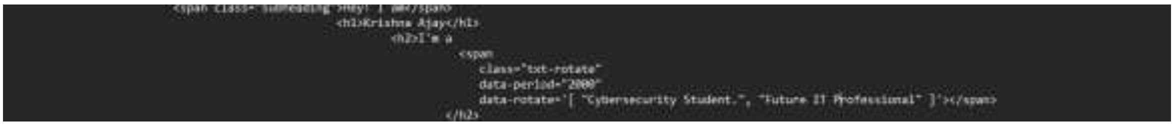
Exact the zip file using 7zip

Open the index.html

EDIT THE CUSTOM TEMPLET TO MATCH MY CONTENT

We can edit this section by typing <span class= “subheading”>

First edit to add my name and small animation with rotation

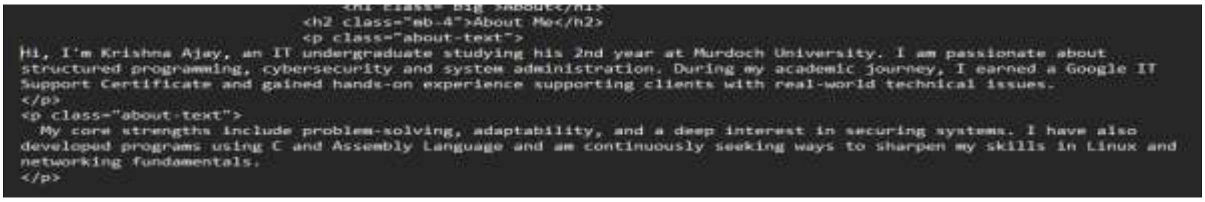


```
<span class="subheading">Hey! I am</span>
                    <h1>Krishna Ajay</h1>
                        <h2>I'm a
                            <span
                              class="txt-rotate"
                              data-period="2000"
                              data-rotate='[ "Cybersecurity Student.", "Future IT Professional" ]'></span>
                          </h2>
```

Next section

We can edit this section by typing <p class= “about=text”>

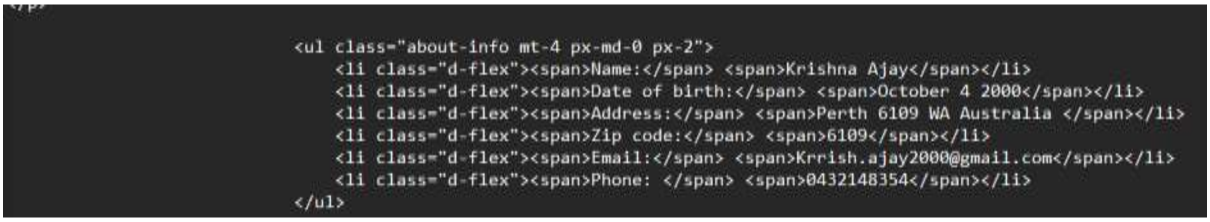
This section is an about me page where brief about me and strengths



```
                            <h1 class="big">About</h1>
                            <h2 class="mb-4">About Me</h2>
                            <p class="about-text">
Hi, I'm Krishna Ajay, an IT undergraduate studying his 2nd year at Murdoch University. I am passionate about
structured programming, cybersecurity and system administration. During my academic journey, I earned a Google IT
Support Certificate and gained hands-on experience supporting clients with real-world technical issues.
</p>
<p class="about-text">
  My core strengths include problem-solving, adaptability, and a deep interest in securing systems. I have also
developed programs using C and Assembly Language and am continuously seeking ways to sharpen my skills in Linux and
networking fundamentals.
</p>
```

We can edit this section by typing <ul Class=” about-info mt-4 px-md-0 px-2”>

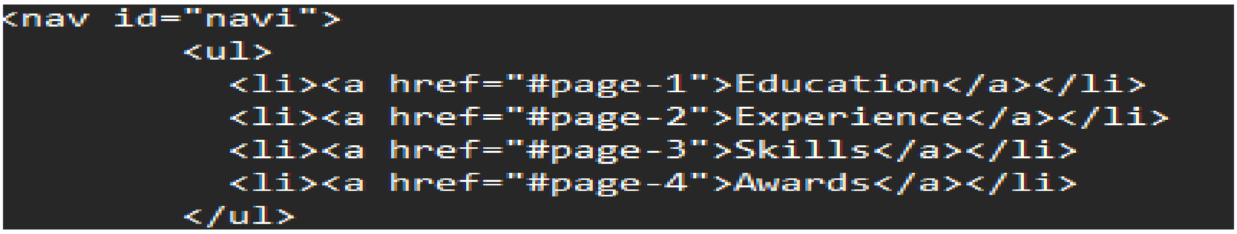
This section is basic personal contact details



```
</p>

                <ul class="about-info mt-4 px-md-0 px-2">
                    <li class="d-flex"><span>Name:</span> <span>Krishna Ajay</span></li>
                    <li class="d-flex"><span>Date of birth:</span> <span>October 4 2000</span></li>
                    <li class="d-flex"><span>Address:</span> <span>Perth 6109 WA Australia </span></li>
                    <li class="d-flex"><span>Zip code:</span> <span>6109</span></li>
                    <li class="d-flex"><span>Email:</span> <span>Krrish.ajay2000@gmail.com</span></li>
                    <li class="d-flex"><span>Phone: </span> <span>0432148354</span></li>
                </ul>
```

Editing the top page menu

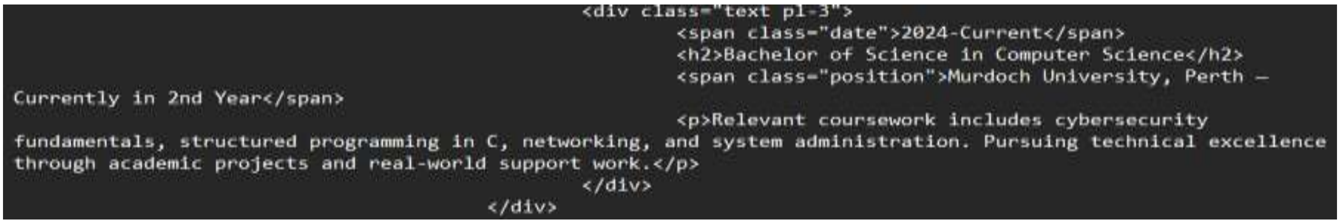
We can edit this section by typing <nav id="navi">



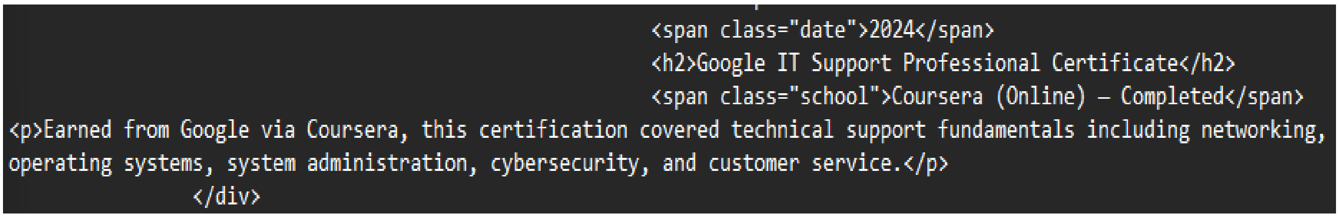
```
<nav id="navi">
        <ul>
          <li><a href="#page-1">Education</a></li>
          <li><a href="#page-2">Experience</a></li>
          <li><a href="#page-3">Skills</a></li>
          <li><a href="#page-4">Awards</a></li>
        </ul>
```

UPDATING EDUCATION SECTION

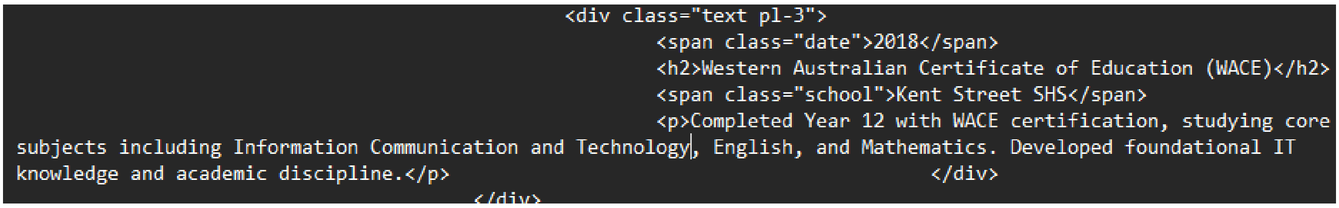
We can edit this section by typing <div class="text pl-3">



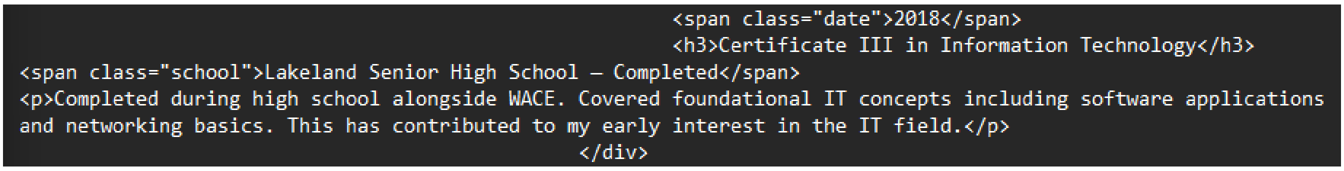
```
                                                <div class="text pl-3">
                                                        <span class="date">2024-Current</span>
                                                        <h2>Bachelor of Science in Computer Science</h2>
                                                        <span class="position">Murdoch University, Perth –
Currently in 2nd Year</span>
                                                        <p>Relevant coursework includes cybersecurity
fundamentals, structured programming in C, networking, and system administration. Pursuing technical excellence
through academic projects and real-world support work.</p>
                                                </div>
                                        </div>
```



```
                                                            <span class="date">2024</span>
                                                            <h2>Google IT Support Professional Certificate</h2>
                                                            <span class="school">Coursera (Online) – Completed</span>
<p>Earned from Google via Coursera, this certification covered technical support fundamentals including networking,
operating systems, system administration, cybersecurity, and customer service.</p>
                 </div>
```



