

Wordpress Themes

Wordpress Themes

Goals

By the end of this case you will:

- Understand the structure and organization of a WordPress theme and be able to modify the code to add custom functionality, such as creating custom post types and taxonomies.
- Learn how to create a child theme and make advanced customizations to a parent theme without affecting the original code.
- Develop the ability to create custom page templates, and understand the use of template parts and the loop to create dynamic pages.

>

Introduction



In this section, we will delve deeper into the intricacies of WordPress theme development. Specifically, we will focus on understanding the structure and organization of a WordPress theme and how to modify the code to add custom functionality. This includes creating custom post types and taxonomies, which allow for greater flexibility and organization in the management of website content.

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Additionally, we will explore the concept of child themes and advanced customizations to a parent theme without affecting the original code. This

allows for easier maintenance and upgrades to the parent theme without losing customizations. Lastly, we will cover the important skill of creating custom page templates and understanding the use of template parts and the loop to create dynamic pages. These skills will empower you to create highly customized and functional WordPress themes.

Wordpress Theme Structure & Organization

Wordpress Theme Structure & Organization

The structure and organization of a WordPress theme refers to how the different files and templates within a theme are organized and interact with one another.

A typical WordPress theme will have the following files:

- index.php (the main template file)
- header.php and footer.php (template parts for the header and footer of the site)
- style.css (the main stylesheet for the theme)
- functions.php (a file that contains functionality specific to the theme)
- page.php and single.php (template files for individual pages and posts)

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These files work together to create the overall design and functionality of the theme. Understanding the structure and organization of a theme is important because it allows developers to modify the code in a way that is clean, organized, and maintainable.

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Custom Post Types

For example, in order to add custom functionality to a theme, a developer may create a custom post type. Custom post types allow for the creation of new types of content in WordPress, such as a “books” post type, which can have its own set of fields and templates.

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Another example would be creating a custom taxonomy like “genre” for the book’s post type. This will allow the developer to group books by genre and make it easy to filter and display.

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By understanding the structure and organization of a WordPress theme, and being able to modify the code, developers can add custom functionality that makes a website more dynamic, efficient and tailored to the specific needs of the client.

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Exercise 1: Create a Custom Post Type

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To create a custom post type, follow these steps:

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1. Open your theme’s “functions.php” file or your child theme’s

“functions.php” file.

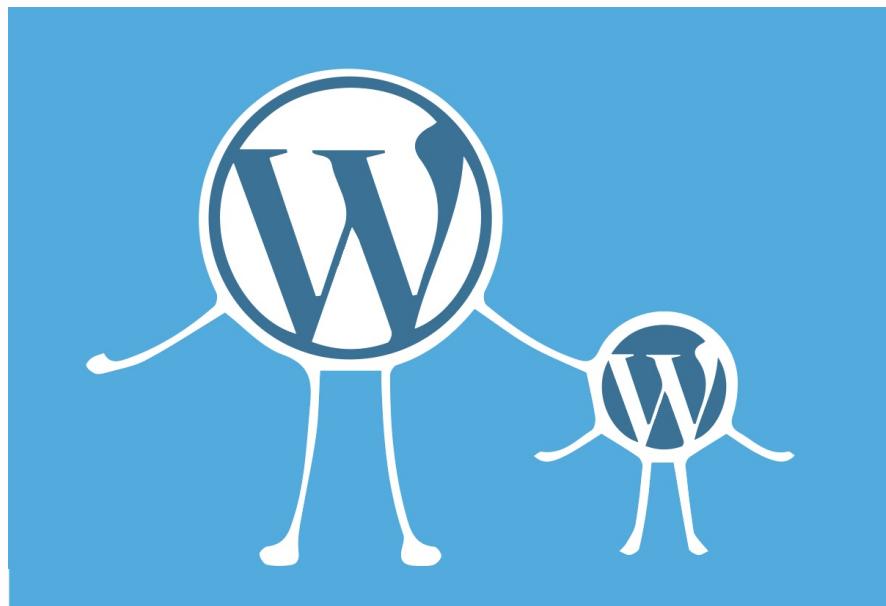
2. Add a function to register the custom post type. In this example, we will create a custom post type called “Events”:

```
function my_custom_post_type_events() {  
    $labels = array(  
        'name' => 'Events',  
        'singular_name' => 'Event',  
        'add_new' => 'Add New',  
        'add_new_item' => 'Add New Event',  
        'edit_item' => 'Edit Event',  
        'new_item' => 'New Event',  
        'view_item' => 'View Event',  
        'search_items' => 'Search Events',  
        'not_found' => 'No events found',  
        'not_found_in_trash' => 'No events found in Trash',  
    );  
  
    $args = array(  
        'labels' => $labels,  
        'public' => true,  
        'has_archive' => true,  
        'rewrite' => array('slug' => 'events'),  
        'supports' => array('title', 'editor', 'thumbnail',  
        'custom-fields', 'excerpt'),  
    );  
  
    register_post_type('events', $args);  
}  
add_action('init', 'my_custom_post_type_events');
```

3. Save the changes to the “functions.php” file.
4. Go to your WordPress dashboard, and you should now see the “Events” custom post type in the left-hand menu.

Wordpress Child Theme & Customization

Wordpress Child Theme & Customization



A child theme is a theme that inherits the functionality and styling of another theme, called the parent theme. By using a child theme, developers can make advanced customizations to a parent theme without affecting the original code. This allows for easier maintenance and upgrades to the parent theme without losing customizations.

Creating a child theme is relatively simple. A child theme only needs a couple of files to work:

- style.css
- functions.php

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The style.css file is used to add custom CSS styles, while the functions.php file is used to add custom functions.

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For example, a developer might want to make changes to the layout of the site by modifying the parent theme's CSS. Instead of editing the original stylesheet, the developer can create a child theme and add the custom CSS to the child theme's stylesheet. This way, when the parent theme is updated, the customizations will not be lost.

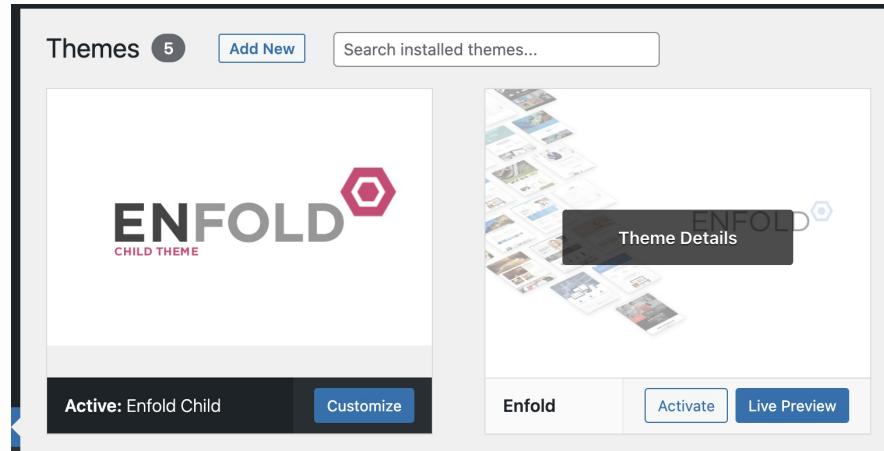
>

Another example would be if the developer wants to add a new widget area to the sidebar. Instead of modifying the parent theme's functions.php

file, the developer can create a child theme, and add the new widget area to the child theme's functions.php file.

