



**UNIVERSITY *of*
GREENWICH**

**NATIONAL COLLEGE OF INFORMATION TECHNOLOGY
(LILONGWE)**

**INFORMATION AND CONTENT MANAGEMENT
BSC COMPUTING (HONS)**

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1. Introduction

The website which is about to be cloned is at this URL [The National Museum of Computing \(tnmoc.org\)](http://TheNationalMuseumofComputing.tnmoc.org)

The website which has been developed is at this URL [The National Museum of Computing. – tnmoc \(dev-tnmoc.pantheonsite.io\)](http://TheNationalMuseumofComputing.dev-tnmoc.pantheonsite.io)

Below are the credentials which will be used to update the content on the website.

| | |
|-------------------|-------------------------|
| Username or Email | martindharawa@gmail.com |
| Password | |

2. Review of Content Management Systems.

2.1. Introduction

Content Management System (CMS) is a computer program which allows users to cooperate and manage collections of electronic content with or without knowing how to write code. In a content Management system, users make different accounts with separate roles. These users can add plugins and themes to add functionalities, appearances, and features to their website. (Content Management System, 2023) (Amsler & Churchville, 2023)

A theme is a template which consist of the visual styles which improves the appearance of a CMS. (Jordana , 2023)

A plugin in a CMS is a coded file used to extend functionality of a CMS. (Ionos, 2023)

2.2. Evaluation of Content Management System.

With the scenario given, users can use different CMS to develop the Website. Below are the potential CMSs which users can used to create the website.

2.2.1. Joomla

Joomla is an open-source CMS released in 2005 and works on top of PHP. Joomla follows an object-oriented approach, and a user needs to have PHP and MySQL to use it. Joomla is the second most used CMS of which WordPress is the first. (About joomla, 2023)

2.2.1.1. Advantages of Joomla.

2.2.1.1.1. Support

It has a large community of developers who offer support easily when errors have been faced. It also has great documentation which even a beginner can easily grasp on. (SmartAddons, 2023)

2.2.1.1.2. Compatible.

Joomla works in all operating systems whether it's on a Linus OS or Mac and even on windows. Joomla also works with different SQL database system.

2.2.1.1.3. Flexible

Joomla can create various kinds of websites. Some of the websites which can be created include blogs, corporate websites, business websites and many more.

2.2.1.1.4. Secured

Joomla's team of developers works tirelessly to develop and update their security mechanism and users can also use plugins to boost the security of their sites. (linuxsecurity, 2023)

2.2.1.1.5. Performance.

Its team of developers regularly releases updates which improves the performance of its site. It also has a built in Caching feature which helps its performance. (About joomla, 2023)

2.2.1.1.6. Not so flexible.

Despite being flexible, Joomla can only be used to create websites which are small.

2.2.1.2. Disadvantages of Joomla.

2.2.1.2.1. Costly.

Users must pay to use some plugins and themes. When hosting Joomla there are many subscription plans which can be selected from these plans can vary depending on the type of subscription.

2.2.1.2.2. Maintenance.

Requires regular updates to keep it secured and once updated most of the plugins and themes might not work. This will in turn affect the appearance and functionalities which were dependent on the themes and plugins.

2.2.1.2.3. Complexity

Users who use this CMS must at least have some programming knowledge to use it as many beginners find it hard to use. (Profolus, 2023)

2.2.2. Drupal

Drupal is also a free and open-source CMS which also follows an Object-Oriented Programming of PHP. Drupal first release was in 2001. For someone to use Drupal, this must have PHP, composer and a SQL Database management system.

2.2.2.1. Advantages of Drupal.

2.2.2.1.1. Secured

Drupal's team regularly releases Security patches to fix vulnerabilities. It is one of the most secured CMS on the market. Its security features include user access controls and authentication. Users might also opt. to use third party plugins for its security. (Kiong, 2023)

2.2.2.1.2. Compatibility.

Users on all operating systems must not worry as Drupal is available on all operating systems as long as if the user has PHP and a SQL Database system already installed.

2.2.2.1.3. Flexible

Users can create various kinds of websites with this CMS starting from small websites to big websites. Some of the websites which can be created with Drupal includes blogs, ecommerce sites, corporate websites, business websites and many more.

2.2.2.1.4. Maintenance

Updates are released frequently which can be used to update and upgrade its security and performance.

2.2.2.2. Disadvantages of Drupal.

2.2.2.2.1. Support

Drupal has a small user community. Even through it has a small user community be assured that the people in the community will offer you help. (Pollard, 2023)

2.2.2.2.2. Complexity

Users find it hard to use and install Drupal on their machines. It has a steep learning curve for beginners which might be of disadvantage to new developers. (Trustradius, 2023)

2.2.2.2.3. Limited Customization

Drupal has limited plugins and themes. These plugins and themes include paid and free plugins and to customize the website itself users find it difficult.

2.2.2.2.4. Performance

It requires regular Updates for it to perform best.

2.2.2.2.5. Time Consuming

Users have to regularly update Drupal, and it can be occupying a lot of time from its users.

2.2.3. DotNetNuke

DotNetNuke (DNN) is an open-source CMS which is based on C#. An Object-Oriented Programming approach is followed, and it was released in 2002. Below are the Advantages and Disadvantages of DotNetNuke. (DotNetNuke, 2023)

2.2.3.1. Advantages of DotNetNuke.

2.2.3.1.1. Flexible

It offers users to create many kinds of websites with templates which they can use to create their sites. Examples of the sites which can be created are Online communities, blogs, e-commerce sites, corporate websites, business websites and many more.

2.2.3.1.2. Support

It has a large community of developers who are always willing to help. It also has a lot of Documentation which can be easily followed.

2.2.3.1.3. Secured

Its core system is very secured and doesn't require users to rely on third-party security plugins.

2.2.3.1.4. Maintenance

Its team of developers frequently releases patches and other updates.

2.2.3.2. Disadvantages of DotNetNuke.

2.2.3.2.1. Incompatible

It is only available for windows users only. Users in other operating systems might chose to work with virtual environments for windows in their different OS but the experience is not the same as in a windows system.

2.2.3.2.2. Resource Intensive

It requires many other Software's to run on and these software's require a lot of space and ram to run properly. These software's include Visual Studio, SQL Server management studio, Dotnet and a windows server. These will occupy a lot of space and ram.

2.2.3.2.3. Performance

As already explained that in needs much software's to run on, this in turn affects the performance by slowing down the platform.

2.3. Weight Score Model.

A weight score model is a quantitative method of evaluating multiple options based on multiple criteria. It involves multiple tasks which include identifying the options, listing the criteria, assigning scores to the criteria, and analyzing the score. (Scholz, 2023) (Romanelli, 2023)

Figure 2.2.3.2.1 is a table showing the scoring range for the weight scoring range.

| Score Range | |
|-------------|---------|
| Excellent | 7 to 10 |
| Good | 4 to 6 |
| Average | 1 to 3 |

Figure 2.2.3.2.2 is a table showing the criteria, options, scores, and the weighted scores.

| | Security | Performance | Flexible | Support | Maintainance | Compatibility | Complexity |
|---------------------------|----------|-------------|----------|---------|--------------|---------------|------------|
| Weight(%) | 18% | 17% | 11% | 15% | 15% | 10% | 14% |
| Joomla Score | 6 | 7 | 6 | 5 | 4 | 7 | 5 |
| Joomla Weighted Score | 1.08 | 1.19 | 0.66 | 0.75 | 0.6 | 0.7 | 0.7 |
| Drupal Score | 9 | 6 | 8 | 7 | 6 | 7 | 4 |
| Drupal Weighted Score | 1.62 | 1.02 | 0.88 | 1.05 | 0.9 | 0.7 | 0.56 |
| DotNetNuke Score | 7 | 2 | 6 | 3 | 6 | 3 | 6 |
| DotNetNuke Weighted Score | 1.26 | 0.34 | 0.66 | 0.45 | 0.9 | 0.3 | 0.84 |

Figure 2.2.3.2.3 is a column bar chart representing the comparison between different options criteria.