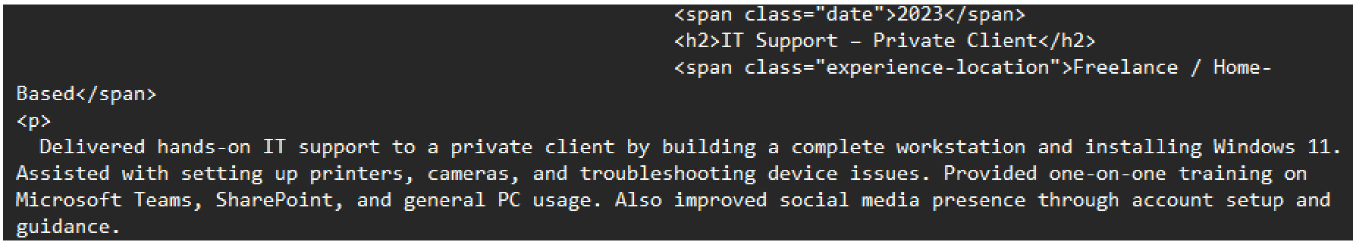
```
                                                <div class="text pl-3">
                                                        <span class="date">2018</span>
                                                        <h2>Western Australian Certificate of Education (WACE)</h2>
                                                        <span class="school">Kent Street SHS</span>
                                                        <p>Completed Year 12 with WACE certification, studying core
subjects including Information Communication and Technology, English, and Mathematics. Developed foundational IT
knowledge and academic discipline.</p>                                          </div>
                                        </div>
```



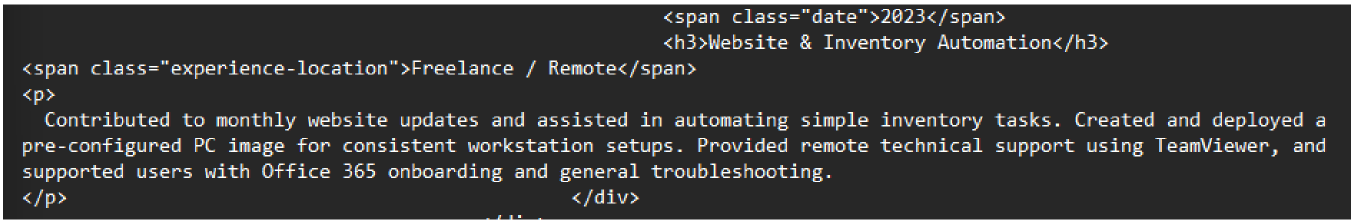
```
                                                         <span class="date">2018</span>
                                                         <h3>Certificate III in Information Technology</h3>
<span class="school">Lakeland Senior High School – Completed</span>
<p>Completed during high school alongside WACE. Covered foundational IT concepts including software applications
and networking basics. This has contributed to my early interest in the IT field.</p>
                                                 </div>
```

UPDATING EXPERIENCES SECTION

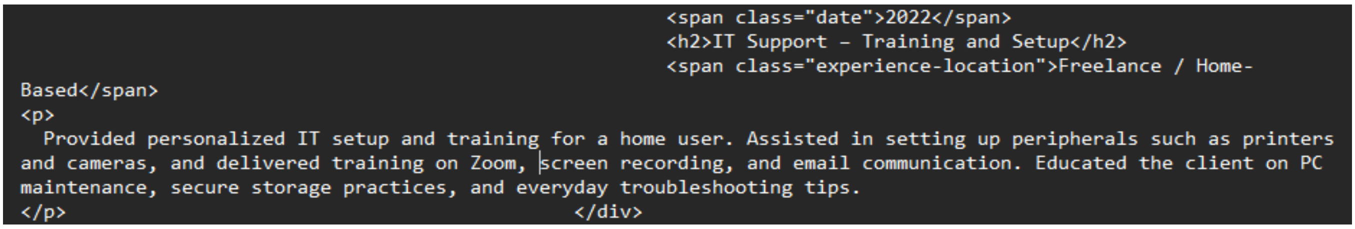
We can edit this section by typing <div id="page-2" class= "page two">



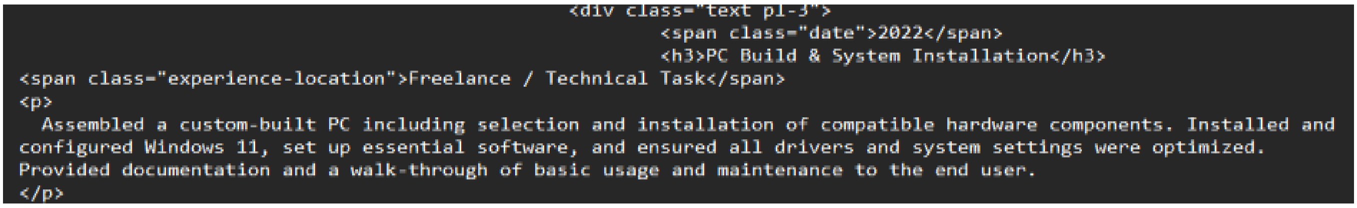
```
                                                          <span class="date">2023</span>
                                                          <h2>IT Support – Private Client</h2>
                                                          <span class="experience-location">Freelance / Home-
Based</span>
<p>
  Delivered hands-on IT support to a private client by building a complete workstation and installing Windows 11.
Assisted with setting up printers, cameras, and troubleshooting device issues. Provided one-on-one training on
Microsoft Teams, SharePoint, and general PC usage. Also improved social media presence through account setup and
guidance.
```



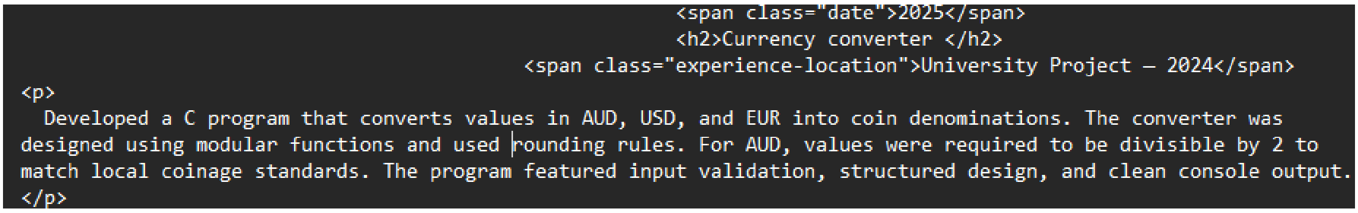
```
                                                        <span class="date">2023</span>
                                                        <h3>Website & Inventory Automation</h3>
<span class="experience-location">Freelance / Remote</span>
<p>
  Contributed to monthly website updates and assisted in automating simple inventory tasks. Created and deployed a
pre-configured PC image for consistent workstation setups. Provided remote technical support using TeamViewer, and
supported users with Office 365 onboarding and general troubleshooting.
</p>                                            </div>
```



```
                                                         <span class="date">2022</span>
                                                         <h2>IT Support – Training and Setup</h2>
                                                         <span class="experience-location">Freelance / Home-
Based</span>
<p>
  Provided personalized IT setup and training for a home user. Assisted in setting up peripherals such as printers
and cameras, and delivered training on Zoom, screen recording, and email communication. Educated the client on PC
maintenance, secure storage practices, and everyday troubleshooting tips.
</p>                                            </div>
```



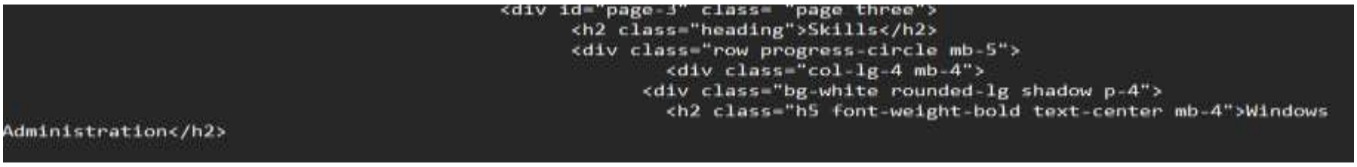
```
                                         <div class="text pl-3">
                                                <span class="date">2022</span>
                                                <h3>PC Build & System Installation</h3>
<span class="experience-location">Freelance / Technical Task</span>
<p>
  Assembled a custom-built PC including selection and installation of compatible hardware components. Installed and
configured Windows 11, set up essential software, and ensured all drivers and system settings were optimized.
Provided documentation and a walk-through of basic usage and maintenance to the end user.
</p>
```



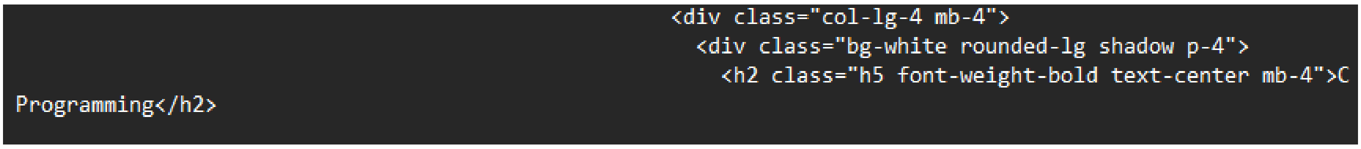
```
                                                         <span class="date">2025</span>
                                                         <h2>Currency converter </h2>
                                            <span class="experience-location">University Project – 2024</span>
<p>
  Developed a C program that converts values in AUD, USD, and EUR into coin denominations. The converter was
designed using modular functions and used rounding rules. For AUD, values were required to be divisible by 2 to
match local coinage standards. The program featured input validation, structured design, and clean console output.
</p>
```