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By using a child theme, developers can make advanced customizations to a parent theme without affecting the original code, allowing for easier maintenance and upgrades to the parent theme without losing customizations.



When you download or purchase a Wordpress theme, a child theme usually comes with it. The developer usually lets you know where you can download it in the documentation.

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There are a few other ways to get a child theme for WordPress:

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WordPress Repository: The WordPress repository has a wide variety of child themes that can be easily installed and activated from the WordPress Dashboard. You can go to Appearance > Themes and search for “Child Theme” and you will find a list of child themes that can be easily installed and activated.

Exercise: Create a Child Theme

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In this exercise, you will create a child theme for your WordPress site.

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1. Create a new folder on your local machine named “my_child_theme”.
2. Inside the folder, create two new files called “style.css” and “functions.php”.
3. Open the “style.css” file and add the following code:

>

```
/*
Theme Name: My Child Theme
Template: my_custom_theme
*/
```

Replace “my_custom_theme” with the name of your parent theme’s folder.

4. Save the “style.css” file.
5. Open the “functions.php” file and add the following code:

```
<?php  
function my_child_theme_enqueue_styles() {  
    $parent_style = 'parent-style';  
    wp_enqueue_style($parent_style, get_template_directory_uri()  
    . '/style.css');  
    wp_enqueue_style('child-style',  
    get_stylesheet_directory_uri() . '/style.css',  
    array($parent_style), wp_get_theme()->get('Version'));  
}  
add_action('wp_enqueue_scripts',  
'my_child_theme_enqueue_styles');
```

6. Save the “functions.php” file.
7. Upload the “my_child_theme” folder to your WordPress theme directory (wp-content/themes/).
8. Go to your WordPress dashboard and navigate to Appearance > Themes. You should now see the “My Child Theme” available to activate.
>
Always be sure to check the compatibility of the child theme with the version of Wordpress you’re using and also check the reviews and ratings of the child themes before installing and using it.

Wordpress Custom Templates

Wordpress Custom Templates



In WordPress, a page template is a specific type of template file that can be applied to a page or a group of pages to change their layout and design. Custom page templates allow developers to create unique layouts for different pages on a website.

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For example, a developer might want to create a custom page template for the homepage that has a different layout from the rest of the pages on the site. The developer can create a new file in the theme's directory called "homepage-template.php" and assign it as a template for the homepage.

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In addition to custom page templates, WordPress also allows developers to use template parts and the loop to create dynamic pages.

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Template parts are small reusable chunks of code that can be included in multiple templates.

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For example, a developer might create a template part for the header and footer of the site, and include that template part in every template file. This way, if the developer wants to make a change to the header or footer, the change only needs to be made in one place, rather than in every template file.

>

For example, your "header.php" file might look like this:

```
<!DOCTYPE html>
<html <?php language_attributes(); ?>>
<head>
    <meta charset="<?php bloginfo( 'charset' ); ?>">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title><?php wp_title(); ?></title>
    <?php wp_head(); ?>
</head>
<body <?php body_class(); ?>>
    <header>
        <!-- header content goes here -->
    </header>
```

In each of your template files (e.g. index.php, single.php, archive.php), where you want to include the header and footer, use the get_template_part() function to include the template part. For example, in your “index.php” file, you might have:

```
<?php get_header(); ?>

<!-- index content goes here -->

<?php get_footer(); ?>
```

By using template parts, you can avoid duplicating code and make your theme easier to maintain and update in the future.

>

The loop is a code construct that is used to display the content of a page or post. The loop retrieves the content from the database and displays it in the template file. By using the loop, developers can create dynamic pages that display different content based on the context of the page.

>

For example, a developer might create a custom template for a blog archive page that uses the loop to display the titles and excerpts of the most recent posts. The developer can also use conditional statements to display different content on the page depending on whether the user is on the homepage, an archive page, or a single post.

>

By understanding how to create custom page templates, and how to use template parts and the loop, developers can create dynamic and customized pages that can be tailored to the specific needs of the website.

Conclusion & Takeaways

Conclusion & Takeaways

WordPress themes are crucial for successful, high-converting websites. Their development requires knowledge of the theme's structure, customizing code for extra functionality, and creating child themes to allow advanced tweaks without affecting the base code. Key components include understanding the main template file, custom post types, and taxonomies for a more dynamic site. Developers can download a child theme or create their own with necessary files from the WordPress repository, always ensuring compatibility and good reviews. This knowledge enables developers to create customized, functional WordPress themes.

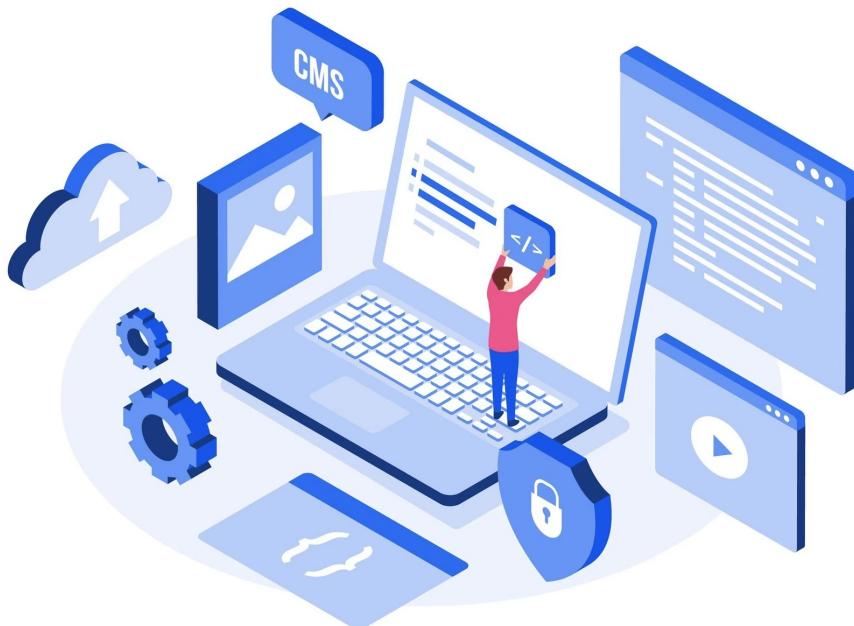
Wordpress Plugins

Wordpress Plugins

Goals

By the end of this case you will:

- Understand the benefits and uses of WordPress plugins
 - Learn the recommended method for editing a plugin in WordPress
 - Explore the process of customizing a plugin
- >
- ### Introduction



>

WordPress plugins are PHP scripts that enhance the functionality of a WordPress website. They can be easily installed and activated from the WordPress plugin repository and provide a range of features including creating contact forms, optimizing a website for search engines, creating an online store, improving website performance and security, and more.

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Editing a plugin in WordPress involves making changes to its source code, whereas customizing a plugin involves modifying its behavior without changing the source code. In this module we'll be going into more detail on how you can use plugins to help you achieve your website goals.

Wordpress Plugins

Wordpress Plugins

By now we know WordPress plugins are a powerful tool that can greatly enhance the functionality and capabilities of a WordPress website. They are written in the PHP programming language and can be added to a WordPress website to provide additional features and functionality.

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Plugins are designed to work seamlessly with the WordPress platform, and are typically easy to install, activate, and configure. They can be found in the WordPress plugin repository, which can be accessed from the WordPress dashboard by navigating to the “Plugins” menu, and then selecting “Add New.”