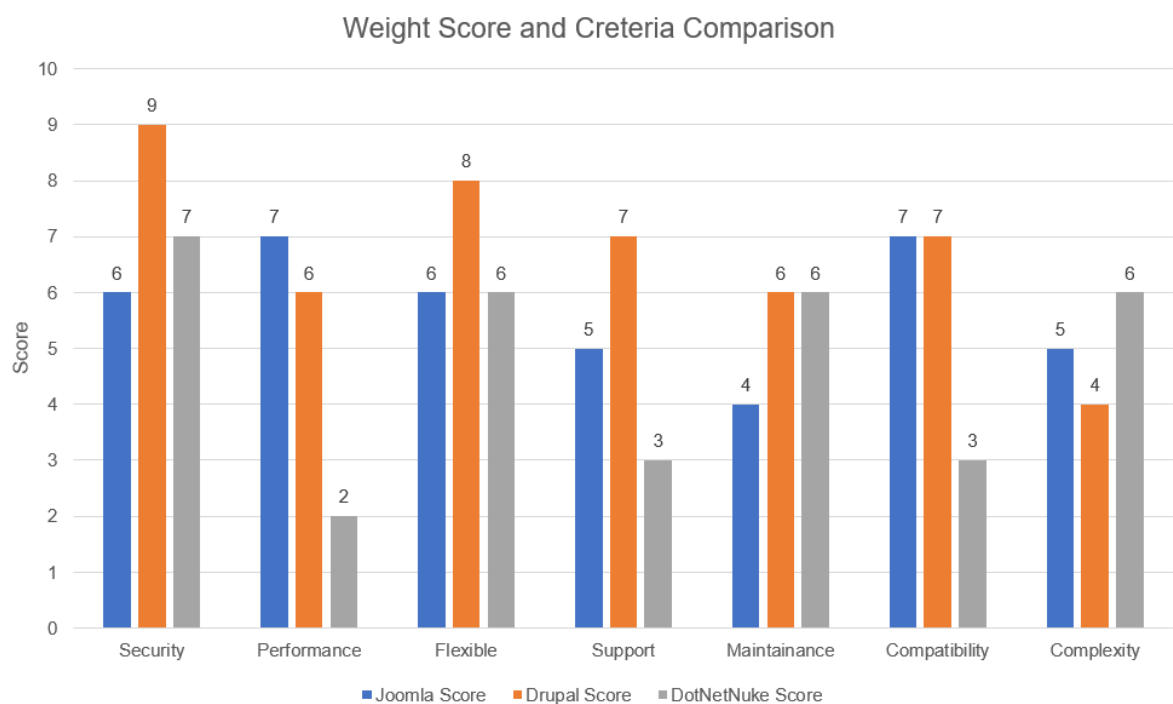
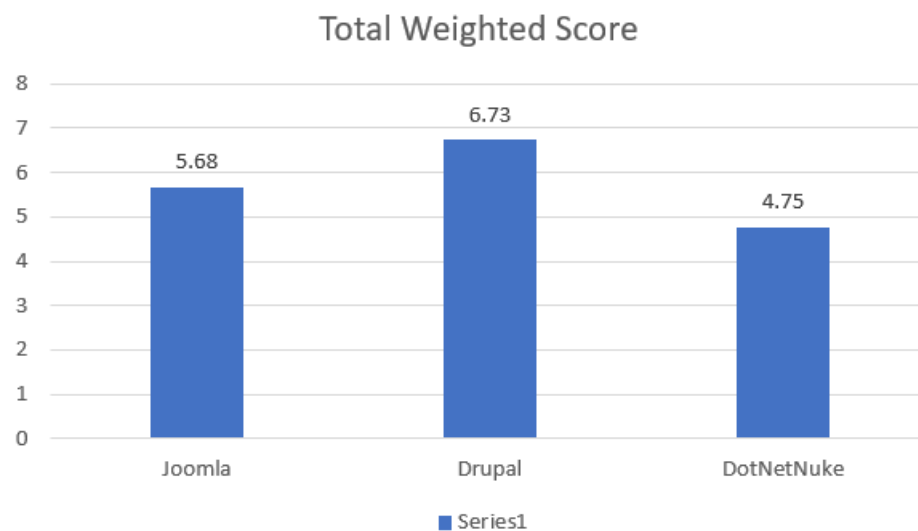


Figure 2.2.3.2.4 is a table showing the total weighted score of each option.

| Total Weighted Score | |
|----------------------|-------|
| CMS Name | Total |
| Joomla | 5.68 |
| Drupal | 6.73 |
| DotNetNuke | 4.75 |

Figure 2.2.3.2.5 is a bar chart showing the weighted score model scores.



2.4. Conclusion

Based on the weighted score model, the CMS which seems best suited for this project is Drupal. Even though Drupal has a steep learning curve, limited plugins, and themes, it has still been chosen because it offers the best security and its community which consist of free and paid resources and easily offers support to its users quickly.

3. Evaluation of product and design process of the recently built CMS.

3.1. Website Design.

Below are some of the Design Principles which have been applied to all pages.

White and black font colors have consistently used throughout the designing of the website. Grey and white colors have also been interchangeably used as the background colors. Same fonts and font sizes have been used for headings, subheadings, and paragraphs.

Input fields, checkboxes and radio buttons affords input insertion and buttons, icons and link labels afford clicking.

All the webpages consist of a header which provides feedback the user. A dark overlay color has been applied in all headers to make the text visible. The text in all headers is white.

3.1.1. Home Page

This is the page which users will be seeing after a successful authentication.

Below are the sections of the home page.

Figure 0.1 is an image showing the websites home page header section.

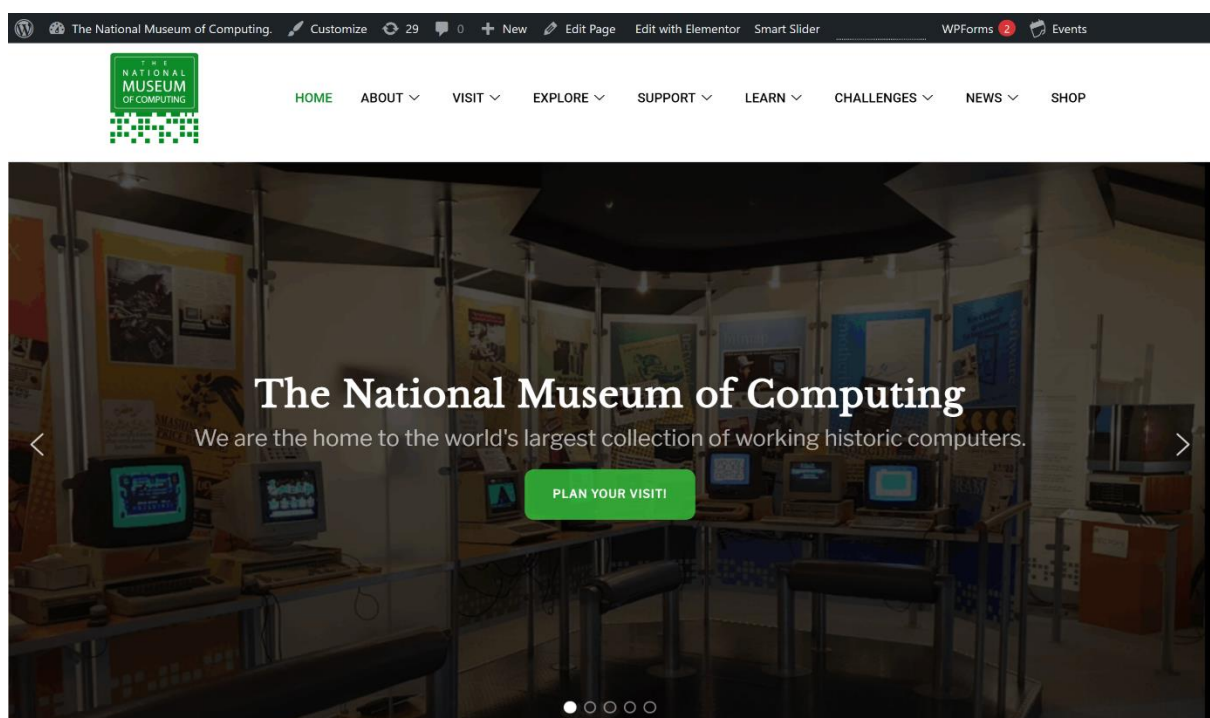


Figure 0.2 is an image showing the websites home page museums description section.