UPDATING THE SKILLS ECTION

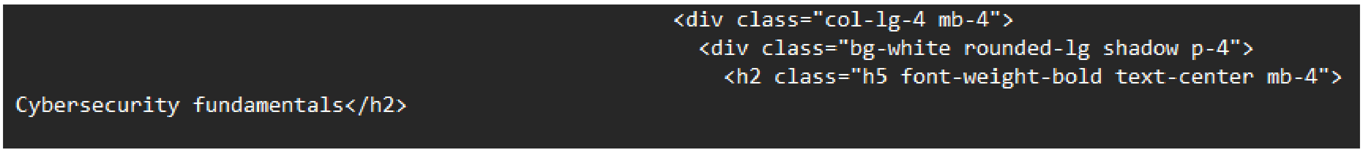
We can edit this section by typing <div id="page-3" class= "page three">



```
                                     <div id="page-3" class= "page three">
                                          <h2 class="heading">Skills</h2>
                                          <div class="row progress-circle mb-5">
                                                 <div class="col-lg-4 mb-4">
                                               <div class="bg-white rounded-lg shadow p-4">
                                                 <h2 class="h5 font-weight-bold text-center mb-4">Windows
Administration</h2>
```



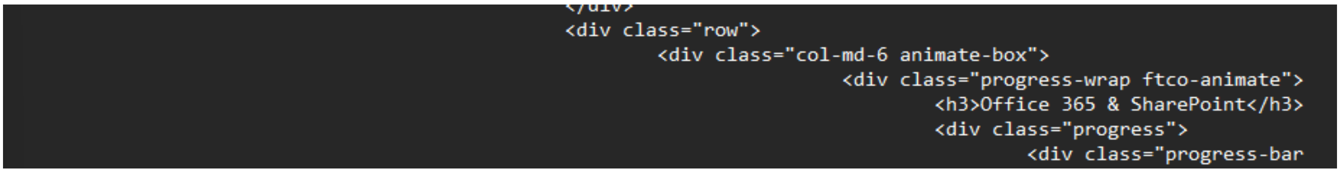
```
                                                     <div class="col-lg-4 mb-4">
                                                       <div class="bg-white rounded-lg shadow p-4">
                                                         <h2 class="h5 font-weight-bold text-center mb-4">C
Programming</h2>
```



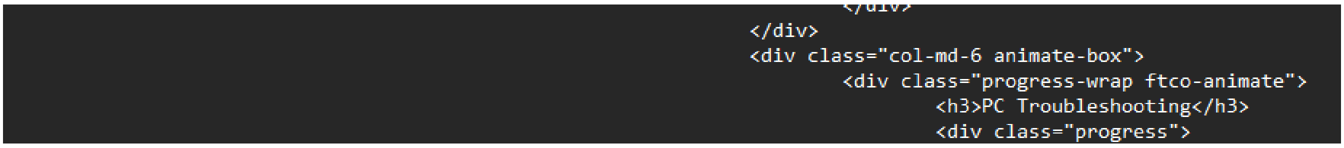
```
                                                     <div class="col-lg-4 mb-4">
                                                       <div class="bg-white rounded-lg shadow p-4">
                                                         <h2 class="h5 font-weight-bold text-center mb-4">
Cybersecurity fundamentals</h2>
```

NOW UPDATE HORIZONTAK SKILLS

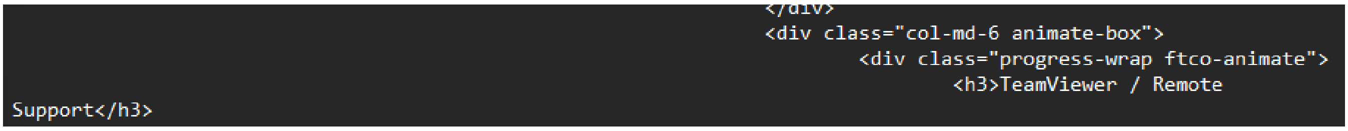
We can edit this section by typing <div class="col-md-6 animate-box">



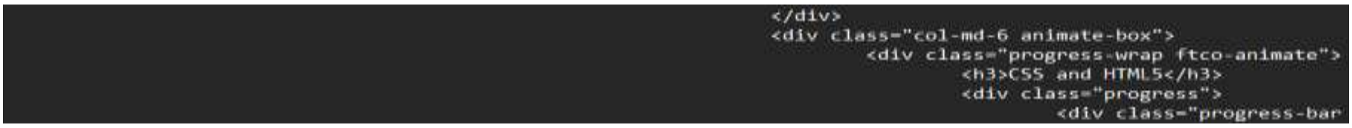
```
                                              </div>
                                              <div class="row">
                                                      <div class="col-md-6 animate-box">
                                                                      <div class="progress-wrap ftco-animate">
                                                                              <h3>Office 365 & SharePoint</h3>
                                                                              <div class="progress">
                                                                                      <div class="progress-bar
```



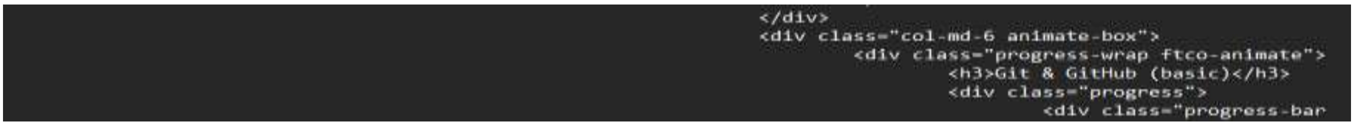
```
                                                                      </div>
                                                              </div>
                                                              <div class="col-md-6 animate-box">
                                                                      <div class="progress-wrap ftco-animate">
                                                                              <h3>PC Troubleshooting</h3>
                                                                              <div class="progress">
```



```
                                                              </div>
                                                              <div class="col-md-6 animate-box">
                                                                      <div class="progress-wrap ftco-animate">
                                                                              <h3>TeamViewer / Remote
Support</h3>
```



```
                                                              </div>
                                                              <div class="col-md-6 animate-box">
                                                                      <div class="progress-wrap ftco-animate">
                                                                              <h3>CSS and HTML5</h3>
                                                                              <div class="progress">
                                                                                      <div class="progress-bar
```

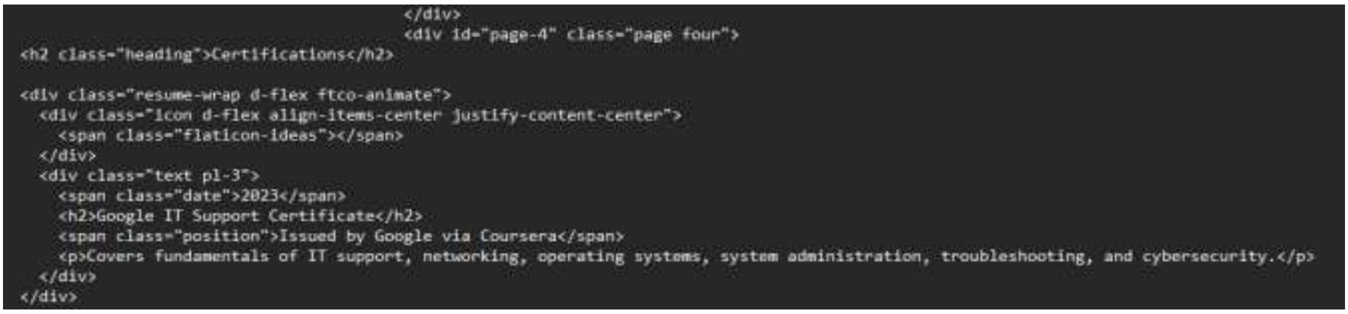


```
                                                    </div>
                                                    <div class="col-md-6 animate-box">
                                                          <div class="progress-wrap ftco-animate">
                                                                <h3>Git & GitHub (basic)</h3>
                                                                <div class="progress">
                                                                      <div class="progress-bar
```