>

The screenshot shows the WordPress dashboard interface. On the left, a dark sidebar lists various menu items: Home, Updates (6), Posts, Media, Pages, Comments, Appearance, Plugins (1), WP Staging, Users, Tools, Settings, and WP File Manager. The 'Plugins' item is currently selected, as indicated by a red notification badge with the number '1'. A dropdown menu for 'Plugins' is open, listing 'Installed Plugins', 'Add New', 'Plugin File Editor', and a 'Comment' link. The main content area on the right displays a banner for 'WordPress 6.2 is available', followed by a 'Site Health Status' section indicating 'Should be improved' with a yellow circle icon. Below this are sections for 'Recently Published' (a post from Feb 3rd at 7:18 pm) and 'Activity'.

One of the most popular and widely used plugins is the “Contact Form 7” plugin, which allows users to easily create and manage contact forms on their website. You will recall that we used this plugin to create a simple contact form on your personal website last week. Another popular plugin is

“Yoast SEO,” which helps to optimize a website for search engine rankings and provides tools for analyzing a website’s content and structure.

>

Another useful plugin is the “WooCommerce” plugin which allows you to create an online store on your website. Using “WooCommerce” you can manage products, orders, and customers. It’s one of the most popular e-commerce plugins for WordPress.

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Plugins can also be used to improve the performance and security of a website. For example, the “W3 Total Cache” plugin can improve the loading speed of a website by caching pages and posts, while the “Wordfence Security” plugin can help protect a website from hacking attempts by monitoring and blocking suspicious activity. You will recall that we configured the Wordfence Security plugin on your personal website.

>

It’s important to note that not all plugins are created equal. Some plugins may be poorly written and can cause conflicts with other plugins or the theme. It is important to research a plugin before installing it, and to only use plugins from reputable sources. Additionally, it’s also important to keep your plugins up-to-date to ensure that they are still compatible with the latest version of WordPress and that they have the latest security patches.

Editing Plugins

Editing Plugins

Editing a plugin in WordPress can be done in a few different ways, and the method you choose will depend on your specific needs and the type of plugin you're working with. Here are a few steps to help you get started:

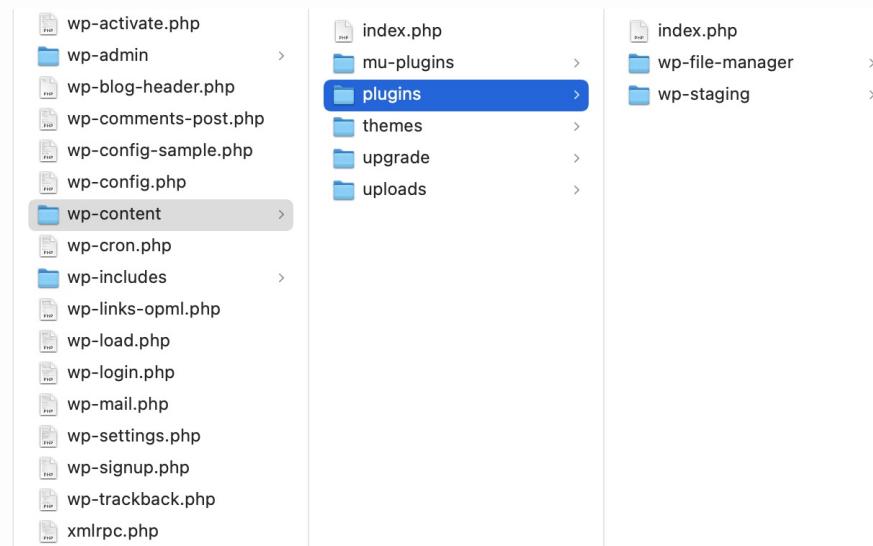
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1. Make a backup of your WordPress site before making any changes to a plugin - Editing a plugin in WordPress involves making changes to the plugin's code to modify its behavior. Before making any changes, it is important to make a backup of your WordPress site to protect your data. You can create backups using a plugin, your cpanel or speak to your hosting provider. You can go [here](#) and follow instructions to install a plugin called UpdraftPlus which will allow you to backup your Wordpress for free.

>

2. Identify the specific plugin you want to edit, and find its code files. Plugins are stored in the “wp-content/plugins” directory of your WordPress installation - Editing a plugin in WordPress involves making changes to the plugin's code to modify its behavior. Before making any changes, it is important to make a backup of your WordPress site to protect your data.

>



3. Decide whether you want to edit the plugin files directly or create a child plugin - There are two ways to edit a plugin in WordPress: editing the plugin files directly or [creating a child theme](#) and editing it in there. **Directly editing the plugin files is not recommended because the changes will be lost when the plugin is updated.**

>

4. Once you've made your changes, save the file and activate the child plugin in your WordPress dashboard.

Customizing a Plugin

Now that we know editing a plugin refers to making changes directly to the source code of the plugin let's take a look at how to customize a plugin. Customizing a plugin involves modifying the behavior of the plugin without changing its source code. This can be done by creating a child plugin that interacts with the original plugin using the WordPress API. Customizing a plugin in this way has the advantage of allowing you to make changes that persist even after updating the original plugin, as the changes are stored in a separate plugin.

Like we learnt earlier you can use actions and filters to modify the behavior of the plugin: The WordPress API provides two functions for customizing plugins:

1. `add_action` - actions allow you to add new functionality to a plugin.
2. `add_filter` - filters allow you to modify existing functionality.

Exercise:

Here's an example of how to use `add_filter` to change the text of a button in a plugin called "Contact Form":

```
<?php
/*
Plugin Name: My Custom Contact Form
Description: A child plugin that modifies the text of the button
in the Contact Form plugin.
*/

function my_custom_contact_form_modification() {
    add_filter( 'contact_form_button_text',
    'change_contact_form_button_text' );
}

function change_contact_form_button_text() {
    return 'Send';
}

add_action( 'init', 'my_custom_contact_form_modification' );
```

In this example, the `my_custom_contact_form_modification` function uses the `add_filter` function to modify the text of the button in the "Contact Form" plugin. The text of the button will now be changed to "Send".

>

By following these steps, you can customize a plugin in WordPress to fit

your specific needs. However, it's important to keep in mind that modifying a plugin's code can have unintended consequences, so be sure to test your changes thoroughly before deploying them on a live site.

>

Exercise #2:

Optimize Contact Form 7 by Loading JavaScript and Stylesheet Only When Necessary

>

Objective: In this exercise, you will learn how to load Contact Form 7's JavaScript and stylesheet only on pages containing contact forms, rather than on every page.

>

Step 1: Disable JavaScript and CSS loading for Contact Form 7 on all pages

1.1 Open your wp-config.php file and add the following lines:

```
define( 'WPCF7_LOAD_JS', false );
define( 'WPCF7_LOAD_CSS', false );
```

Alternatively, add these lines to your theme's functions.php file:

```
add_filter( 'wpcf7_load_js', '__return_false' );
add_filter( 'wpcf7_load_css', '__return_false' );
```

Step 2: Enable JavaScript and CSS loading for Contact Form 7 only on pages containing contact forms

2.1 Identify the template file for the page containing the contact form (e.g., contact.php).

2.2 Open the template file and add the following lines of code before the wp_head() function call:

```
<?php
if ( function_exists( 'wpcf7_enqueue_scripts' ) ) {
    wpcf7_enqueue_scripts();
}
if ( function_exists( 'wpcf7_enqueue_styles' ) ) {
    wpcf7_enqueue_styles();
}
?>
```

After completing these steps, Contact Form 7's JavaScript and stylesheet will only load on the pages containing contact forms, improving the overall performance of your WordPress site.