Follow the development of computing: from the Turing-Welchman Bombe and Colossus of the 1940s through the large systems and mainframes of the 1950s, 60s and 70s, to the rise of personal computing and the rise of mobile computing and the internet.

Recognised as one of England's top 100 'irreplaceable places', we welcome corporate and group visits, schools and individuals from all over the world.

TNMOC operates independently of Bletchley Park Trust, although we are located on the Bletchley Park Estate.

To visit us, go through the main Bletchley Park entrance, through the barrier, walk or drive bearing left beyond the main car parks, to our separate entrance located at the top of the Park.

We do recommend you BOOK ONLINE in advance of your visit but we also welcome visitors on the day. Please see the information below.

[Book Your Tickets](#)

Figure 0.3 is an image showing the home page plan your visit section.

PLAN YOUR VISIT

Family Visits



Why not plan a visit to our world leading computing museum? We offer individual, family and annual tickets and we are easy to reach by public transport or car.

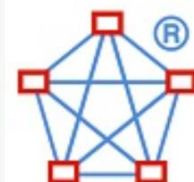
Corporate & Group Visits



Whether you are a business organisation or a private group of friends, we tailor your group visit to fit your requirements, including time, and you will benefit from the knowledge of one of our highly experienced, trained tour guides.

Figure 0.4 is an image showing the home page partners section.

Our Partners



3.1.2. About Our Museum Page.

This page consists of more information about the museum. Below are the images of the about our museum page sections.

Figure 0.1 is an image of the about us page header section.



Figure 0.2 is an image of the about us page about us section.

About Us

The National Museum of Computing, located on Bletchley Park, is an independent charity housing the world's largest collection of functional historic computers and WW2 machines, including, Enigma, Lorenz the working Turing-Welchman Bombe, the rebuilt Colossus, the world's first electronic computer, and the WITCH, the world's oldest working digital computer. The museum enables visitors to follow the development of computing from the ultra-secret pioneering efforts of the 1940s through the large systems and mainframes of the 1950s, 60s and 70s, and the rise of personal computing in the 1980s and beyond.

The museum runs a highly successful Learning Programme for schools and colleges and promotes introductions to computer coding amongst young people, especially females, to inspire the next generation of computer scientists and engineers.

Figure 0.3 is an image of the about us page our mission section.

Our Mission

To bring to life the history and ongoing development of computing for inspiration, research, learning and enjoyment for the benefit of general and specialist publics of all ages.

- In support of this we acquire, conserve, restore and reconstruct historic computing machinery for preservation, display, demonstration and research.
- Emphasis is on British computing heritage and on ongoing British contribution to innovation and development.
- Our distinctive approach is engagement through the display and demonstration of working historic systems.

We provide context through active education programs, festivals, lectures, visitor activities, and interpreted exhibition and interactivity to raise awareness and inspire future generations of computer scientists, engineers and inventors.

Figure 0.4 is an image of the about us page relationship with Bletchley Park section.

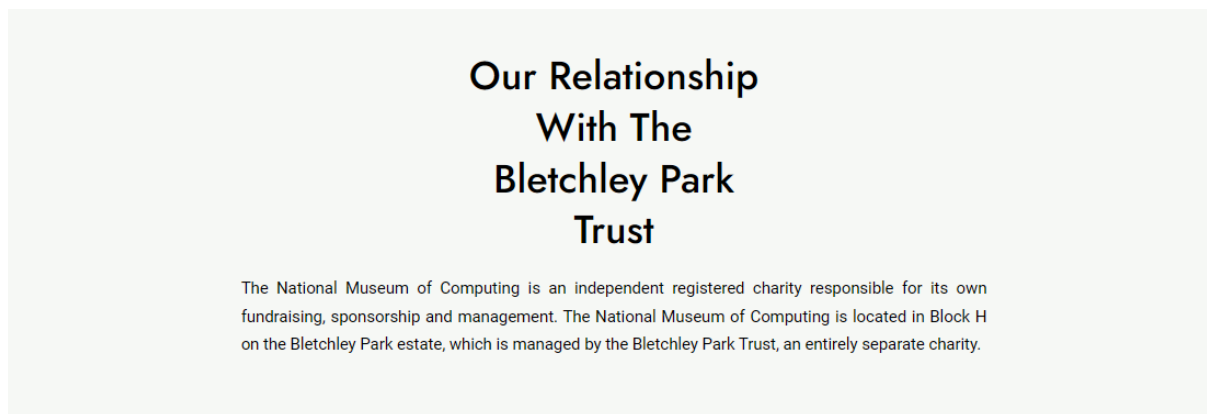
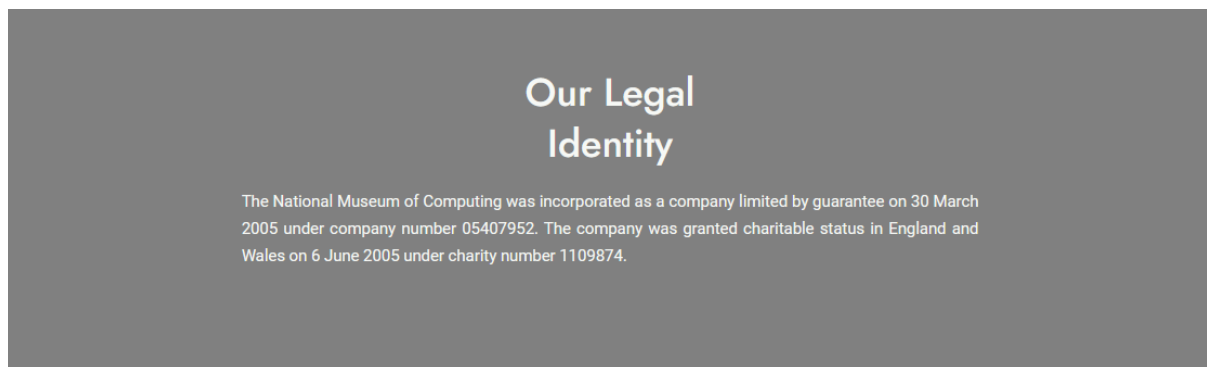


Figure 0.5 is an image of the about us page legal identity section.



3.1.3. Events Page

The events page will be the page where The National Museum of computing staff will be adding events. Visitors can add an event to their calendar by clicking subscribe to calendar button and user can change the displays or search for an event.

Figure 0.1 is an image showing the events page.



Events

It seems we can't find what you're looking for. Perhaps searching can help.

Search for events:

Find Events

List

Month

Day

Event options

< > This Month November 2023

MON TUE WED THU FRI SAT SUN

30 31 1 2 3 4 5

October 31 (Sat) - Sunday

6 7 8 9 10 11 12

October 31 (Sat) - Sunday

13 14 15 16 17 18 19

9:30 am - 3:30 pm
Digital Future
Days: LGBTQ+
STEM Day (15-
18 years)

9:30 am - 5:00 pm
BBC / Acorn
Festival
weekend

20 21 22 23 24 25 26

27 28 29 30 1 2 3

9:30 pm - 9:30 pm
TNMOC Virtual
Talk: Alan
Burbett-Grey

Subscribe to calendar

Button to add
the events to
visitors'
calendars.