REMOVE THE AWARDS SECTION WITH CERTIFICATE SECTION

We can edit this section by typing <div id="page-4" class="page four">

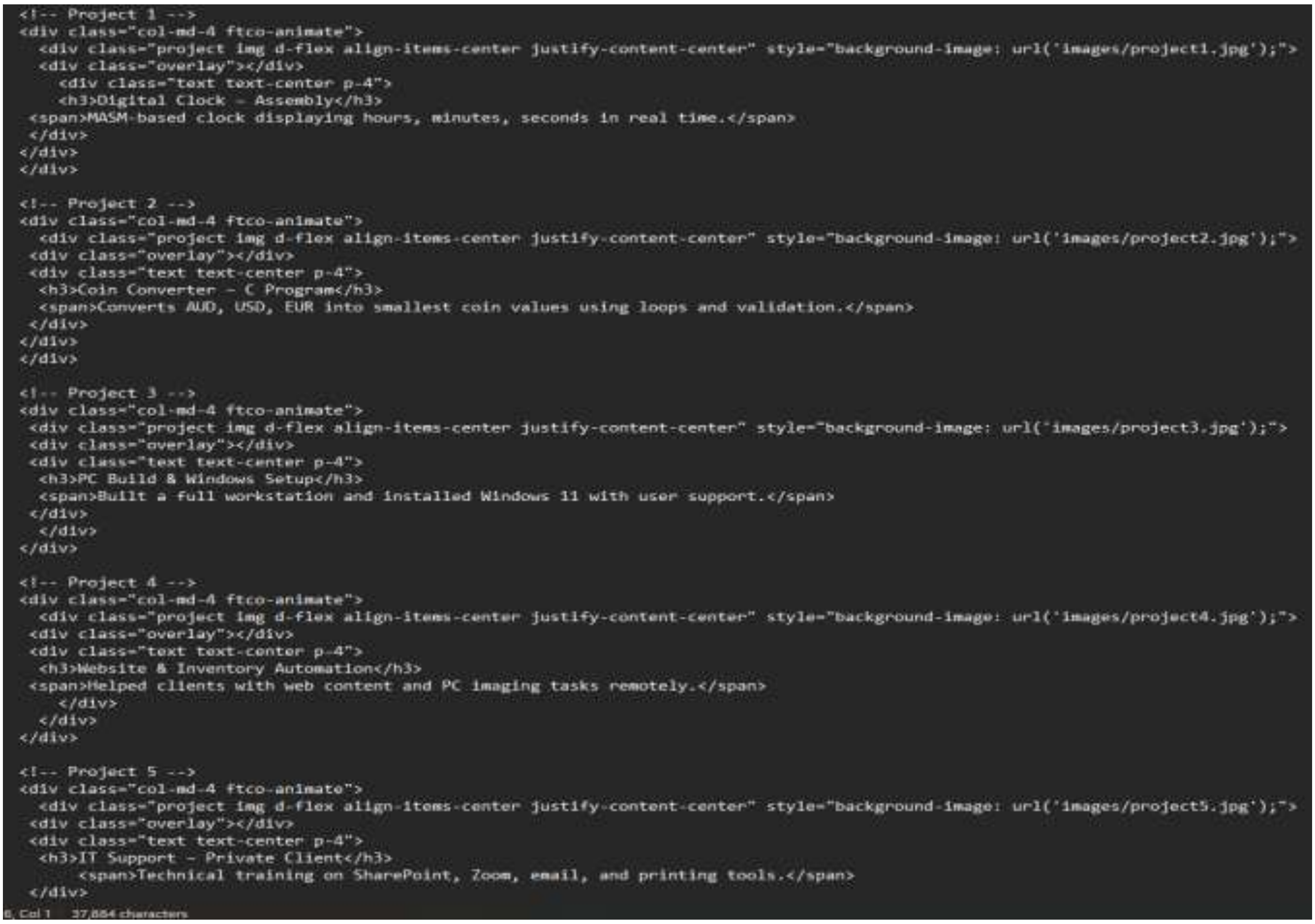
Manual html scripting



```
                                        </div>
                                        <div id="page-4" class="page four">
<h2 class="heading">Certifications</h2>

<div class="resume-wrap d-flex ftco-animate">
  <div class="icon d-flex align-items-center justify-content-center">
    <span class="flaticon-ideas"></span>
  </div>
  <div class="text pl-3">
    <span class="date">2023</span>
    <h2>Google IT Support Certificate</h2>
    <span class="position">Issued by Google via Coursera</span>
    <p>Covers fundamentals of IT support, networking, operating systems, system administration, troubleshooting, and cybersecurity.</p>
  </div>
</div>
```

UPDATE EACH PROJECT ACCORDINGLY (MANUAL HTML SCRIPTING)

Removed all the default projects and replaced it with mine

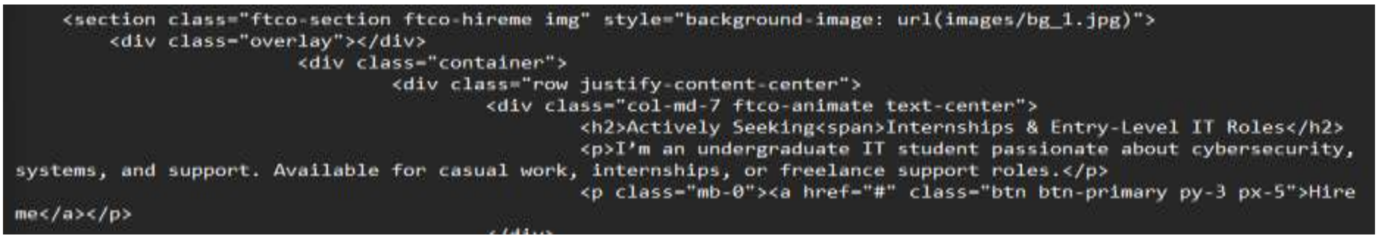


```
<!-- Project 1 -->
<div class="col-md-4 ftco-animate">
  <div class="project img d-flex align-items-center justify-content-center" style="background-image: url('images/project1.jpg');">
  <div class="overlay"></div>
    <div class="text text-center p-4">
    <h3>Digital Clock - Assembly</h3>
 <span>MASM-based clock displaying hours, minutes, seconds in real time.</span>
 </div>
</div>
</div>

<!-- Project 2 -->
<div class="col-md-4 ftco-animate">
  <div class="project img d-flex align-items-center justify-content-center" style="background-image: url('images/project2.jpg');">
 <div class="overlay"></div>
 <div class="text text-center p-4">
  <h3>Coin Converter - C Program</h3>
  <span>Converts AUD, USD, EUR into smallest coin values using loops and validation.</span>
 </div>
</div>
</div>

<!-- Project 3 -->
<div class="col-md-4 ftco-animate">
 <div class="project img d-flex align-items-center justify-content-center" style="background-image: url('images/project3.jpg');">
 <div class="overlay"></div>
 <div class="text text-center p-4">
  <h3>PC Build & Windows Setup</h3>
  <span>Built a full workstation and installed Windows 11 with user support.</span>
 </div>
  </div>
</div>

<!-- Project 4 -->
<div class="col-md-4 ftco-animate">
  <div class="project img d-flex align-items-center justify-content-center" style="background-image: url('images/project4.jpg');">
 <div class="overlay"></div>
 <div class="text text-center p-4">
  <h3>Website & Inventory Automation</h3>
 <span>Helped clients with web content and PC imaging tasks remotely.</span>
    </div>
  </div>
</div>

<!-- Project 5 -->
<div class="col-md-4 ftco-animate">
  <div class="project img d-flex align-items-center justify-content-center" style="background-image: url('images/project5.jpg');">
 <div class="overlay"></div>
 <div class="text text-center p-4">
  <h3>IT Support - Private Client</h3>
      <span>Technical training on SharePoint, Zoom, email, and printing tools.</span>
 </div>
```

Added all the certification according to certificates.

Next, I removed the service section, blog section since this is my first portfolio

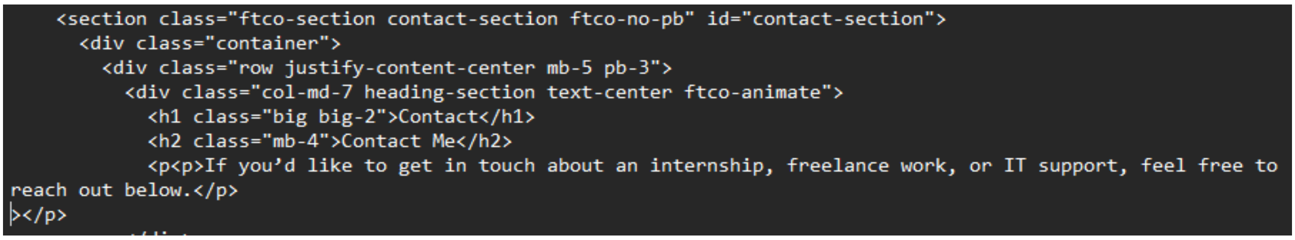
We can edit this section by typing <section class="ftco-section ftco-hireme img"



```
    <section class="ftco-section ftco-hireme img" style="background-image: url(images/bg_1.jpg)">
        <div class="overlay"></div>
                        <div class="container">
                                <div class="row justify-content-center">
                                        <div class="col-md-7 ftco-animate text-center">
                                               <h2>Actively Seeking<span>Internships & Entry-Level IT Roles</h2>
                                               <p>I’m an undergraduate IT student passionate about cybersecurity,
systems, and support. Available for casual work, internships, or freelance support roles.</p>
                                               <p class="mb-0"><a href="#" class="btn btn-primary py-3 px-5">Hire
me</a></p>
```

UPDATING CONTACT ME SECTION AT THE END

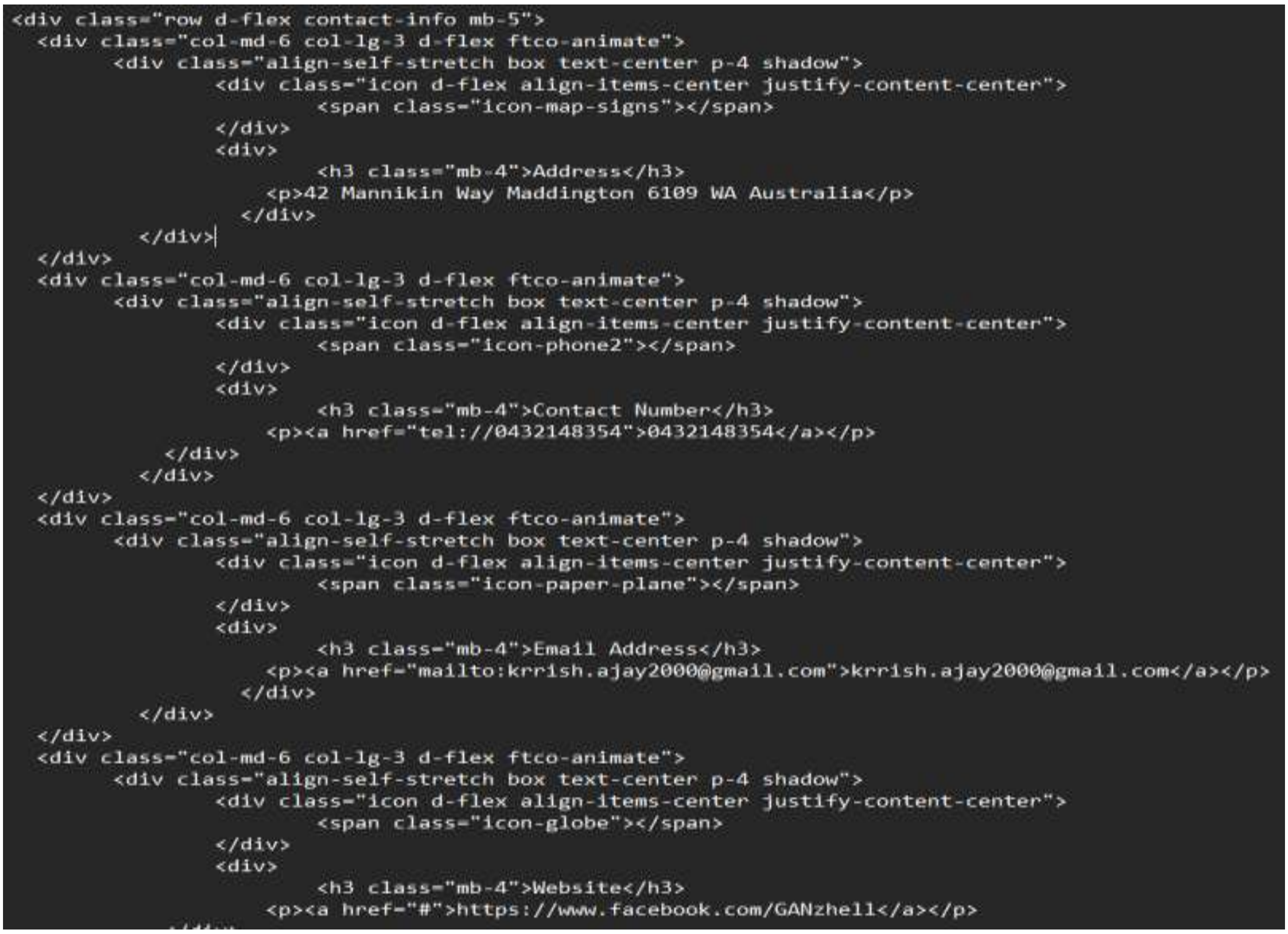
We can edit this section by typing <h1 class="big big-2"



```
    <section class="ftco-section contact-section ftco-no-pb" id="contact-section">
      <div class="container">
        <div class="row justify-content-center mb-5 pb-3">
          <div class="col-md-7 heading-section text-center ftco-animate">
            <h1 class="big big-2">Contact</h1>
            <h2 class="mb-4">Contact Me</h2>
            <p<p>If you’d like to get in touch about an internship, freelance work, or IT support, feel free to
reach out below.</p>
></p>
```