Conclusion & Takeaways

Conclusion & Takeaways

In conclusion, WordPress plugins can be edited or customized to enhance their functionality. Editing involves making changes directly to the source code, while customizing involves modifying the behavior of the plugin without changing the source code. The recommended method for editing a plugin is creating a child plugin, which allows you to make changes that persist even after updating the original plugin. With the power of the WordPress API and a child plugin, customizing a plugin in WordPress has never been easier, but remember to always backup your site for a seamless and safe experience."

Wordpress File Structure and Security

Wordpress File Structure and Security

Goals

By the end of this case you will:

- Understand the organization and structure of WordPress files and folders.
 - Know the location of theme and plugin files within the WordPress file structure.
 - Become aware of the benefits of limiting the number of plugins used, including improved security, compatibility, load times, and maintenance.
- >
- ### Introduction



The WordPress file structure is the foundation of a WordPress website and plays a crucial role in determining its overall functionality, performance and security. Understanding the basics of the WordPress file structure is an essential step towards building and maintaining a successful website. Know where the files that you need are; understand the importance of not bloating your site with plugins and add-ons. A firm grasp of basic WordPress file structure, and incorporating essential security measures, will ensure the overall success and protection of a WordPress website.

Basics of Wordpress File Structure

Basics of Wordpress File Structure

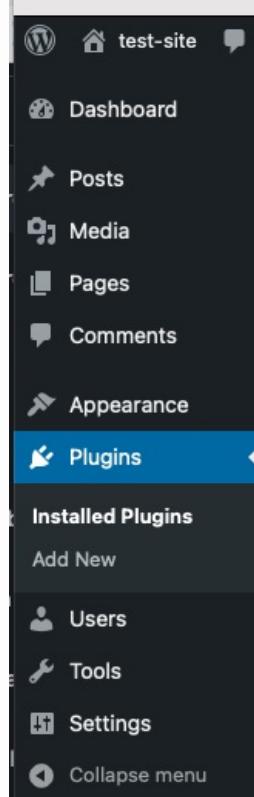
Since we want to be able to view our file structure first, let's set up a way to get there through our WP-Admin section. In the previous modules we downloaded LocalWP to install Wordpress so now we will open that up and go to our Wordpress site that we set up locally, login using our username and password and go to the WP admin section.

>

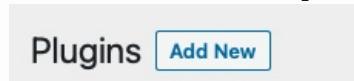
Now let's download a plugin that will allow us to view our files.

>

1. Click on Plugins in the left vertical bar in your WP-Admin section



2. Click add new at the top



3. In the search bar on the right we will type in file manager and the results will load.

The screenshot shows the WordPress plugin search results for 'file manager'. The search bar at the top contains the keyword 'file manager'. Below the search bar, there are tabs for 'Search Results', 'Featured', 'Popular', 'Recommended', and 'Favorites'. The results list three plugins:

- File Manager** by mndpsingh287: 1+ Million Active Installations, Last Updated: 2 months ago, Compatible with your version of WordPress. It has a rating of ★★★★★ (1,209). The description says it provides file management capabilities.
- FileBird – WordPress Media Library Folders & File Manager** by Ninja Team: 100,000+ Active Installations, Last Updated: 4 weeks ago, Compatible with your version of WordPress. It has a rating of ★★★★★ (849). The description says it organizes thousands of WordPress media files in folders / categories at ease.
- Advanced File Manager** by modalweb: 100,000+ Active Installations, Last Updated: 1 month ago, Compatible with your version of WordPress. It has a rating of ★★★★★ (350). The description says it is a tool for WordPress providing file management features like Edit, Delete, Upload, Rename, Copy, Paste, Download, zip etc and multiple operations.

At the bottom right of the search results page, there is a pagination indicator showing '1 of 29'.

4. Let's install the first one on the left called 'File Manager'. Click **Install Now** and then **Activate** once it's done installing.

The screenshot shows the detailed page for the 'File Manager' plugin. The title is 'File Manager' and the developer is 'mndpsingh287'. The description states: 'file manager provides you ability to edit, delete, upload, download, copy and paste files and folders.' There is a large orange icon with a white 'W' logo. A prominent blue 'Activate' button is visible. Below the description, there is a 'More Details' link. At the bottom, the plugin's statistics are displayed: ★★★★★ (1,209) stars, 1+ Million Active Installations, Last Updated: 2 months ago, and a compatibility note: ✓ Compatible with your version of WordPress.

5. Once you click 'Activate' it will bring you to your plugins page and you will also see it on the left side vertical WordPress menu. Now when you click on the plugin it will bring you to your main screen, showing you the

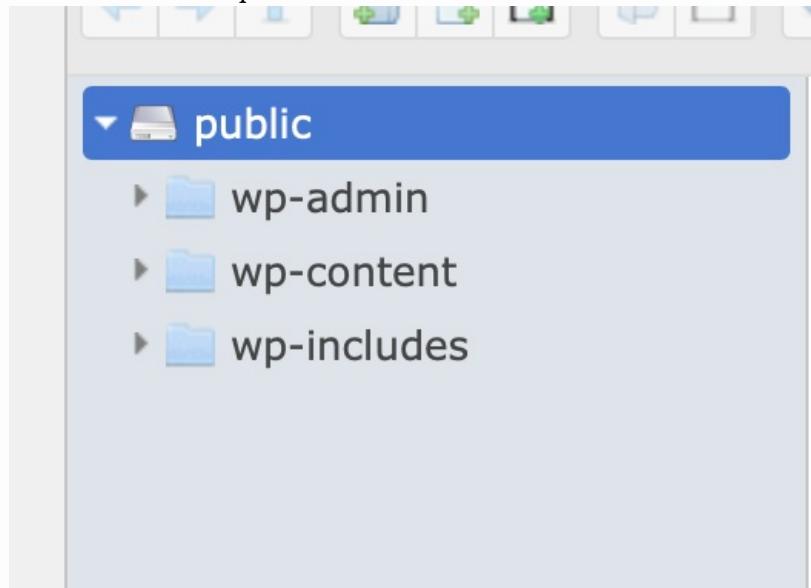
Wordpress setup and basic file structure!

The image shows two screenshots of a WordPress site's administration area. The top screenshot is the 'Plugins' screen, showing a single activated plugin, 'WP File Manager'. A red arrow points from the bottom of the Plugins screen towards the WP File Manager interface below. The bottom screenshot is the 'WP File Manager' interface, displaying the file structure of the 'public' directory. The 'wp-admin', 'wp-content', and 'wp-includes' folders are visible, along with various PHP files like 'index.php', 'wp-config.php', and 'wp-login.php'. The 'File Manager' sidebar on the left includes options for 'WP File Manager', 'Settings', 'Preferences', 'System Properties', 'Shortcode - PRO', 'Logs', and 'Backup/Restore'.

Understanding Wordpress Files

Understanding Wordpress Files

Now let's take a deeper dive into the main folders that we see on the left.



The main folders are the public directory folder, wp-admin, wp-content and wp-includes.