3.1.4. Donations Page

This page is the page where users will be viewing the about of the donation and make new donations. Below are the sections of the donation page.

Figure 0.1 is an image of the donation page header section.

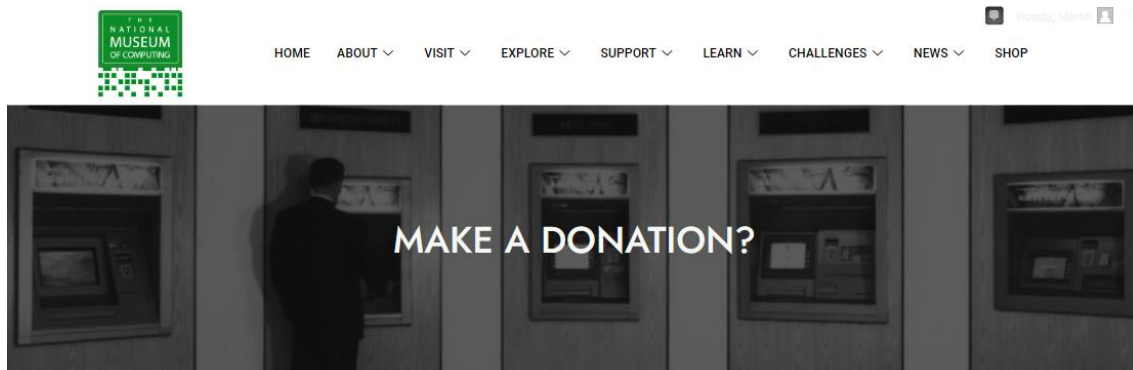
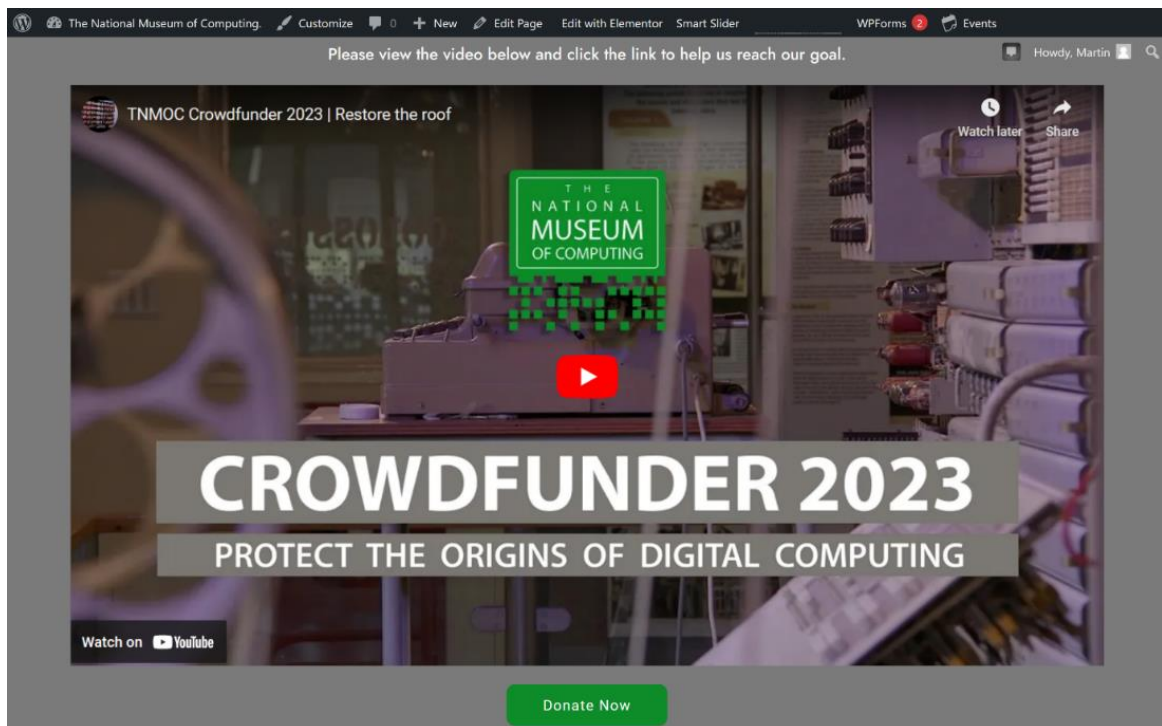
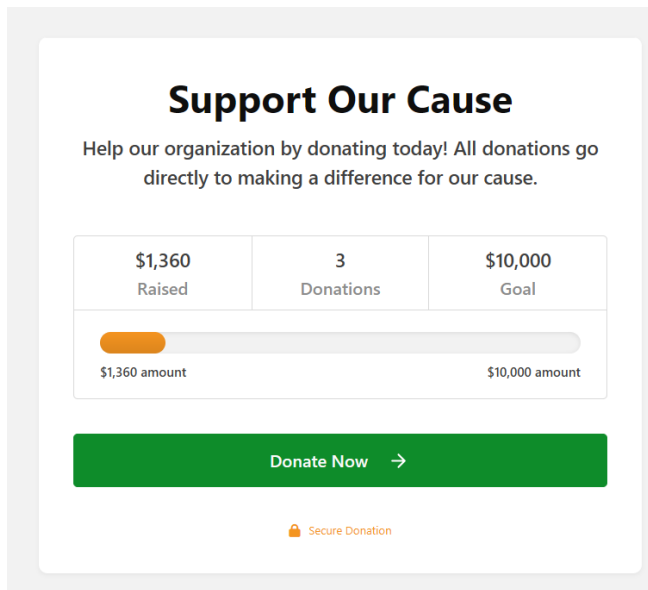


Figure 0.2 is an image showing the donate button.



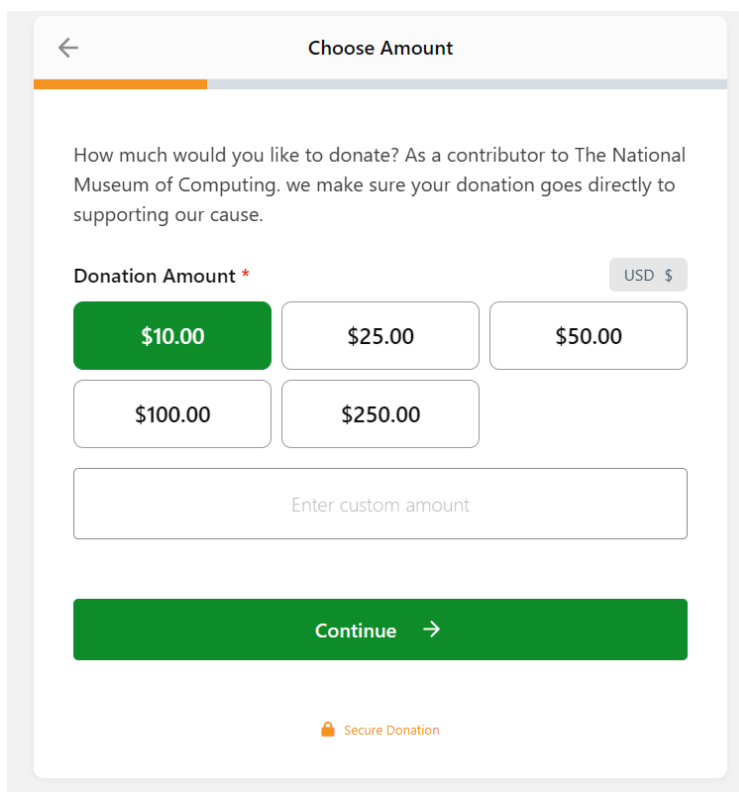
Visitor can click the donate now button to make a donation.