Next section similar but more details, such as address, phone number and website.

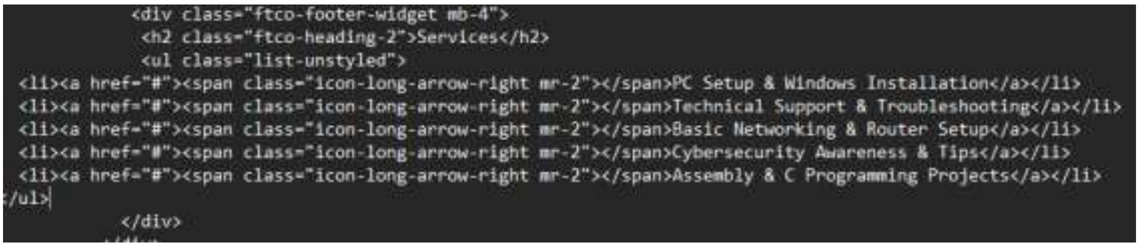
We can edit this section by typing <div class="row d-flex contact-info mb-5">



```
<div class="row d-flex contact-info mb-5">
  <div class="col-md-6 col-lg-3 d-flex ftco-animate">
        <div class="align-self-stretch box text-center p-4 shadow">
                <div class="icon d-flex align-items-center justify-content-center">
                        <span class="icon-map-signs"></span>
                </div>
                <div>
                        <h3 class="mb-4">Address</h3>
                    <p>42 Mannikin Way Maddington 6109 WA Australia</p>
                  </div>
          </div>
  </div>
  <div class="col-md-6 col-lg-3 d-flex ftco-animate">
        <div class="align-self-stretch box text-center p-4 shadow">
                <div class="icon d-flex align-items-center justify-content-center">
                        <span class="icon-phone2"></span>
                </div>
                <div>
                        <h3 class="mb-4">Contact Number</h3>
                    <p><a href="tel://0432148354">0432148354</a></p>
            </div>
          </div>
  </div>
  <div class="col-md-6 col-lg-3 d-flex ftco-animate">
        <div class="align-self-stretch box text-center p-4 shadow">
                <div class="icon d-flex align-items-center justify-content-center">
                        <span class="icon-paper-plane"></span>
                </div>
                <div>
                        <h3 class="mb-4">Email Address</h3>
                    <p><a href="mailto:krrish.ajay2000@gmail.com">krrish.ajay2000@gmail.com</a></p>
                  </div>
          </div>
  </div>
  <div class="col-md-6 col-lg-3 d-flex ftco-animate">
        <div class="align-self-stretch box text-center p-4 shadow">
                <div class="icon d-flex align-items-center justify-content-center">
                        <span class="icon-globe"></span>
                </div>
                <div>
                        <h3 class="mb-4">Website</h3>
                    <p><a href="#">https://www.facebook.com/GANzhell</a></p>
```

UPDATING HEADER AT THE END

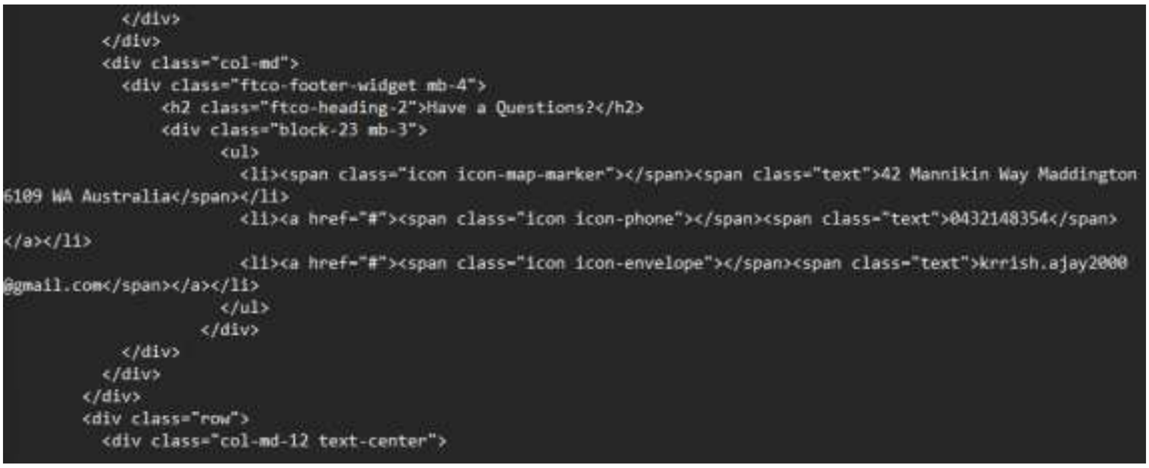
We can edit this section by typing <ul class="list-unstyled">



```
            <div class="ftco-footer-widget mb-4">
             <h2 class="ftco-heading-2">Services</h2>
             <ul class="list-unstyled">
 <li><a href="#"><span class="icon-long-arrow-right mr-2"></span>PC Setup & Windows Installation</a></li>
 <li><a href="#"><span class="icon-long-arrow-right mr-2"></span>Technical Support & Troubleshooting</a></li>
 <li><a href="#"><span class="icon-long-arrow-right mr-2"></span>Basic Networking & Router Setup</a></li>
 <li><a href="#"><span class="icon-long-arrow-right mr-2"></span>Cybersecurity Awareness & Tips</a></li>
 <li><a href="#"><span class="icon-long-arrow-right mr-2"></span>Assembly & C Programming Projects</a></li>
/ul>
           </div>
```

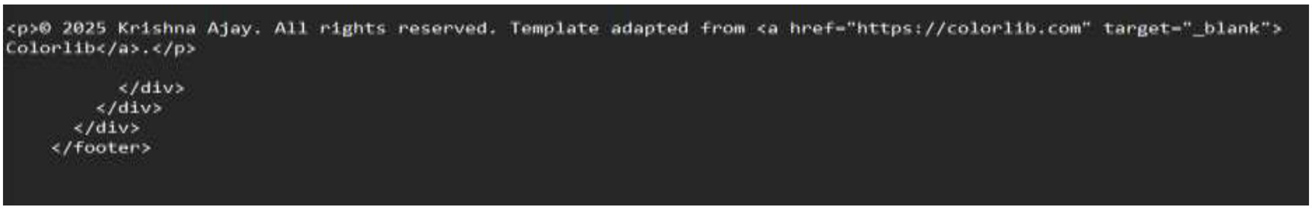
Replace services at end of the page with relevant skills

We can edit this section by typing <div class="block-23 mb-3">



```
          </div>
        </div>
        <div class="col-md">
          <div class="ftco-footer-widget mb-4">
              <h2 class="ftco-heading-2">Have a Questions?</h2>
              <div class="block-23 mb-3">
                    <ul>
                      <li><span class="icon icon-map-marker"></span><span class="text">42 Mannikin Way Maddington
6109 WA Australia</span></li>
                      <li><a href="#"><span class="icon icon-phone"></span><span class="text">0432148354</span>
</a></li>
                      <li><a href="#"><span class="icon icon-envelope"></span><span class="text">krrish.ajay2000
@gmail.com</span></a></li>
                    </ul>
                  </div>
          </div>
        </div>
      </div>
      <div class="row">
        <div class="col-md-12 text-center">
```

Replaced the licensing of the page and used my licensing but credited colorlib for using their template



```
<p>© 2025 Krishna Ajay. All rights reserved. Template adapted from <a href="https://colorlib.com" target="_blank">
Colorlib</a>.</p>

          </div>
        </div>
      </div>
    </footer>
```

FIXING INCONSISTENT FONTS IN EDUCATION SECTION

Manual CSS script

Open ccs folder in the root folder then open style.css and scroll to the very bottom.

h2 {

font-weight: 700 !important;

LIVE TIME DISPLAY CLOCK (JAVA SCRIPT)

Description -A custom live digital clock was displayed on the site. This clock uses java scripting, and the clock updates every second using the function setInterval() and formats time using its built-in date object.

In index.html

Add it just below <body data-spy="scroll" data-target=".site-navbar-target" data-offset="300"> you can can edit this section by typing that scrip as well.