The Public Directory Folder

Name	Permissions	Modified	Size	Kind
wp-admin	read and write	Nov 15, 2022 02:03 PM	-	Folder
wp-content	read and write	Today 12:54 PM	-	Folder
wp-includes	read and write	Nov 15, 2022 02:03 PM	-	Folder
.htaccess	read and write	Feb 03, 2023 02:18 PM	523 b	Plain text
index.php	read and write	Feb 06, 2020 01:33 AM	405 b	PHP source
license.txt	read and write	Dec 31, 2021 07:15 PM	19 KB	Plain text
local-xdebuginfo.php	read and write	Feb 03, 2023 02:24 PM	20 b	PHP source
readme.html	read and write	Sep 16, 2022 06:27 PM	7 KB	HTML document
wp-activate.php	read and write	Sep 16, 2022 07:13 PM	7 KB	PHP source
wp-blog-header.php	read and write	Feb 06, 2020 01:33 AM	351 b	PHP source
wp-comments-post.php	read and write	Nov 09, 2021 06:07 PM	2 KB	PHP source
wp-config-sample.php	read and write	Dec 14, 2021 03:44 AM	3 KB	PHP source
wp-config.php	read and write	Feb 03, 2023 02:18 PM	2 KB	PHP source
wp-cron.php	read and write	Sep 20, 2022 11:44 AM	5 KB	PHP source
wp-links-opml.php	read and write	Mar 19, 2022 04:31 PM	2 KB	PHP source
wp-load.php	read and write	Sep 19, 2022 04:59 AM	4 KB	PHP source
wp-login.php	read and write	Sep 19, 2022 06:26 PM	48 KB	PHP source
public				Items: 22, Size: 176 KB

The public folder is the root directory of a WordPress website. It contains the main index.php file, which serves as the entry point for all requests to the website.

The wp-admin Folder

Name	Permissions	Modified	Size	Kind
js	read and write	Nov 15, 2022 02:03 PM	-	Folder
images	read and write	Nov 15, 2022 02:03 PM	-	Folder
includes	read and write	Feb 03, 2023 02:18 PM	-	Folder
js	read and write	Nov 15, 2022 02:03 PM	-	Folder
maint	read and write	Nov 15, 2022 02:03 PM	-	Folder
network	read and write	Nov 15, 2022 02:03 PM	-	Folder
user	read and write	Nov 15, 2022 01:50 PM	34 KB	PHP source
about.php	read and write	May 07, 2022 12:21 PM	5 KB	PHP source
admin-ajax.php	read and write	Jun 01, 2021 07:30 AM	3 KB	PHP source
admin-footer.php	read and write	Feb 06, 2020 01:33 AM	406 b	PHP source
admin-functions.php	read and write	Apr 04, 2022 02:39 PM	9 KB	PHP source
admin-header.php	read and write	Mar 02, 2022 10:00 AM	2 KB	PHP source
admin-post.php	read and write	Apr 04, 2022 02:43 PM	12 KB	PHP source
admin.php	read and write	Jan 27, 2022 05:17 PM	5 KB	PHP source
async-upload.php	read and write	Aug 04, 2022 10:52 AM	10 KB	PHP source
authorize-application.php	read and write	Mar 22, 2022 12:25 PM	11 KB	PHP source
comment.php	read and write			
		wp-admin		

The wp-admin folder contains the files that power the WordPress dashboard. It is the backend of a WordPress website and is used to manage content, install plugins, and customize the appearance of a website. The wp-admin folder is not publicly accessible and is only accessible by users with administrator-level access.

The wp-content Folder

Name	Permissions	Modified	Size	Kind
plugins	read and write	Today 12:54 PM	-	Folder
themes	read and write	Nov 15, 2022 02:03 PM	-	Folder
upgrade	read and write	Today 12:54 PM	-	Folder
uploads	read and write	Today 12:54 PM	-	Folder
index.php	read and write	Jan 08, 2012 12:01 PM	28 b	PHP source

The wp-content folder is the most important folder in a WordPress installation. It contains all the files that make up the look and feel of a website, including themes, plugins, and media files. The wp-content folder is publicly accessible and is the place where most customization and development work is done.

The wp-includes Folder

Name	Permissions	Modified	Size	Kind
assets	read and write	Nov 15, 2022 02:03 PM	-	Folder
block-patterns	read and write	Nov 15, 2022 02:03 PM	-	Folder
block-supports	read and write	Nov 15, 2022 02:03 PM	-	Folder
blocks	read and write	Feb 03, 2023 02:18 PM	-	Folder
certificates	read and write	Nov 15, 2022 02:03 PM	-	Folder
css	read and write	Nov 15, 2022 02:03 PM	-	Folder
customize	read and write	Nov 15, 2022 02:03 PM	-	Folder
fonts	read and write	Nov 15, 2022 02:03 PM	-	Folder
ID3	read and write	Nov 15, 2022 02:03 PM	-	Folder
images	read and write	Nov 15, 2022 02:03 PM	-	Folder
IXR	read and write	Nov 15, 2022 02:03 PM	-	Folder
js	read and write	Nov 15, 2022 02:03 PM	-	Folder
php-compat	read and write	Nov 15, 2022 02:03 PM	-	Folder
PHPMailer	read and write	Nov 15, 2022 02:03 PM	-	Folder
pomo	read and write	Nov 15, 2022 02:03 PM	-	Folder
random_compat	read and write	Nov 15, 2022 02:03 PM	-	Folder
Requests	read and write	Nov 15, 2022 02:03 PM	-	Folder
		wp-includes		

The wp-includes folder contains the core WordPress files and libraries. It is not publicly accessible and is used by WordPress to run the website. The wp-includes folder contains a variety of files, including functions, classes, and scripts that are used by WordPress to process requests and generate output.

>

Exercise:

>

Try accessing each of the four main folders in your WordPress installation and examine the contents of each folder. Write a short description of the purpose of each folder and what types of files are stored in each folder. In your answer include a file that you find in each of the folders. (Example: the public directory contains the wp-config file that holds critical settings and information for a WordPress site, the wp-includes folder contains images folder where all images are stored etc.)

Understanding location of important files

Understanding the location of important files

Public Folder Important Files

The public folder in WordPress is known as the root directory and is the first thing that is loaded when someone accesses your website. In this folder, you'll find all the files that are publicly available to visitors of your website, such as:

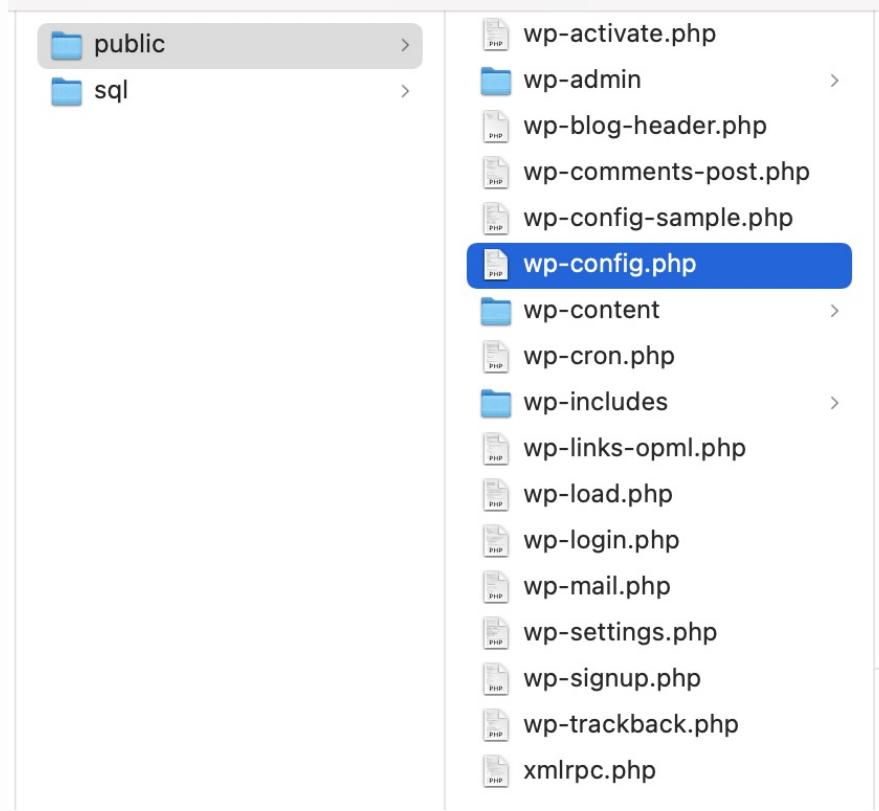
- **index.php file** - the main file in the public folder and acts as the central hub for all requests to your website. When someone visits your website, their browser sends a request to the server for the index.php file. The file then loads the WordPress core and begins to process the request.
- **.htaccess file** - used to configure server-side settings such as redirects, URL rewrites, and security settings. It's important to be cautious when modifying the .htaccess file as even a small mistake can cause your website to become inaccessible.
- **wp-config.php** - contains all of the site's configuration details and settings