Figure 0.3 is an image showing the support our cause page.



In the above image, visitors can see the feedback by seeing the donated amount, number of donations and the progress bar. To continue click the button.

Figure 0.4 is an image showing the page where users will be selecting the amount to donate.



Visitors can select or enter an amount to donate and then after click continue button to continue.

Figure 0.5 is an image showing the page where users can enter their information.

←

Who's Giving Today?

We'll never share this information with anyone.

First name *

Clifford

Last name

Harawa

Company Name

Email Address *

cliffordharawa45@gmail.com

Comment

☒ Make this an anonymous donation.

Would you like to prevent your name, image, and comment from being displayed publicly?

Continue →


 Secure Donation

Figure 0.6 is an image showing the page where visitors can select the type of donation they want to make.

←

Who's giving today?

We'll never share this information with anyone.

Donation Summary

Payment Amount

\$100.00

Giving Frequency

One time

Donation Total

\$100.00

Test mode is **enabled**. While in test mode no live donations are processed.

Donate with Test Donation

Test GiveWP with the Test Donation Gateway

How it works:

There are no fields for this gateway and you will not be charged. This payment option is only for you to test the donation experience.

Donate with Offline Donation

Agree to terms? *

The terms can be customized in the donation form settings.

Donate Now

Secure Donation

Users will be constrained to use a test or offline donation.

Figure 0.7 is an image showing the page visitors can see their payment details.

20 | Page

Success!

A great big thank you!

Clifford, your contribution means a lot and will be put to good use in making a difference. We've sent your donation receipt to cliffordharawa45@gmail.com.

Donor Details

Donor Name

Clifford Harawa

Email Address

cliffordharawa45@gmail.com

Donation Details

Payment Status

Completed

Payment Method

Test Donation

Donation Amount

\$100.00

Donation Total

\$100.00

Additional Details

Anonymous Donation

Yes

[Go to my Donor Dashboard](#)

Above is the feedback after finalizing the donation.

Figure 0.8 is an image showing the page where visitors can view recent donations.

Donor Dashboard



Last donated 2 hours ago
Donor for 2 weeks

Dashboard

Donation History

Edit Profile

Logout

Your Giving Stats

10

NUMBER OF
DONATIONS

\$2,760

LIFETIME
DONATIONS


\$276

AVERAGE
DONATION

Recent Donations

| DONATION | CAMPAIGN | DATE | STATUS |
|-------------------------------|---------------|--------------------------------|--|
| \$100.00 | Donation Form | November 10, 2023 6:54 pm | <div>● Complete</div> <div>Test Donation</div> |
| ID: 10 | | View Receipt → | |
| \$250.00 | Donate | November 10, 2023 6:22 pm | <div>● Complete</div> <div>Test Donation</div> |
| ID: 9 | | View Receipt → | |
| \$300.00 | Donation Form | November 10, 2023 6:11 pm | <div>● Pending</div> <div>Test Donation</div> |
| ID: 8 | | View Receipt → | |
| Showing 1 - 3 of 10 Donations | | | ➤ |

Donor Dashboard



⌚ Last donated 2 hours ago

♥ Donor for 2 weeks

🏠 Dashboard

📅 Donation History

⚙️ Edit Profile

➡ Logout

10 Total Donations

| DONATION | CAMPAIGN | DATE | STATUS |
|----------|---------------|------------------------------|---|
| \$100.00 | Donation Form | November 10, 2023 6:54 pm | ● Complete Test Donation |
| ID: 10 | | | View Receipt → |
| \$250.00 | Donate | November 10, 2023 6:22 pm | ● Complete Test Donation |
| ID: 9 | | | View Receipt → |
| \$300.00 | Donation Form | November 10, 2023 6:11 pm | ● Pending Test Donation |
| ID: 8 | | | View Receipt → |
| \$250.00 | Donation Form | November 10, 2023 5:57 pm | ● Complete Test Donation |
| ID: 7 | | | View Receipt → |
| \$10.00 | Donation Form | November 10, 2023 5:32 pm | ● Complete Test Donation |
| ID: 6 | | | View Receipt → |

Showing 1 - 5 of 10 Donations [➤](#)

3.1.5. Contact Us Page

This page allows users to ask or view the organizations contact information.

Figure 0.1 is an image of the contact us page header section.

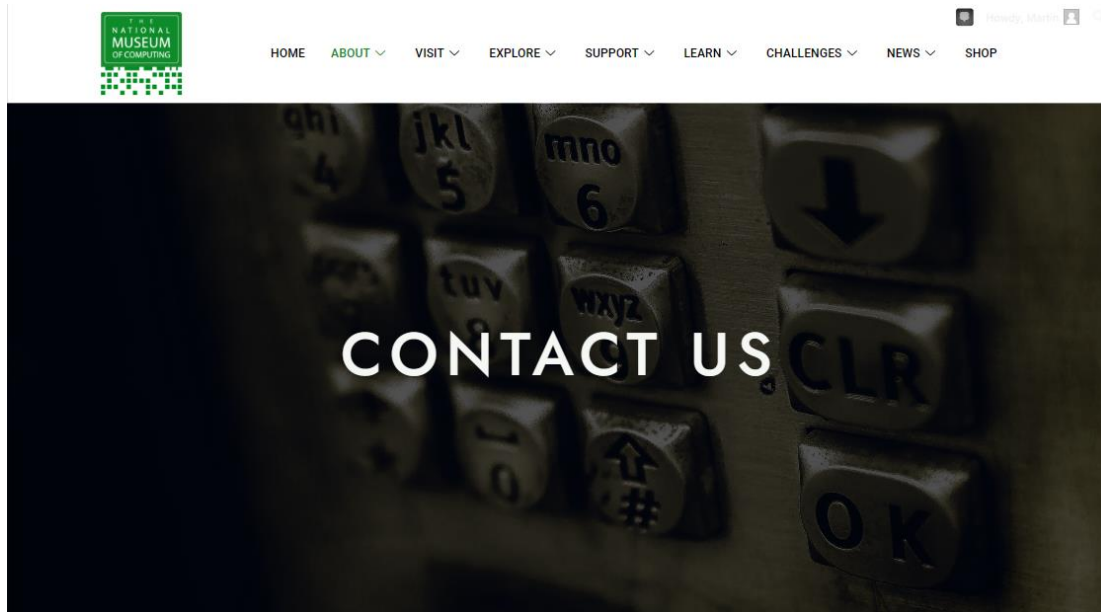


Figure 0.2 is an image of the contact us page contact info section.

Find Us

Visit Us
The National Museum of Computing, Block H,
Bletchley Park, MILTON KEYNES, MK3 6DS

Call Us
• +44 (0)1908 374708
• +44 (0)208 819 3170

Email Us
• education@tnmoc.org
• Jacqui.Garrad@tnmoc.org
• Aneesa.Riffat@tnmoc.org
• tnemoc@resonancecrowd.com
• operations@tnmoc.org

Get in touch.

Your Name *

Email *

Subject *

Message

SEND NOW

To submit questions visitors can use the above form and below is the form with all input fields already filled in.

Figure 0.3 is an image of the contact us page contact form with filled data.

Find Us



Visit Us

The National Museum of Computing, Block
H, Bletchley Park, MILTON KEYNES, MK3
6DS



Call Us

- +44 (0)1908 374708
- +44 (0)208 819 3170



Email Us

- education@tnmoc.org
- Jacqui.Garrad@tnmoc.org
- Aneesha.Riffat@tnmoc.org
- tnmoc@resonancecrowd.com
- operations@tnmoc.org

Get in touch.

Your Name *

Dalisto Harawa

Email *

dalistomartin@gmail.com

Subject *

Do you offer online classes.

Message

I wanted to know if you offer online classes to the people who live
outside England.

SEND NOW

Figure 0.4 is an image of the contact us page feedback which appears after submitting the question..