<div id="clock">00:00:00</div>

Then in your <script> section at the bottom of the page (above </body>), add:

For easy access you can type </body> using ctrl+f function

```
<script>
  function ShowsTheCurrentTime() {
    const TimeCurrent = new Date ();
    const TimeFormatted = TimeCurrent.toLocaleTimeString();
   document.getElementById('clock').textContent = TimeFormatted;
 }
 setInterval(ShowsTheCurrentTime, 1000);
 ShowsTheCurrentTime(); // Run at start
</script>
```

We also need to updater the style.css to do that open ccs folder in the root folder then open style.css and scroll to the very bottom. Paste this code to position and style the clock

```
}
#clock {
 position: fixed;
 top: 10px;
 left: 10px;
 background-color: transparent;
 color: black;
 font-size: 16px;
 font-family: 'Poppins', sans-serif;
 z-index: 9999;
}
```

FORM VALIDATION FOR USER FORM

The user form in the template did not have user validation once user enters details and submits it does not get acknowledge by the site it just refreshes the page. It also uses to accept user information even if any part of the form is blank. The java script I created below will validate required fields such as (name, message, email). It also ensures email address follows correct format using RegEx. Overall, it will improve the user experience in my site and prevent empty and invalid submissions.

```
<script>
 // LISTEN FOR THE FORM'S SUBMIT EVENT
 document.getElementById('contactForm').addEventListener('submit', function(e) {
  e.preventDefault(); // Prevent the page from refreshing on form submission
  // IN THIS PART THE VALUE INPUTTED BY USER IS CONVERTED TO UPPERCASE
  const yourNameRaw = document.getElementById('name').value.trim();
  const emailValueFromForm = document.getElementById('email').value.trim();
  const yourSubjectRaw = document.getElementById('subject').value.trim();
  const yourMessageRaw = document.getElementById('message').value.trim();


  const yourName = yourNameRaw.toUpperCase();
  const yourEmail = emailValueFromForm.toUpperCase();
  const yourSubject = yourSubjectRaw.toUpperCase();
  const yourMessage = yourMessageRaw.toUpperCase();
  const yourFormMessage = document.getElementById('formMessage'); // Where messages will be shown
  // THIS FUNCTION VALIDATES THE EMAIL FORMAT THAT WAS ENTERED BY THE USER
  const patternOfTheEmail = /^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/;
  // THIS FUNCTION MAKES SURE IF ANY FIELDS ARE EMPTY WHEN USER TRIES TO SEND THE MESSAGE.
  if (!yourNameRaw || !emailValueFromForm || !yourSubjectRaw || !yourMessageRaw) {
    yourFormMessage.textContent = 'Please fill in all details to proceed.';
    yourFormMessage.style.color = 'red'; // The colour set to show error
    return;
  }
  console.log("Email entered:", emailValueFromForm);
  // Checks whether the email format is valid
  if (!patternOfTheEmail.test(emailValueFromForm)) {
    yourFormMessage.textContent = 'Invalid! Please enter a valid email address.';
    yourFormMessage.style.color = 'red';
    return;
  }
  // CHECK IF THE MESSAGE IS LONG ENOUGH SO THE USER CAN PROCEED, IF THE MESSAGE IS SHORT SHOW ERROR MESSAGE
  if (yourMessage.length < 15) {
    yourFormMessage.textContent = 'Message needs to be at least 15 characters long.';
    yourFormMessage.style.color = 'red';
    return;
  }
  // IF ALL CHECKS PASS SHOW MESSAGE TO THE USER SAYING SUCCESS
  yourFormMessage.style.color = '#28a745'; // green
  yourFormMessage.textContent = 'Thank you for contacting. Message has been successfully sent!';
  // THIS FUNCTION RESETS THE FORM AFTER SUBMISSION
  document.getElementById('contactForm').reset();
  // CLEAR THE MESSAGE AFTER 3.5 SECONDS IF USER DOES NOT DO ANYTHING AFTER
  setTimeout(() => {
```

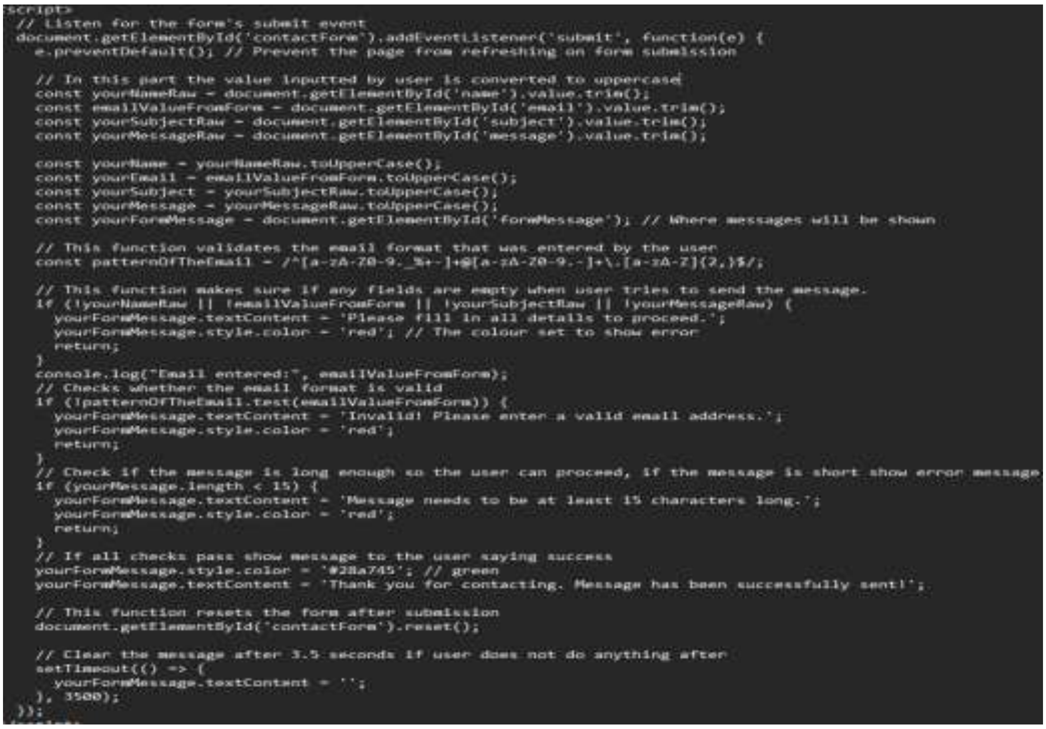
yourFormMessage.textContent = '';

}, 3500);

});

</script>

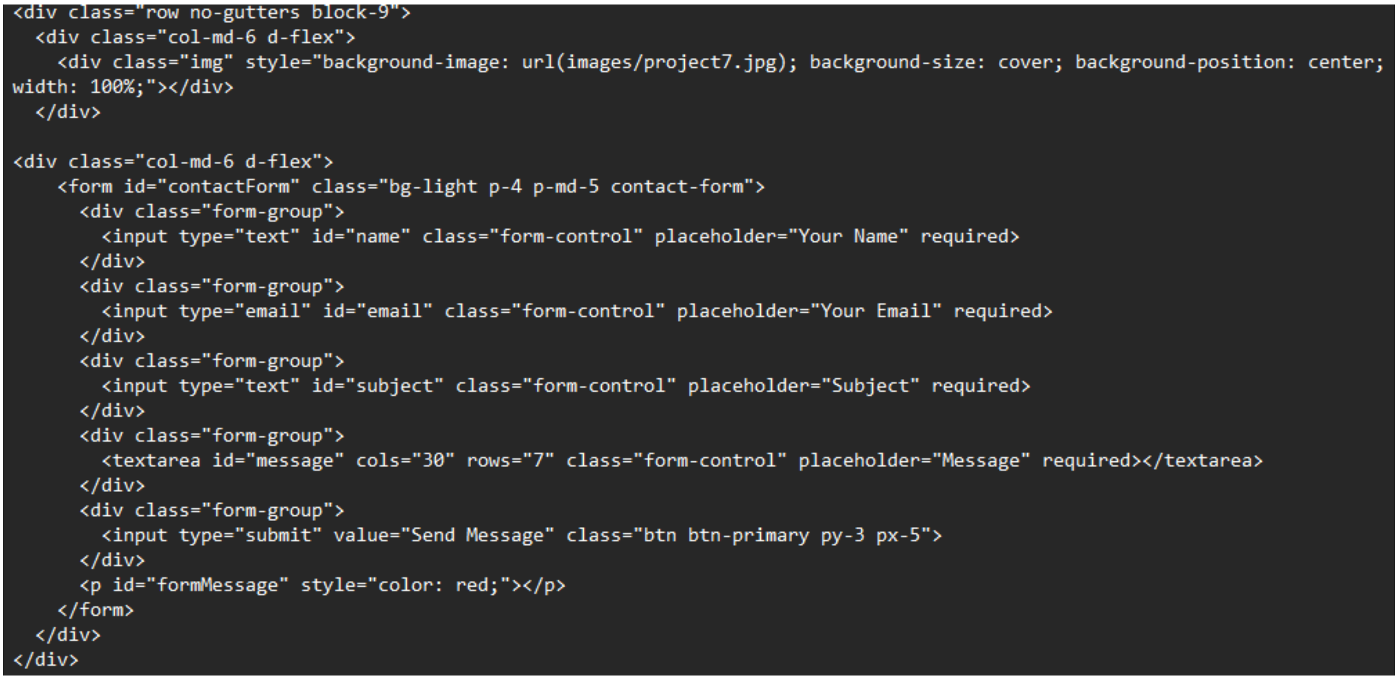
Next add this <script> block just before the closing </body> tag in your index.html file.



```
<script>
  // Listen for the form's submit event
  document.getElementById('contactForm').addEventListener('submit', function(e) {
    e.preventDefault(); // Prevent the page from refreshing on form submission

    // In this part the value inputted by user is converted to uppercase
    const yourNameRaw = document.getElementById('name').value.trim();
    const emailValueFromForm = document.getElementById('email').value.trim();
    const yourSubjectRaw = document.getElementById('subject').value.trim();
    const yourMessageRaw = document.getElementById('message').value.trim();

    const yourName = yourNameRaw.toUpperCase();
    const yourEmail = emailValueFromForm.toUpperCase();
    const yourSubject = yourSubjectRaw.toUpperCase();
    const yourMessage = yourMessageRaw.toUpperCase();
    const yourFormMessage = document.getElementById('formMessage'); // Where messages will be shown

    // This function validates the email format that was entered by the user
    const patternOfTheEmail = /^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/;

    // This function makes sure if any fields are empty when user tries to send the message.
    if (!yourNameRaw || !emailValueFromForm || !yourSubjectRaw || !yourMessageRaw) {
      yourFormMessage.textContent = 'Please fill in all details to proceed.';
      yourFormMessage.style.color = 'red'; // The colour set to show error
      return;
    }
    console.log("Email entered:", emailValueFromForm);
    // Checks whether the email format is valid
    if (!patternOfTheEmail.test(emailValueFromForm)) {
      yourFormMessage.textContent = 'Invalid! Please enter a valid email address.';
      yourFormMessage.style.color = 'red';
      return;
    }
    // Check if the message is long enough so the user can proceed, if the message is short show error message
    if (yourMessage.length < 15) {
      yourFormMessage.textContent = 'Message needs to be at least 15 characters long.';
      yourFormMessage.style.color = 'red';
      return;
    }
    // If all checks pass show message to the user saying success
    yourFormMessage.style.color = '#28a745'; // green
    yourFormMessage.textContent = 'Thank you for contacting. Message has been successfully sent!';

    // This function resets the form after submission
    document.getElementById('contactForm').reset();

    // Clear the message after 3.5 seconds if user does not do anything after
    setTimeout(() => {
      yourFormMessage.textContent = '';
    }, 3500);
  });
```