Exercise: Increasing WordPress memory limit by editing the wp-config.php file.

>

Step 1: Locate the wp-config.php file

The wp-config.php file is located in the root folder of your WordPress installation. You can access it through your hosting control panel or by using an FTP client.



Step 2: Open the wp-config.php file for editing

Using your hosting control panel's file manager or an FTP client, open the wp-config.php file in a text editor.

Step 3: Increase memory limit

Find the line that says:

```
define( 'WP_MEMORY_LIMIT', 'XXM' );
```

Replace XX with the desired memory limit in megabytes (e.g., 128, 256, or 512). If the line does not exist, you can add it just before the line that says **/* That's all, stop editing! Happy publishing. */**.

>

For example, to set the memory limit to 256 MB, add or modify the line like this:

```
/**  
 * For developers: WordPress debugging mode.  
 *  
 * Change this to true to enable the display of notices during development.  
 * It is strongly recommended that plugin and theme developers use WP_DEBUG  
 * in their development environments.  
 *  
 * For information on other constants that can be used for debugging,  
 * visit the documentation.  
 *  
 * @link https://wordpress.org/support/article/debugging-in-wordpress/  
 */  
if ( ! defined( 'WP_DEBUG' ) ) {  
    define( 'WP_DEBUG', false );  
}  
  
define( 'WP_MEMORY_LIMIT', '256M' );  
|  
/* That's all, stop editing! Happy publishing. */
```

For example, to set the memory limit to 256 MB, add or modify the line like this:

>

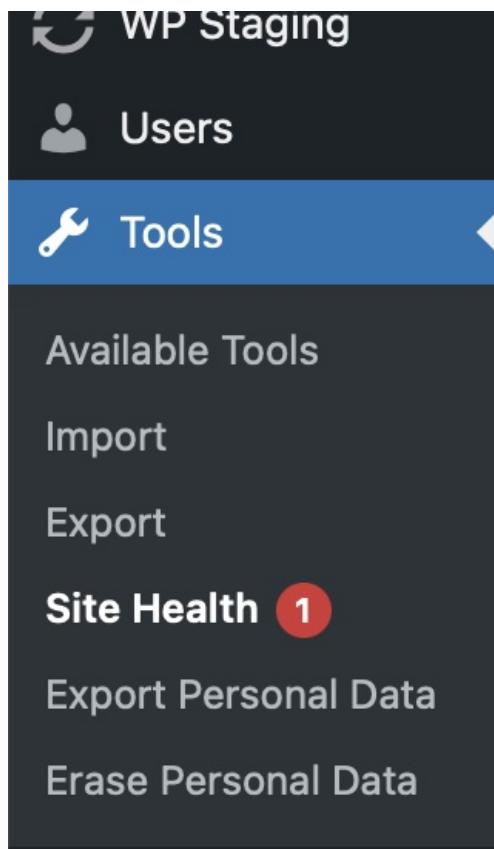
Step 4: Save and close the file

Save your changes to the wp-config.php file and close the text editor.

>

Step 5: Verify the increased memory limit

You can check your WordPress site's memory limit by visiting the “Tools” -> “Site Health” page in the WordPress admin dashboard.



Under the “Info” tab, click on “Server” and find the “PHP memory limit” entry.

A screenshot of the Site Health page showing the “Info” tab selected. The “Status” tab is also visible. A yellow circular icon with the text “Should be improved” is present.

Server	
The options shown below relate to your server setup. If changes are required, you may need your web host's assistance.	
Server architecture	Darwin 21.6.0 x86_64
Web server	nginx/1.16.0
PHP version	8.1.9 (Supports 64bit values)
PHP SAPI	fpm-fcgi
PHP max input variables	4000
PHP time limit	1200
PHP memory limit	256M
Max input time	600
Upload max filesize	300M
PHP post max size	1000M
cURL version	7.84.0 (SecureTransport) OpenSSL/1.1.1q
Is SUHOSIN installed?	No
Is the Imagick library available?	Yes
Are pretty permalinks supported?	Yes
.htaccess rules	Your .htaccess file contains only core WordPress features.

Now, you've successfully increased the memory limit in the wp-config.php file.

>

WP-Admin Folder Important Files

The wp-admin folder is the heart of the administrative side of your WordPress site. This folder contains all the necessary files for the WordPress dashboard, where you can manage the appearance, settings, and content of your site. Some of the key files you'll find in the wp-admin folder include:

- **The index.php file:** it is the entry point for the WordPress dashboard.
- **The admin-ajax.php file:** handles all of the AJAX requests for the WordPress dashboard.
- **The CSS folder:** contains all of the stylesheets for the WordPress dashboard.
- **The images folder:** contains all of the images used in the WordPress dashboard.

>

WP-Content Folder Important Files

Now we know that the wp-content folder is the most important folder for your WordPress site, because that's where all of your content, plugins, and themes are stored. Some of the key files you'll find in the wp-content folder include:

- **The plugins folder:** which contains all of the plugins you have installed on your site.
- **The themes folder:** which contains all of the themes you have installed on your site.
- **The uploads folder:** which contains all of the media files you've uploaded to your site.

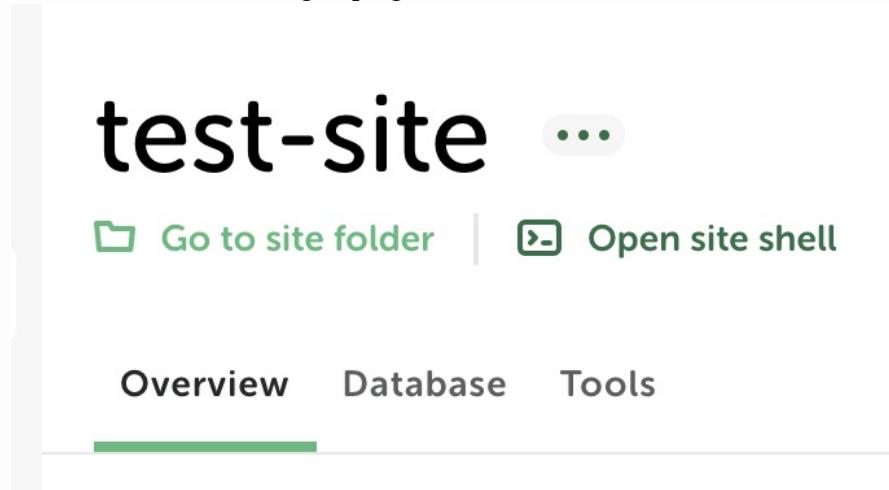
>

Plugins Exploration

Exercise: Making the connection between files and file explorer

Plugins Exploration:

1. Navigate to the Plugins section (Plugins > Installed Plugins) in the WordPress dashboard.
2. Make a note of a few of the names of the installed plugins.
3. Use an FTP client or a file manager to access the wp-content folder and open the plugins folder. (If you're using LocalWP you can click on 'Go to site folder' (see screenshot) or if you want to use Wordpress CMS you can download the 'File Manager' plugin.



