MICROSOFT AZURE / CLOUD FUNDAMENTALS PLUGINS ASSIGNMENT

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Plugins are software that can be 'plugged-in' or added alongside very easily an existing program, application, or website, allowing extraneous functionalities that are useful to the developer and users. These plugins are integral to many website developers because they are advanced, verified, have a large existing userbase and therefore variety of help, documentation, and tutorials, and most importantly, they are extremely time efficient.

This is because the plugin creator usually has more technical experience within specialised fields such as design, API, cache management and other niches so that when creating plugins, other plugin *users* receive almost the same capabilities as these plugin creators, within a very small amount of time. The result is to the extent that in this modern day and age, even users not well-versed with code and technology are able to add extra functionalities to their software.

In this report, my resume website will demonstrate the use of four plugins:

- Elementor, a front-end page builder plugin
- Yoast SEO, a search engine optimisation plugin
- WP Fastest Cache, a cache management and site speed optimisation plugin
- Google Analytics by MonsterInsights, a traffic and user behaviour tracking plugin

Elementor Plugin

Issues

The starting website was a default WordPress website with the "Twenty Seventeen" theme active. The issues with this website are the fact that stylisation and functionality is incredibly limited with the "Customize" and "Edit Page" option in WordPress' dashboard. This prohibits user expression and almost guides users to follow a skeleton of designs rather than create their own. This is rather evident in the following issues:

- Structural design editing is almost non-existent
  - The only available structural design editing is with header media, menus, and widgets and hard-coded/typed images and text with the align tool
  - Other expressions of structure such as free-floating blocks and personalised columns, rows and grids are unavailable
- Page designing is slow and tedious
  - Requires several user-clicks to find page editing forms delaying time to build projects
- Not new-user friendly
  - Unintuitive design and jargon such as "Widgets" menu containing footers, "Homepage Settings" containing the webpage navigation structure
- Limited variety in templates
- Limited community that can contribute to existing database of templates and provide help and documentation
  - Most have transferred to Elementor which has a larger active userbase
- Limited creativity within page design
  - Non-existent animation, types of overlays, stretch/scroll pictures, video formatting options etc.

Solutions

A very valid solution would be to install a front-end page builder plugin as it perfectly introduces a UI capable of adding more JavaScript, HTML and CSS based elements on to the page such as free-floating blocks, buttons, media carousels and embedded websites such as Facebook. Elementor is one of the most popular examples of such front-end plugins as it provides many highly sought functionalities even in its "free version" and has a very easy, novice-friendly UI. More reasons as to its viability is as follows:

- Larger database
  - More documentation, help and forums

- o   More room for creativity, templates and ideas
- o   Check for bugs, server disruptions
- Easy and intuitive design
  - o   Click and drag
  - o   Automatic responsive page updates when building
  - o   User control and freedom when editing
  - o   Editing navigation is well organised
  - o   Jargon is limited for novices by using logos with text
- Fast
- More functions and styling
  - o   Styling with other responsive languages such as JavaScript
  - o   YouTube and media layout options
  - o   Animations
  - o   Forms and buttons
  - o   Integrated HTML such as Facebook
  - o   Vast amount of options on styling and functions also widens the creativity for the webpage builder as they are introduced to ideas they have never thought of before.
- Not too basic, but not too advanced
  - o   Simple texts vs image carousels with column gaps
  - o   Advanced features never go into detail on things such as animation speed in seconds etc
- Aesthetic
- Mobile and tablet representation functions
- Relatively new and up to date with current technologies
  - o   Established in 2016 and still updated regularly

Elementor vs Page Builder by Site Origin

There are only a few front-end page builder plugins that are available on WordPress. Second to Elementor, we can analyse the plugin, "Page Builder by Site Origin". Site Origin provides the same benefits of Elementor that is it implements a UI that edits the style and functionalities of your webpage. They both have drag-and-drop features of sectional content and they both allow for responsive buttons, text carousels and video uploads. However, several factors separate Elementor to be the better builder plugin:

- Elementor is newer and up to date (2016 vs 2011 origin date)
- Elementor has a wider variety of functions such as image carousels and Facebook integration and animated images whilst scrolling

- - Site Origin is more basic with less animation and more text
    - May be preferred for professional websites as it confines developers to use static and therefore appropriate simple business model websites
- Elementor is more popular and has a wider database
- Site Origin does not completely integrate live editing
  - Needs to refresh with every edit
  - Hard to visualise what a text looks like in the text editor field in default font vs in the actual website
- Site Origin is tedious like WordPress as requires several clicks to navigate menu bar

Implementation

The steps that I followed to implement Elementor which transitioned my resume website from the original "Twenty Seventeen" template on WordPress is as follows:

1. Select a stylish template that fits in with my degree to ensure professionalism
2. Change title, fonts, and image backgrounds to get a structural feel for the end-product desired
3. Add sections and fill in content e.g. projects showcase and technical skills
   - YouTube videos for more interactivity with recruiters
   - Learn more button to link to projects
   - Image galleries to preview projects
   - Images with alt text for accessibility
4. Integrate animations to pull in viewers, keeping in mind not to make it too flashy for professional reasons
   - Image carousel
   - Slide-in and fade-in text
5. Adjust for responsiveness
   - Tablet, mobile and small-browser adjustments

Applicable Benefits

Applicable benefits realised after using Elementor included that it was very efficient in terms of time and results. This can be expressed as a "do more with less" notion because with less time, technical experience as well as resources such as IDE's, website developers can create a more aesthetic, interactive, and responsive website in general. The 'professional resume' purpose of the website is not inhibited in any way, even using the "free version" as the variety of options of stylisation, functions and templates was abundant.

The Elementor plugin was much notably faster than hard coding a website. Taking a CS50 Harvard course on web development simultaneously very well confirmed this. Moreover, the popular userbase proved incredibly useful as I could search up help and documentation in the matter of seconds. Its very recent debut in 2016 meant that the community at hand is very young and is integrated in more non-conventional ways interlocking with community with Facebook. Joining this Facebook group unexpectedly fixed several application bugs that could not be identified in forums.

Furthermore, the sheer amount of resources on Elementor, such as through Facebook, allowed me whirlpool my creativity. For example, avant-garde ideas by very inventive users from across the globe is very freely and inspiringly expressed through Facebook posts in the Elementor Group. This can be seen in the fastness of posts every few seconds in the user's newsfeed, showing others' hunger for creative expression and non-judgemental nature of platforms such as social media community groups. I was able to integrate sliding text into my webpage and video overlays because of this. I could also view examples of bad and good responsive web designs – a bad example would be using navigation drop-down menus with several more drop-down menus borne from it.

Yoast SEO

Issues

After the creative design of my resume website, it was evident that the more practical aspects of it needed to be improved. This included enhancing my searchability for recruiters and was evident because my website did not appear on Google Search. Moreover, customisation on children webpage titles could not be customised and therefore a small issue for users would be being lost in navigation throughout the page.

Solutions

A widely accepted plugin to solve this issue would be to use a Search Engine Optimisation (SEO) plugin such as Yoast SEO which efficiently identifies keywords from content in your webpage and is able to map it to Google's Search Console. In effect, this increases user traffic and findability on the world wide web. Using this plugin would mean no code is needed and time and resources are saved. Extra functionalities would be if it includes image searching that allows images to link to your website. Yoast SEO offers this as well as page title separator customisation which displays better navigation feedback for users as it keeps tracks of which child page they are on.

Yoast SEO vs Rank Math SEO

The only functionalities Yoast SEO offers more than other plugins such as Rank Math SEO is its optimisation efficiency. Slight conveniences such as UI aesthetics and keyword customisations also differ from plugin to plugin. Although Yoast SEO is so high in demand that it requires both a paid and free version, its great optimisation makes up for it. This contributes to the following conclusions:

- Yoast provides better search engine traffic
  - Rank Math even encases an "Import from Yoast" feature because of how good it is
- Yoast is more popular
  - More help and documentation
- Yoast's UI is more user-centred and friendly
  - Colour coded buttons
  - Fast steps with little jargon
- Yoast boasts its SEO-upgrade recommendation features in its paid version

Implementation

The implementation of Yoast SEO was incredibly easy by installing the plugin and following all the steps such as picking a title separator and verifying the webpage through Google Search Console. This validation was necessary because of security. After doing this, the SEO performance can be viewed inside the plugin within the pro version.

Applicable Benefits

Applicable benefits should have been that the website can be found on Google Search when typing up keywords such as my name with my degree and university. Other keywords would have been included from subpages if I had made any. The only reason to this demise is that Google Search Console is very heavily with traffic and though my website has been verified for more than a week, the "data is still being processed" message is relayed back. Therefore, no beneficial effects can overtly be seen as of now.

Cache Management Plugin

Issues

The website's speed then becomes a very noticeable problem because the webpage is slow to render. By careful research and experimentation, we can deduce that a common problem of slow websites is the cache system problem. This occurs when there is an overload of users and the cache system requires the high use of RAM and CPU and therefore cannot keep up.