Next Open index.html Add id to each of input field

Also add a message display element this needs to be after the submit button



```
<div class="row no-gutters block-9">
  <div class="col-md-6 d-flex">
    <div class="img" style="background-image: url(images/project7.jpg); background-size: cover; background-position: center;
width: 100%;"></div>
  </div>

<div class="col-md-6 d-flex">
    <form id="contactForm" class="bg-light p-4 p-md-5 contact-form">
      <div class="form-group">
        <input type="text" id="name" class="form-control" placeholder="Your Name" required>
      </div>
      <div class="form-group">
        <input type="email" id="email" class="form-control" placeholder="Your Email" required>
      </div>
      <div class="form-group">
        <input type="text" id="subject" class="form-control" placeholder="Subject" required>
      </div>
      <div class="form-group">
        <textarea id="message" cols="30" rows="7" class="form-control" placeholder="Message" required></textarea>
      </div>
      <div class="form-group">
        <input type="submit" value="Send Message" class="btn btn-primary py-3 px-5">
      </div>
      <p id="formMessage" style="color: red;"></p>
    </form>
  </div>
</div>
```

UPLOADING CV FILE SO USERS CAN DOWNLOAD IT FROM MY WEBSITE

Adding a download file in the html file and place it just above </section>

Added the following line

<a href="CV/krishna-cv.pdf" download class="btn btn-primary py-3 px-5">Download CV</a>

Actual cv should be placed in CV/krishna-cv.pdf if no folder exists create a new folder called CV.

AFTER EDITING THE FREE TEMPLATES, WE CAN UPLOAD THE FILES INTO THE NGINIX SECURE SERVER USING SECURE COPY (SCP)/SFTP: IF THE WEBSITE FILES (HTML, CSS, JS, IMAGES, ETC.) ARE ON YOUR LOCAL MACHINE.

```
scp "C:\Users\MK535\OneDrive\Desktop\UNI 2025\ICT 171\Assignment 2 Cloud Project & Video Explainer\portfolio.zip" root@170.64.229.201:/root/
```

This command will copy all files to the /var/www/portfolio.krishnaajay.online directory on the server.

```
ssh root@170.64.229.201
```

```
unzip /root/portfolio.zip -d /var/www/portfolio.krishnaajay.online/
```

```
sudo systemctl restart nginx
```

SET APPROPRIATE PERMISSIONS ON THIS DIRECTORY.

We want Nginx (which runs as the www-data user by default) to be able to read the files and optionally allow our user to edit them.

Linux command

```
sudo chown -R www-data:www-data /var/www/krishnaajay.online/main
```

```
sudo chmod -R 755 /var/www/krishnaajay.online/main
```

This sets owner to your user and group www-data and makes all files/directories readable by others. The 755 permission ensures directories are traversable and files are readable by everyone (owner can also write).

NOW WE NEED TO CONFIGURE NGINX SERVER BLOCK FOR THE PORTFOLIO SUBDOMAIN

Nginx uses server blocks to find what content to show for a given domain or subdomain. We will create a new server block configuration for main.krishnaajay.online . By doing so Nginx knows to use our project directory and respond to requests

Generally, Nginx on Ubuntu stores server block configurations in /etc/nginx/sites-available/. Ther should be default config file present. We will make a new config file

Linus command to create new config file

```
sudo nano /etc/nginx/sites-available/main.krishnaajay.online
```

Replace the default content with

```
server {
  listen 80;
  listen [::]:80;
  server_name main.krishnaajay.online 170.64.229.201;
```

```
    root /var/www/krishnaajay.online/main;

    index index.html index.htm;


    location / {

        try_files $uri $uri/ =404;

    }

}
```

Save and exit the editor (in nano, press Ctrl+X, then Y and Enter to confirm).

Explanation of each line:

- listen 80; and listen [::]:80; // tells nginx server to listen to ipv4 and 1pv6 port 80 (HTTP)
- root /var/www/ main.krishnaajay.online;// specifies web root directory this is where nginx will look for files.
- index index.html index.htm;// sets the index files
- server name main.krishnaajay.online;// defines domani name that this server block will respond to. This needs to match the subdomain we use. www.main.krishnaajay.online is not needed as we are using a subdomain of an existing domain
- location / { try_files $uri $uri/ =404;}// Since my website is operated as a static site directive is a common configuration. This tell Nginx to server file requested by user incase if not found try andd seerve a directory and nothiong matches again return a 404 Not Found. This prevents Nginx from passing requests to the next server block or serving a default file.

ENABLE THIS CONFIGURATION BY CREATING A SYMLINK TO IT IN THE SITES-ENABLED DIRECTORY

Linus command

```
sudo ln -s /etc/nginx/sites-available/main.krishnaajay.online /etc/nginx/sites-enabled/

sudo nginx -t

sudo systemctl restart nginx
```

This command enables server block . Nginx reads config from sites-enabled/ on startup using a symlink so the actual files in sites-available/ is easily managable.

NGINX CONFIGURATION FOR SYNTAX ERRORS:

Linus command

```
sudo nginx -t
```

The output should say “syntax is ok” and “test is successful” if Nginx parse all config files and report success or any errors.

Trouble shooting if you receive errors:

server_names_hash_bucket_size- means domain name is long and default hash bucket size for server names is not enough. This error suggests increasing server_names_hash_bucket_size.

How to fix it

open /etc/nginx/nginx.conf look for line # server_names_hash_bucket_size 64;. Remove the # to set the bucket size to 64 Save the file and run nginx -t again.

APPLY THE CHANGES BY RESTARTING OR RELOADING NGINX:

Linus command

```
sudo systemctl restart nginx
```

Apply the new config without dropping connections.

Nginx is configured to serve the portfolio site now. We could do a check up by visiting http://main.krishnaajay.online in a web browser. This might show up as “Site not found” since we have not setup DNS. Otherwise, we will properly test after DNS and SSL are set up.)

DNS CONFIGURATION ON NAMECHEAP (THE SUBDOMAIN NEEDS TO BE PINTING TO MY DOMAIN)

This is important for lets encrypt and users to reach my site via the domain name, you need to create a DNS A record for the subdomain portfolio under your existing domain krishnaajay.online. My main domain is currently registered with Namecheap and used for Assesment 1.

STEPS

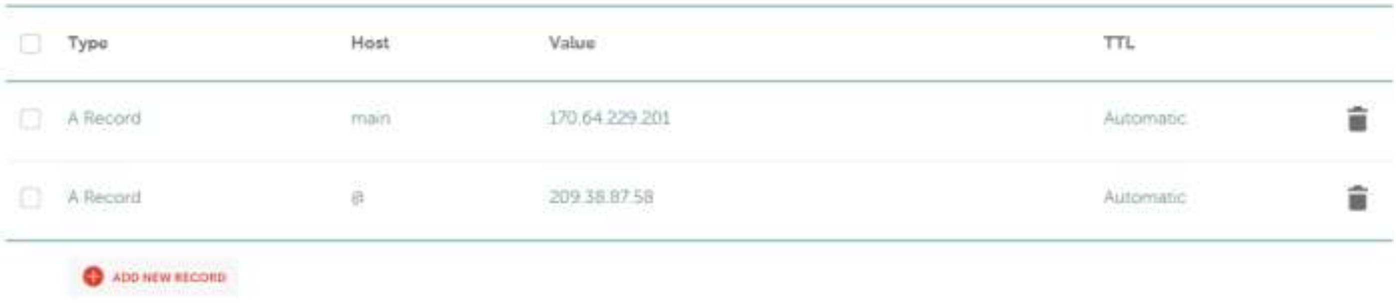
- Login into my Namecheap account and go to domain List or manage domain section for krishnaajay.online.
- Next navigate to advanced DNS for domain this is where you manage your DNS records.
- In host record click add new record
- Choose A record as the type
- In the host section type portfolio Namecheap will append my main domain automatucally.
- In the ip adress section type in te droplet ip adrss
- TTL can be left as automatic
- Click on the tick icon to save it.
- The record would look like this

Type: A Record

Host: portfolio

Value: 170.64.229.201 (my droplet’s IP)

TTL: Automatic



□	Type	Host	Value	TTL
□	A Record	main	170.64.229.201	Automatic
□	A Record	@	209.38.87.58	Automatic

We need to allow time for DNS propagation as DNS change are not instant typically take about 30 minutes to take effect (though it can be faster or up to a couple of hours). We can use tools such as https://www.whatsmydns.net/ . Once the propagation is done we can visit main.krishnaajay.online in a browser.