4. Match the plugin folders in the file explorer with the plugin names noted from the WordPress dashboard. Identify at least one PHP file within each plugin folder that corresponds to the plugin's functionality.

>

Themes Exploration:

1. Navigate to the Themes section (Appearance > Themes) in the WordPress dashboard.
2. Make a note of the active theme and any other installed themes.
3. Access the wp-content folder and open the themes folder using the file explorer.
4. Match the theme folders in the file explorer with the theme names noted from the WordPress dashboard. Identify the "style.css" and "functions.php" files within each theme folder, which are essential for each theme's appearance and functionality.

>

Media Files Exploration:

1. Navigate to the Media section (Media > Library) in the WordPress dashboard.
2. Choose one or two media files and note their file names and upload

dates.

3. Access the wp-content folder and open the uploads folder using the file explorer.

4. Locate the media files you noted earlier in the appropriate subfolders (organized by year and month) within the uploads folder. Observe the correlation between the media files displayed in the dashboard and the files stored in the uploads folder.

>

WP-Includes Folder Important Files

Finally, the wp-includes folder contains all of the core files for the WordPress platform. This folder is not intended for customization, as any changes you make here could be overwritten during a WordPress update.

Some of the key files you'll find in the wp-includes folder include:

- **The wp-db.php file:** contains all of the database functions for WordPress.
- **The wp-load.php file:** is the first file loaded when a page is accessed on your site.
- **The wp-settings.php file:** contains all of the settings for your WordPress site.

>

Wordpress Security

Wordpress Security

WordPress is the most popular content management system and powers over 40% of the world's websites. As with any popular software, it is important to ensure that your WordPress site is secure and protected against potential threats. In this section, we'll discuss the importance of WordPress security and introduce two popular plugins for improving your site's security: WordFence and WPS Hide Login.

>

WordPress Security

WordPress security is a critical aspect of website ownership. Your site's security affects not only your own website, but also your users and customers. If your site is compromised, it can result in loss of data, damage to your reputation, and harm to your users. Some common WordPress security threats include hacking attempts, malware infections, and unauthorized access to sensitive information.

>

To protect against these threats, it's important to follow best practices for WordPress security, such as keeping your software up to date, using strong passwords, and limiting the number of plugins you install. Speaking of plugins, you can use specific plugins to help secure your Wordpress site. Two popular plugins are Wordfence and WPS Hide Login.

>

Wordfence Plugin

<https://www.wordfence.com/>

As we saw last week, Wordfence is a comprehensive security plugin that provides many different types of security features for a WordPress site. One of the key features of Wordfence is its firewall, which provides real-time protection against hacking attempts and malicious traffic. Additionally, Wordfence scans the website for vulnerabilities and can alert the site owner if any are found. The plugin also has a feature that limits login attempts, preventing hackers from guessing passwords. Furthermore, the Pro version of Wordfence provides a country blocking feature, which allows site owners to block traffic from specific countries if needed.

>

WPS Hide Login Plugin

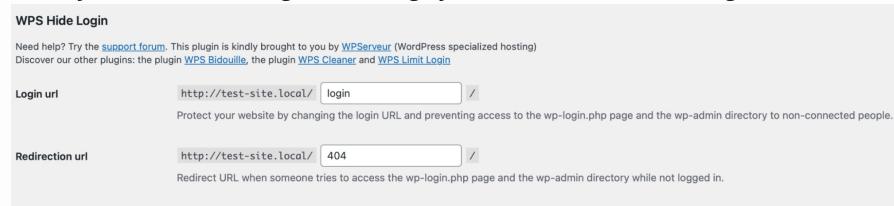
<https://en-ca.wordpress.org/plugins/wps-hide-login/>

WPS Hide Login is a plugin that helps to protect the WordPress site from brute force hacking attempts by changing the default login URL. This helps to prevent hackers from finding the login page and trying to guess the password. WPS Hide Login also provides a feature to log failed login attempts, allowing site owners to monitor any suspicious activity.

Additionally, the plugin has an option to change the WordPress error messages, which can help to make it harder for hackers to determine if they have guessed a valid username or password.

>

Once you install it and go to settings you will see the following:



The screenshot shows the 'WPS Hide Login' settings page. It includes a header with plugin information and two main input fields: 'Login url' and 'Redirection url'. Both fields contain the URL 'http://test-site.local/'. Below each field is a small explanatory text: 'Protect your website by changing the login URL and preventing access to the wp-login.php page and the wp-admin directory to non-connected people.' and 'Redirect URL when someone tries to access the wp-login.php page and the wp-admin directory while not logged in.'

You can change the URL so it's not wp-login.php and you can name it whatever you want. If you want to create a redirect if someone does try to access this URL if they're not logged in you can create that in the second box as well.

Conclusion & Takeaways

Conclusion & Takeaways

In conclusion, the WordPress file structure is a critical aspect of any WordPress website that affects its overall functionality, performance, and security. Understanding the basics of the file structure is crucial in building and maintaining a successful website. It involves knowledge of the location of important files, the importance of avoiding bloating the site with excessive plugins, and incorporating essential security measures to protect the site from potential threats. By taking the necessary steps to understand the WordPress file structure and implement necessary security measures, one can ensure the overall success and protection of their WordPress website.

>

Attribution

[1] (n.d.). internet-security-information-privacy-protection.
<https://www.freepik.com/>. https://www.freepik.com/free-vector/global-data-security-personal-data-security-cyber-data-security-online-concept-illustration-internet-security-information-privacy-protection_12953631.htm#query=cybersecurity&position=7&from_view=search&track=sph

>

(n.d.-b). Search-engine-optimization. Freepik. <https://www.freepik.com/> free-vector/search-engine-optimization_5596347.htm#query=google%20analytics&position=3&from_view=search&track=ais

Website Management Tools

Website Management Tools

Google Analytics

Goals:

- Monitor website traffic: visitors, source, viewed pages
- Track marketing campaign impact: see which drives traffic/conversions
- Improve website conversions: analyze user behavior for improved navigation/UX
- Make informed decisions: use data from Google Analytics for optimization, ad spending, and marketing strategy
- Measure website success: track bounce rate, time on site, and goal conversion rate for improvement

>

Introduction



Google Analytics is a free web analytics tool offered by Google that is used to track and analyze website traffic. It provides businesses with valuable insights into the performance of their website, helping them to understand their target audience and optimize their online presence.