Find Us



Visit Us

The National Museum of Computing, Block
H, Bletchley Park, MILTON KEYNES, MK3
6DS



Call Us

- +44 (0)1908 374708
- +44 (0)208 819 3170



Email Us

- education@tnmoc.org
- Jacqui.Garrad@tnmoc.org
- Aneesha.Riffat@tnmoc.org
- tnmoc@resonancecrowd.com
- operations@tnmoc.org

Get in touch.

Thanks for contacting us! We will be in touch with you shortly.

Figure 0.5 is an image of the contact us page map section.



3.1.6. Shop Page

This page will have all the products which the organization is selling. It consists of two sections, and below are the sections.

Figure 0.1 is an image showing the shop page header section.

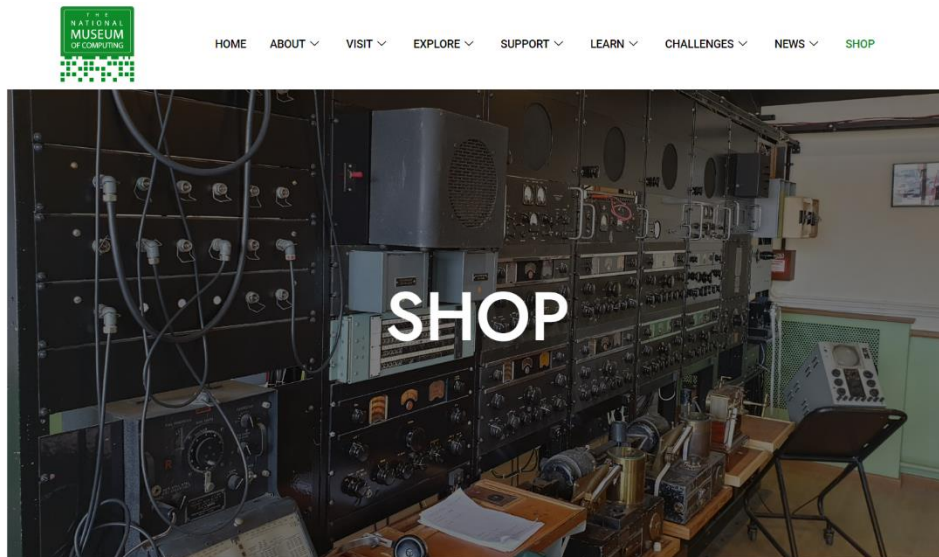
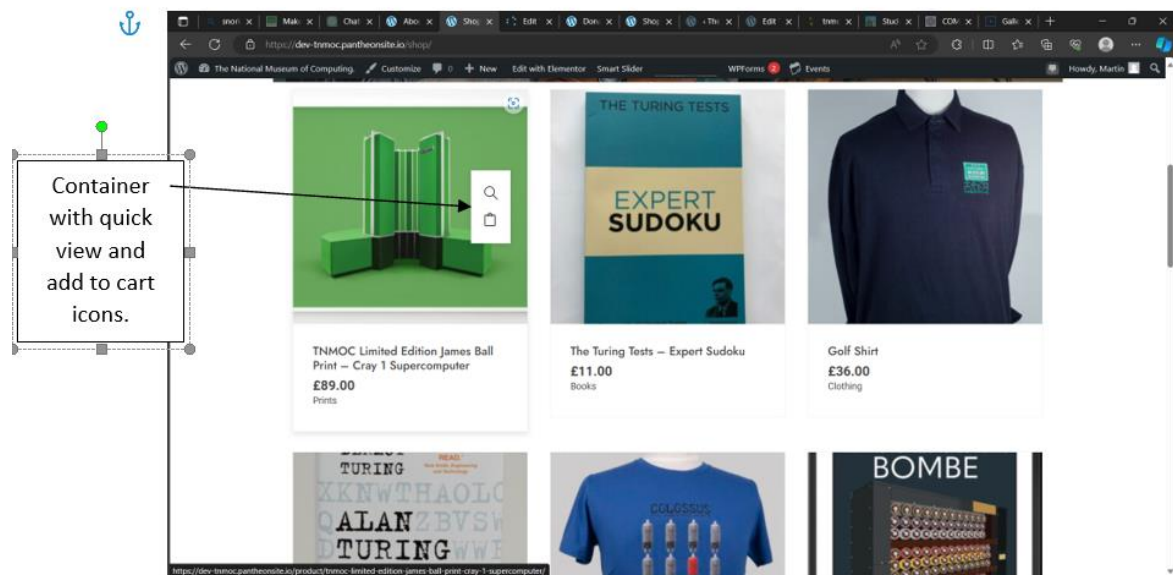
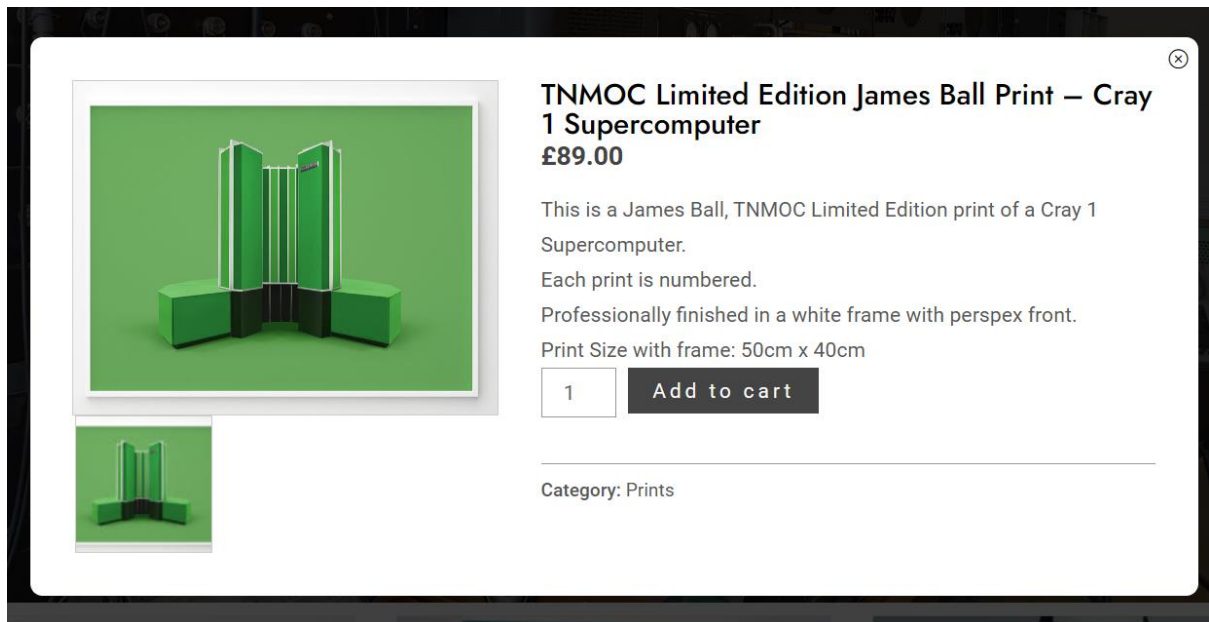


Figure 0.2 an image showing the shop page product section.



If a visitor hovers over a product a container with the quick view and add to cart icons will appear.

Figure 0.3 an image showing the shop page quick view section.



3.2. Challenges.

3.2.1. Limited knowledge in WordPress.

Some of the features were taking time to implement due to limited knowledge in WordPress and its plugins.

3.2.2. Limited time and resources.

A good performing laptop and an internet connection weren't available at first and when they were available the time remaining was short.

3.2.3. Free Plugin Reliance.

All the plugins which have been used here are free and these plugins have limited functionalities.

3.3. Strength and Weakness

3.3.1. Strength

3.3.1.1. *Responsive*

The website has been developed to work on all devices with different screen sizes ranging from small to large devices.