WE CAN ALSO CHECK IF DNS IS WORKING

In local machine open CMD

Run: nslookup main.krishnaajay.online

Should see somehting like Address: 170.64.229.201

GETTING A SSL CERTIFICATE WITH LET'S ENCRYPT (CERTBOT)

Next step is to get a free SSL/TLS certificate and the Certbot tool to automate the installation I will be using lets encrypt since its free and has auto renewal.

- main.krishnaajay.online is already pointed to this server's IP (it's important to have it in place before obtaining the certificate)
- Port 80 (HTTP) is open and accessible from the internet (which we allowed in the firewall). Let's Encrypt will use HTTP challenges to verify the domain.

Since im usinmg Ubuntu 22.04 the best way to install Certbot is via snap. Install Certbot and its Nginx plugin.

Linus command

```
sudo apt install certbot python3-certbot-nginx -y

sudo certbot --nginx -d main.krishnaajay.online
```

Explanation

--nginx- tells Certbot to automatically configure Nginx for SSL it will then edit the Nginx config or create a new one for HTTPS

-d- specifies the domain name we want a certificate for. We can add additional -d flag if we have many subdomains.

Upon running the command certbot will prompt these:

- An email for urgent renewal and registration wirh encrypt
- Agree to Let's Encrypt terms of service.
- share your email with the EFF(optional)
- Lastly It will ask if you want to redirect HTTP to HTTPS. We will choose yes to automatically use the secure URL. If we select this option Nginx config to forward all port 80 requests to port 443.
- Certbot will now perform domain validation. It creates ateamparataory challenge file under /.well-known/acme-challenge/ in the web root and lets encrypt can verify it using HTTP.
- Next you should be ablet to see a message like: "Successfully received certificate." It will also show the locations where the certificate and key are saved (under /etc/letsencrypt/live/portfolio.krishnaajay.online/).
- Site is now set to use HTTPS. All HTTP requests will be forwarded to HTTPS, and Nginx will serve the traffic using the new certificate.

Certbot auto enbles renawal it installs a systemd timer to renew the certificate when necessary. Certificates are generally valid for 90 days. but the auto-renewal will attempt to renew it after ~60 days.

Verify this by: **sudo certbot renew --dry-run**

If you see no errors the renewal setup is succeful and manual renew is not needed.

Troubleshoot incase Certbot failed to obtain a certificate

Error messages

DNS problem: NXDOMAIN looking up A for portfolio.krishnaajay.online"

“Timeout”

Thes error messgawe soculd be shown because it couldn’t resolve or reach your host). Another could be firewall issues (unable to connect on port 80). More troubleshotting sections will be included at the end.

At this stage the site is available at

https:// http://170.64.229.201/

http://main.krishnaajay.online

https://main.krishnaajay.online with a valid SSL certificate.

TEST AND VERIFY THE DEPLOTYMENT OF WEBSITE (HTTP/HTTPS)

We can now check the live website on its actual domain. On a web broweser go to main.krishnaajay.online. You should see the portfolio website loaded over HTTPS.

Things to verify and check for:

- The broweser should show a padlock icon on the top left corner meaning SSL cerificate is recognized and valid. You can click on it to see more details.
- The URL should be https://main.krishnaajay.online and not http://main.krishnaajay.online incase any user goes to HTTP it should redirect to HTTPS because we enabled the redirect in Certbot. This ensures all traffic is encrypted.
- The conmtent of the page should be portfolio website . We can scroll throught it to heck if images, layout and style are loaded in properly. Incase you see site texts but it seems unstyled or image sre missing that could indicate a path issue (e.g., CSS/JS not found) – ensure that the files are in the correct folders as referenced by the HTML.
- If deployment was suscessful we are expected to see one page template should display with proper styling and function (menus, scroll, content).
- Lastly we can run a SSL Labs Server Test, which will grade your SSL configuration this is best practice for security. If everything is coreect we should receive score an A (meaning strong encryption and correct chain). This is just optional but good for validation.
- At this point the portfolio website is fully deployed and secured with HTTPS. This site is separate from my main domain hosted at krishnaajay.online. This site uses subdomain of the main doman.

TROUBLESHOOTING ISSUES

WEB SERVER ISSUES (NGINX)

Incase Nginix configuration fails: If sudo nginx -t shows an errror, read the message carefully. Could be on a sepcific file or line.

Examples

Misiing “;” or “}” in config will cause failure. We need to open the file and fix syntax

server_names_hash_bucket_size – means domain name is long and default hash bucket size for server names is not enough. This error suggests increasing server_names_hash_bucket_size.

How to fix it

Open /etc/nginx/nginx.conf

Look for the line:

# server_names_hash_bucket_size 64;

Remove the # to set the bucket size to 64.

Save the file and run nginx -t again.

Nginx service won't start/restart: Use systemctl status nginx to see the log output.

Common cause could be syntax errors like above or port conflict. We also need to make sure we did ln -s the config into sites-enabled. If the file is in sites-available but not enabled Nginx wont load and youll see default page. If site isnt showing at all run this cvommand: **ls /etc/nginx/sites-enabled/** //confirms symlink

If you are able to see main.krishnaajay.online good if not create the symlink and reload Nginx.

DNS ISSUES

DNS propagation not working

Double-check that the A record is correctly added on Namecheap with the exact host portfolio and correct IP. Always remember it can take 30-1 hour for DNSA change to globally be acknolosged. Use tools like whatsmydns.net to see if DNS has propagated in various regions.

Records conflicting:

In case you accidentely created two A records for portfolio (or a CNAME and an A record for the same name). DNS could not be working properly. To fix this remove sany duplicates or unecessary records. Only record A record for portfolio should exist (unless you have IPv6, then an AAAA record could also be added for an IPv6 address(This is optional and I have not done this)

SEEING DEFAULT NGINX PAGE NOT PORTFOLIO

Possible reason list:

Server name might not match. There could be typo in the config portfolio.krishnaajay.online it mush match the domain. If you are unsure we can just add If unsure, you can add a line like server_name main.krishnaajay.online http://main.krishnaajay.online. This is just for testing not final; config.

Dns could be pointing to wrong server. If you have multiple servers verify the IP adress conntection and domain resolves to this domain.

The defauilt server block could be taking precendence. This happens when the reuest doesn't matych any server name, Nginx will use default server by disabling the default config we ensure DNS points correctly. The severe block is used. If default config isnt removed try removing it and reloading it.

PATH OF FILE PERMISSION ISSUES (404/403 ERRORS)

We are able to reach the site but things are not loaded such as (CSS/JS/images). Check Nginx error logs (/var/log/nginx/error.log). If we see 403 Forbidden or 404 Not Found we can proceed further.

Error messages

403 Forbidden(Nginx could not read the file). Make sure the file exists in the corredt loaction and persmision are not restrictive. chmod 755 on the web directory should prevent this by giving world-read access. If you set different permissions, ensure that at least the www-data user can read the files.

Best fix is to set permisiions/ ownership to nbinx:

Linus commands

- sudo chown -R www-data:www-data /var/www/krishnaajay.online/main
- sudo chmod -R 755 /var/www/krishnaajay.online/main

404 Not Found this typically means files are not where they are supposed to be or the paths in the HTML are wrong. For example if HTML is referecing /css/style.css but on the server the CSS folder is named differently or

not uploaded, it will show 404. To fix this make sure folder structure matches what HTML expects, We can use droplet consoile to do this.

FIREWALL COULD BE BLOCKING ACCESS

In firewall is causeing issues revsiti firweall settings. If UFW is enabled but only Nginx HTTP was allowed, after enabling HTTPS you should also allow Nginx HTTPS or we should switch combined profiles we can do this by:

Linus command

```
sudo ufw allow 'Nginx Full'

sudo ufw delete allow 'Nginx HTTP'
```

this command opens port 80 and 443 and removes the HTTP-only rule.

SSL/CERTBOT ISSUES

If sudo certbot --nginx didn’t succeed, the output usually explains

Two main errors that this can happen is

DNS problem: NXDOMAIN looking up A for portfolio.krishnaajay.online” (no DNS record found)

We can verify by running dig portfolio.krishnaajay.online on the server or another system it should return your droplet’s IP. If not, fix the DNS and wait.

“Timeout”

Let’s Encrypt couldn’t connect to your server on port 80. This could be because Nginx was not running or the firewall is blocking port 80. This could also happen if you provided wrong port config.

We was troubleshoot this by making sure Nginx is running (systemctl status nginx) and is on port 80. We can also verify that http://main.krishnaajay.online is working on external network. If you find that UFW or another firewll is the issues port 80 is closed open it and retry certbot.

RATE LIMITING ISSUE WITH CERTBOT

If you ran Certbot many times unsuccessfully, you might hit Let’s Encrypt’s rate limits. If this happens don t spam wait for rougnly an hour then retry. Use --dry-run with Certbot can test the process without counting against limits.

HTTPS PAGE NOT SHOWING LOCK

HTTPS is working but shows a grey padlock or hasa warning. Check if your site is loading things over http://. Browsers will flag “mixed content”. Since my site is static links should be relative or protocol-agnostic, but if any link in the HTML is hard-coded to http:// (like an external script or image), change it to https:// if available.

RENEWAL ISSUES

if auto-renewal fails you should get an email from Let’s Encrypt if a cert is nearing expiry without successful renewal. This could be due to cron job could not reach the server (maybe the server was down or firewall changed).

To troubleshoot this run

Linus command

- sudo certbot renew manually.
- sudo systemctl list-timers --all | grep certbot //ensures cron or systemd timers are active
- These commands should fix the issues.

QUICK TIPS

Always remember Nginx's logs for debugging: /var/log/nginx/access.log and /var/log/nginx/error.log.

If DNS propagation is slow, you can test your Nginx configuration by editing your local computer's hosts file this will map my portfolio to droplet manually. Doing this my pc will resolve it direcctly without global DNS. But this needs to be removed later for normal operation.

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