- Slow
- Might not appear too high on SEO ranking

Solutions

A great solution to this problem would be to install a cache management plugin such as WP Fastest Cache. This cache management plugin focuses on speed as it can convert a website to static html so that it skips the repetitive rendering process and rather, transfers the final static html page to other users. Not only does speed improve, but so does the SEO ranking because Google Search's page ranking algorithms also subtly depends on page loading time. More functionalities which optimises either the website's speed or the developer's page management are as follows:

- Automation of its services
  - Modifies files such as htaccess freely so the user does not have to configure back-end items
  - Timeout deletion of cache
- File compression for faster loading
  - Minifying and combining files such as in HTML and CSS
  - Enabling Gzip compression
- Cache management extra features
  - Disabling cache options for mobile or logged in users
  - Administrator privileges
  - Deletion of cache when website updates

WP Fastest Cache vs W3 Total Cache

WP Fastest Cache was chosen after careful deliberation over W3 Total Cache. Although both seem to respond well to managing cache and improving website render speed, WP proves more advantageous due to the following:

- W3 has limited options to personally choose particular kinds of cache to manage
  - Preloaded cache
  - During updates or posts
- W3 offers statistics however it is a paid service
- W3 is less user-friendly
  - W3 uses too much jargon
  - WP removes jargon and constricts user options to basic but high functioning options
- W3 is not entirely stable as heard from user reviews and can break sites
- WP offers statistics and capability of image optimisation

- WP more UX friendly with buttons and images
  - More important and highly used buttons appear first/navigated first
- WP includes Timeout Rule implementation

Implementation

The implementation of WP Fastest Cache was incredibly simplistic. It was an easy install and use by ticking all services wanted. The services used by my website is as follows:

- Cache system
- Preloading which creates cache of all of the site automatically
- Clear cache after post update
- Minify HTML, CSS
- Combine CSS, Js
- Use Gzip to compress files
- Browser Caching

Applicable Benefits

The results of using WP Fastest Cache was that the website seemed to have loaded faster, which would be explanatory because the high integration of automated CSS and HTML from Elementor would have included redundant and non-high-performance code. This would solve WordPress' normally sluggish feeling websites. It is also underlined that this fast cache management system follows the "less time, more work" notion in normal plugins as no code and unnecessary time was spent to create a faster system – only a simple few clicks was this system realised.

Analytics Plugin

Issues

Although my website now has a more professional design, should be capable of being searched on Google, and finally is faster during rendering, more resources must be invested into future development. To enthuse a wider audience and encourage better website updates and revisions, there needs to be a way of analysing current performance and situation such as through user traffic and demographic. Through this, the developer can enhance layout, content and is able to finalise an idea of what a user is attracted by, through countless revisions and understanding of *where* the site's popularity stems from, rather than just viewing its numbers. The current issues are in short:

- User traffic unknown which indicates reasons for use

- - Website popularity unknown
      - If website is being used at all
    - Bugs & glitches
    - Server/language glitches
    - Length of use and user attention efficiency indicator
      - Feedback for revisions and future updates
      - Bounce rate as a means of efficiency
- Target audience unknown which indicates marketing strategy
  - Demographic and uses
    - Top pages/posts
    - Country
    - Referrals

Solutions

A plugin that performs all of the above is Google Analytics by MonsterInsights. Here, several graphs, maps and ranked lists of demographic characteristics are displayed easily to the developer to ensure maximum analytical deduction. The major graphs such as non-returning users and bounce rate are displayed first with even easy hover details. These graphs can yet be downloaded as PDFs and recorded as a means of comparison to older versions and therefore high-level revision is secured. Through this, developers have the freedom to conquer specific target audiences and can even understand technical bug problems if users run into any.

Google Analytics by MonsterInsights vs GA Google Analytics

MonsterInsights and GA are both the top two analytical plugins and the only few within WordPress. MonsterInsights' analytics only differs to GA's analytics in its user interface and setup due to both companies using the same source, Google Analytics. This means my approach was to identify a wider variety of user options and studying the UI of both plugins. My reasons for choosing MonsterInsights is as follows:

- MonsterInsights has more functionality even within its free version
- MonsterInsights' UI is built-into WordPress' dashboard
  - Analytics easily viewed and compared with all other web development resources
- GA is too basic
  - Only has one function which is adding the website to Google Analytics
  - No graphs
  - Only raw formatting of statistics

- MonsterInsights allows saving of reports into PDF formats for logs

Implementation

The implementation of Google Analytics by MonsterInsights is quite lengthy for novice users. MonsterInsights being a third-party analytics plugin, requires a developer to create new accounts for other organisations such as Google Analytics on top of installing the plugin in order to implement this. To verify that the analysis plugin works, the website must be sent to friends and graphs checked accordingly. When published, logs must be saved for future reference and development.

1. Install the plugin
2. Create Google Analytics account for the Azure Website
3. Link the website with the verification code given by Google Analytics
4. Test the analytics by providing link to friends
5. Save reports for logs and reference in future

Applicable Benefits

It is expected that after sent to many recruiters, my resume website will be able to record the length of stay or bounce rate. After several periods of editing and revision, an optimal layout or illustrating content and profession can be deduced. If bugs and glitches occur on the website, I can identify it without even the user's response, and accordingly search help and documentation. Where appropriate, I may even target certain areas for recruitment as I understand there may be a shortage of engineering and computer science jobs at the area, with a certain demographic or other characteristics.