3.3.1.2. *Usability.*

When developing the website, design principles were followed, and these make a website easy and enjoyable to use.

3.3.1.3. *Informative*

The website offers much information related to the museum, the donations, events, and product which are being sold.

3.3.2. Weaknesses and solutions.

3.3.2.1. *Security*

The developed website is not secured since the used plugins are free and changing to premium plugins can help.

3.3.2.2. *Limited functionality.*

The designed website has limited functionalities in some pages because the used plugins and themes are the free version which offers limited features.

4. Governance Recommendations

Governance in a Content Management System refers to how a website can be maintained and managed by following structures, strategies, and policies. If the below governance recommendations have been followed by the people and how they manage their resources, it can lead to a secure and a good performing website.

4.1. Complying to policies, standards, and strategies.

Policies are documented rules which are applied and help by managing the site. Standards are principles that makes sure the website quality is consistent, secure, and accessible. Strategies are guidelines put in place to enforce policies and standards.

Visitors and the organizations staff will not be allowed to comment offensive and hate speeches on the site and visitors' will be accepting the privacy policy before creating an account with the website. English is the only language which will be used in the comment section.

4.2. User Training

Training museums stakeholders makes sure that all stakeholders are made aware of the policies and procedures of managing the site. This can improve users' productivity, site performance and security of the website if followed. Museums stakeholders will be trained according to their roles.

4.3. Up to date

WordPress team of developers releases updates frequently, it is important to keep it up to date because these updates help to improve security, performance and solves some compatibility issues of the website. Plugins and Themes should be updated frequently. Currently the site is up to date. The website has been set to auto update every time there is an update for WordPress or the plugins and themes. (Why is it important to keep your WordPress website up to date?, 2023)

4.4. Access Control Mechanism

Different roles have been put in place to make sure that the right roles are doing what there are responsible of. The roles and responsibilities have been clearly defined and the roles which the developed site have are shown in the figure below with their permissions.

In the figure, the Administrator have been given full control to the website where the administrator can manage post, products, donations, pages and themes and themes and plugins. Then a shop manager and GiveWP manager have also full control of the shop and the donation respectively.

An author and editor have full control of post, but an editor can only mange post made by them while an author can manage all post made by them of made by an editor. Customer, GiveWP Donor, and subscriber can only read post, donate, and buy things from the shop and a subscriber can also subscribe to the sites newsletter. All the users in the site can donate, buy products and read post.

Other roles include GiveWP accountant and Contributor. The GiveWP role can generate the reports for the donation and a contributor can create and edit their post.

Figure 3.3.2.2.1 is a table showing the different roles and the responsibility of each role.

| | | Administrator | Author | Editor | Contributor | Customer | GiveWP Accountant | GiveWP Donor | GiveWP Manager | Shop Manager | Subscriber |
|---------------|---------|---------------|--------|--------|-------------|----------|-------------------|--------------|----------------|--------------|------------|
| Post | Create | Yes | Yes | Yes | Yes | No | No | No | No | No | No |
| | Edit | Yes | Yes | Yes | Yes | No | No | No | No | No | No |
| | Read | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| | Publish | Yes | Yes | Yes | No | No | No | No | No | No | No |
| | Delete | Yes | Yes | Yes | No | No | No | No | No | No | No |
| Shop Products | Create | Yes | No | No | No | No | No | No | No | Yes | No |
| | Edit | Yes | No | No | No | No | No | No | No | Yes | No |
| | Buy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| | Publish | Yes | No | No | No | No | No | No | No | Yes | No |
| | Delete | Yes | No | No | No | No | No | No | No | Yes | No |
| Plugins | Install | Yes | No | No | No | No | No | No | No | No | No |
| | Update | Yes | No | No | No | No | No | No | No | No | No |
| | Delete | Yes | No | No | No | No | No | No | No | No | No |
| Donation | Donate | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| | Create | Yes | No | No | No | No | No | No | Yes | No | No |
| | Publish | Yes | No | No | No | No | No | No | Yes | No | No |
| | Edit | Yes | No | No | No | No | No | No | Yes | No | No |
| | Report | Yes | No | No | No | No | Yes | No | Yes | No | No |
| | Delete | Yes | No | No | No | No | No | No | Yes | No | No |

5. Search Engine Optimization Strategies.

5.1. Description

Search Engine Optimization or SEO means ways of trying to rise the visibility of a website to different searching engines every time when users want something from a website. There are many search engines in the world and here are some of the most used search engines google, Microsoft Bing, Yahoo, Baidu, and DuckDuckGo.

Whenever a user is searching for products, services, and information about something the above search engines use bots and crawlers to examine and capture all the most important web pages and then these are indexed. The search engine uses algorithms to rank the indexed results which are then presented to the user.

For crawlers and bots to be able to examine the web pages different SEO Strategies are used to help, in the below section are the strategies.

5.2. Strategies

SEO Strategies are the guidelines which can be followed to make a website more visible to users and clients. Below are the strategies which can be used to make The National Museum of computing website more visible.

5.2.1. On-site Optimization

In an on-site optimization, the html code and the page content are optimized but only for a single page. Good On-site Optimization helps search engines to easily and quickly understand if the webpage holds the information searched. Below are some of the ways content can be optimized on-site. (On-Site SEO, 2023) (Onsite SEO: 6 Crucial Components of Onsite SEO, 2023)

5.2.1.1. *Original Content*

Creating original content which can be easily read by crawlers, bots, and humans and to prevent plagiarism and copyright issues.

5.2.1.2. *Keyword Research*

Analyzing what people search for when their want to find a website.

Understanding the keywords which people use can help the museums

website to have many visitors and some of the keywords people might use to find the website might include computing museum, IT museum, computer history museum and technology museum.

5.2.1.3. *Meta description.*

Adding meta description and clear and short alternative (alt) tag when adding images. In the developed website these have been included and below are the images how they have been included.

Figure 5.2.1.3.1 is an image showing the logo alt text with its title, description, caption and link to the website.

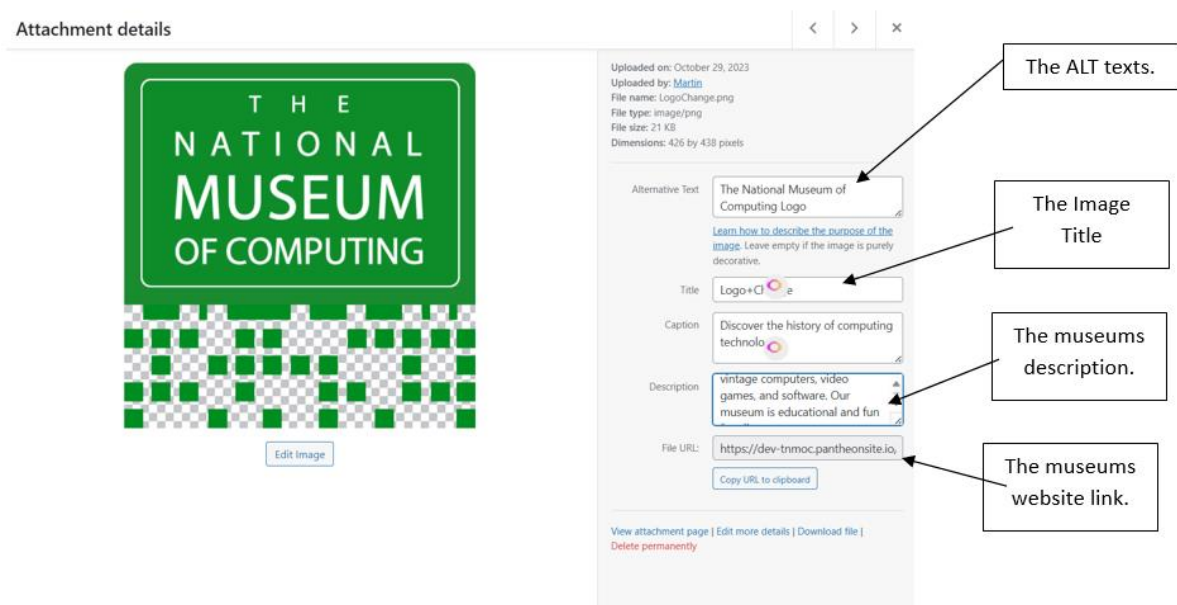
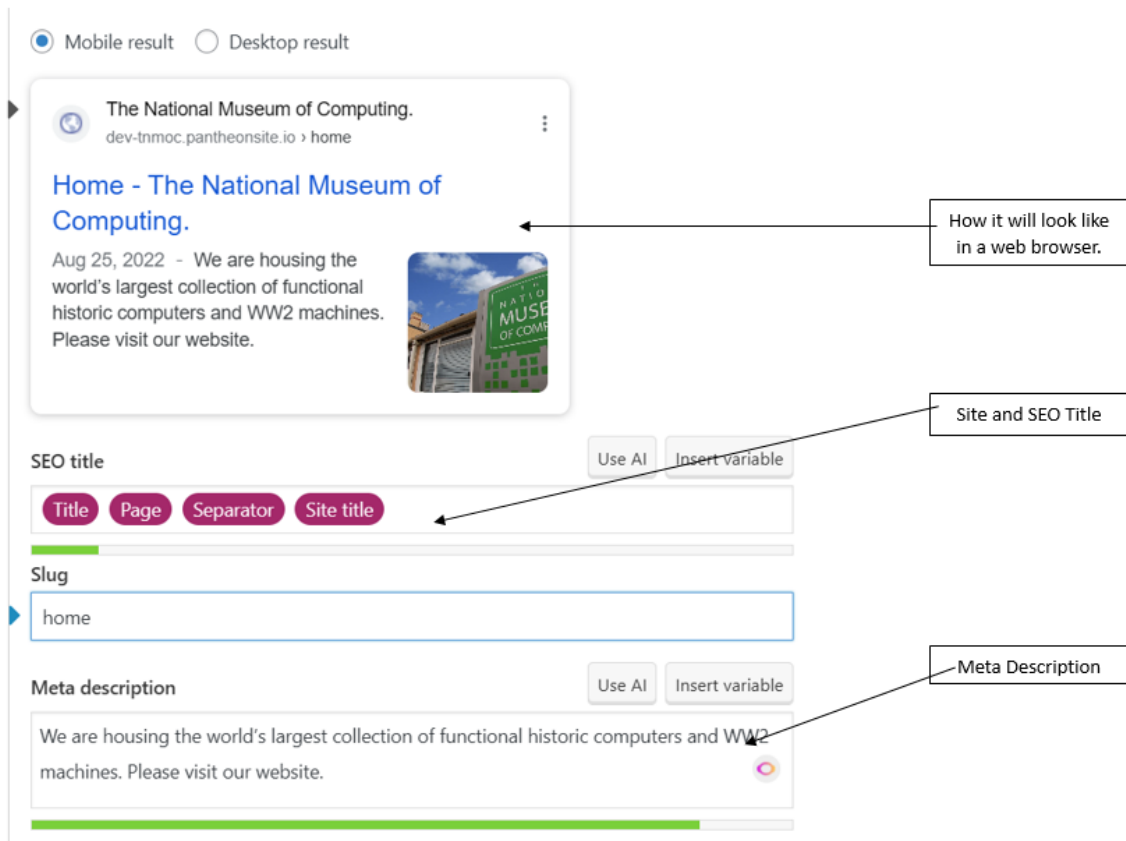


Figure 5.2.1.3.2 is an image showing the meta description of the home page.



5.2.1.4. Making the webpage accessible for all people with or without disabilities.

5.2.2. Off-site Optimization

Off-site optimization are actions performed outside the website to increase traffic on a webpage. The below activities can be taken by The National Museum of computing to increase the ranking of their website. At this stage the below activities have not been carried out. (what is off page seo optimization, 2023)

5.2.2.1. Advertising the website of popular social media platforms can increase awareness of the site. These social media platforms can be Facebook, Instagram, YouTube, and X.

5.2.2.2. Contacting similar webpages owners to link their site to the one built. If a webpage has been linked to many pages, it is regarded as relevant with the search engines.

5.2.2.3. Reaching out to influencers who have many followers to provide feedback and review the website can build credibility and

- 5.2.2.4. Online Forum participation by answering questions and providing feedback to questions which are like the website built can increase awareness. These forums can be Quora, yahoo and similar forums.

5.2.3. Technical Optimization

Technical SEO Optimization looks at the technical aspects which can be implemented to make the webpages to be easily crawled by crawlers. Below are some of the ways to improve the technical aspects of the website. (What-is-SEO, 2023) (What is Technical Seo, 2023)

- 5.2.3.1. Developed responsive webpages which works on small screen devices to large screen devices.

Figure 5.2.1.3.1 is a figure showing the website on a small screen device.

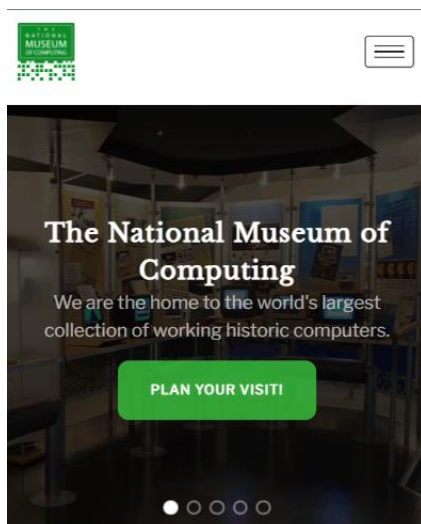


Figure 5.2.1.3.2 is an image showing the website on a medium size device.



5.2.3.2. Slow websites make the visitors experience with the website annoying hence it is good to make the website fast. Optimizing images, caching the website, and using CDN might improve the website speed and visitors experience.

5.2.3.3. Updating the CMSs to improve security and performance of the website. Currently the site is running on the latest version which is 6.4.1.

Figure 5.2.1.3.1 is an image showing that WordPress is running on the latest version.

There are no updates

This site is running the latest version of WordPress. When updates are available, they will appear here.

Last checked: a few seconds ago [Check Now](#)

5.3. Importance of Search Engine Optimization

SEO can have the following importance's on The National Museum of Computing and below are the importance's.

5.3.1. Responsive and good performing sites can improve the experience of users.

5.3.2. If the above strategies are followed, then the site will have more organic traffics.

5.3.3. By following the above strategies trust, recognition and credibility can be built easily.

5.3.4. Competitive advantage compared to other similar sites.

(What is Search Engine Optimization and why is it Important, 2023)

6. Conclusion and Recommendation.

6.1. Conclusion

In conclusion WordPress was used to develop the museum because it has a big community of users for support, easy to use and learn and unlimited plugins and themes for customization. Despite having the above advantages, WordPress doesn't have the best inbuilt security mechanism and to boost the security, plugins can be used of which there might be costly.

Drupal as already explained in section 2 it has the best inbuilt security and it also offers multilingual features which can only be found by using WordPress plugins in WordPress. Despite Drupal having the above advantages, it wasn't selected for the development of the museums site because of its complexity and limited plugins compared to WordPress. On the other hand, WordPress was selected because it is user friendly, and it has many plugins and themes which makes the customization easier. Plugins have been used to booster the security of the site.

WordPress has also been used because the developed site is for a medium sized organization and the organization doesn't store and information which hackers can use to threaten the organization.

6.2. Recommendations.

6.2.1. Opting for premium plugins and themes.

In the current built website, free plugins and themes have been used. Free plugins and themes have limited features and upgrading to premium plugins and themes might remove the limitations.

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