>

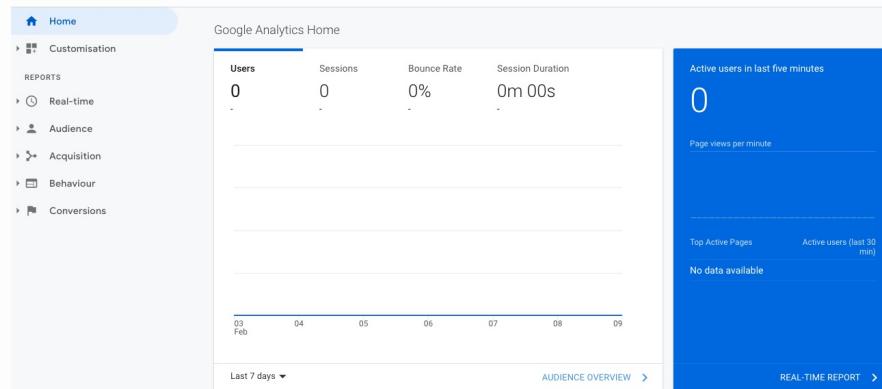
By using Google Analytics, businesses can monitor website traffic, understand user behavior, and track conversions, enabling them to make data-driven decisions to improve the user experience and drive more traffic to their website.

Overview of Google Analytics

Overview of Google Analytics

Google Analytics is a powerful tool that can track various metrics related to a website's traffic, such as the number of visitors, their location, and the pages they visit. The tool provides data in real-time, making it easy to monitor the performance of a website and take necessary actions to improve it.

>



Google Analytics offers a range of features that allow you to get a comprehensive view of your website's performance and user behavior. Some of the key benefits of using Google Analytics include:

- **Traffic analysis:** You can see how many people are visiting your website, where they are coming from, and what pages they are viewing. This data can help you understand the effectiveness of your marketing campaigns and make decisions about adjusting your advertising spend.
- **User behavior tracking:** Google Analytics tracks the behavior of your website visitors, including how long they spend on your site, what pages they visit, and what actions they take. This information can help you identify areas for improvement in your website's user experience, resulting in higher conversion rates.
- **Conversion tracking:** You can set up conversion goals in Google Analytics to track the actions that are important to your business, such as sign-ups, purchases, or downloads. By analyzing the data, you can see how well your website is converting visitors into customers.
- **Custom reporting:** Google Analytics provides a wide range of customizable reports, allowing you to analyze data in the way that makes the most sense for your business. You can create custom reports that show the data that is most important to you and share these reports with your team.
- **Mobile optimization:** Google Analytics tracks website traffic and user behavior across both desktop and mobile devices, allowing you to see

how your website is performing on different platforms. This information can help you make informed decisions about optimizing your website for both desktop and mobile users.

>

Setting up Google Analytics

Setting up Google Analytics on a website is a straightforward process. First, create a Google Analytics account, then add the tracking code to the website. This code is a snippet of JavaScript that needs to be placed on every page that you want to track. The tracking code can be added manually or through plugins available for popular content management systems like WordPress.

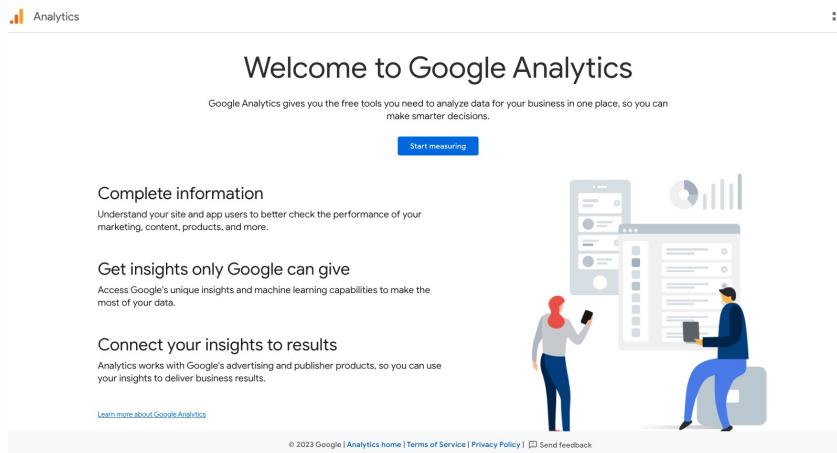
>

Steps:

>

1. Create a Google Analytics account:

- First you go to <https://analytics.google.com/analytics/web/> and it will redirect you to sign in to your Google account.
- Once you sign in, it will bring you to the 'Welcome' page. Click 'Start Measuring'.



- Next you will be required to create an 'Account Name', fill this in.

A screenshot of the 'Account setup' step in Google Analytics. It shows a '1 Account setup' header and a 'Account details' section. Within this section, there's a 'Account name (Required)' field with the placeholder 'Accounts can contain more than one tracking ID.' and a text input box containing the value 'correlation-one-test'. The entire form is set against a light gray background.

- Next you can pick and choose your desired settings for data sharing

Account Data Sharing Settings ⓘ
 Data you collect, process, and store using Google Analytics ("Google Analytics data") is secure and kept confidential. This data is used to [maintain and protect](#) the Google Analytics service, to perform system critical operations, and in rare exceptions for legal reasons as described in our [Privacy Policy](#).

The data sharing options give you more control over sharing your Google Analytics data. [Learn more](#)

Google products & services
 If you have enabled [Google Signals](#), this setting will also apply to authenticated visitation data which is associated with Google user accounts. This setting is required for [Enhanced Demographics & Interests reporting](#). If you disable this option, data can still flow to other Google products explicitly linked to your property. Visit the product linking section in each property to view or change your settings. [Show Example](#)

Benchmarking
 Contribute anonymous data to an aggregate data set to enable features like benchmarking and publications that can help you understand data trends. All identifiable information about your website is removed and combined with other anonymous data before it is shared with others. [Show Example](#)

Technical support
 Let Google technical support representatives access your Google Analytics data and account when necessary to provide service and find solutions to technical issues.

Account specialists
 Give Google marketing specialists and your Google sales specialists access to your Google Analytics data and account so they can find ways to improve your configuration and analysis, and share optimization tips with you. If you don't have dedicated sales specialists, give this access to authorized Google representatives.

[Learn how Google Analytics safeguards your data](#)

By using Google Analytics you agree to the [Google Analytics Terms of Service](#).

[Next](#)

- Next is 'Property Setup'. This is where you can input your website or app's name. This is the name of the Google Analytics account for a particular website so name it something useful like the website domain name or the company name.

 **Property setup**

Property details
 A property represents a business's web and/or app data. An account can contain one or more properties. [Learn more](#)
[*Navigate to your Firebase account](#) if you want to create a new property for an existing Firebase project.

Create a Google Analytics 4 property to measure your web and/or app data.

Property name

Reporting time zone
 United States ▾ (GMT-08:00) Los Angeles Time ▾

Currency
 US Dollar (\$) ▾

You can edit these property details later in Admin

[Show advanced options](#)

[Next](#)

[Previous](#)

- Next you can answer some questions about your business or the reason you need the analytics account

3 About your business

Business information

Help us tailor your experience by answering the following.

Industry category

Business & Industrial ▾

Business size

- Small - 1 to 10 employees
- Medium - 11 to 100 employees
- Large - 101 to 500 employees
- Very Large - 501+ employees

How do you intend to use Google Analytics with your business? (Check all that apply)

- Measure customer engagement with my site or app
- Optimize my site or app experience
- Measure data across multiple devices or platforms
- Optimize my advertising cost
- Increase my conversions
- Measure content monetization
- Analyze my online sales
- Measure app installs
- Measure lead generation
- Other

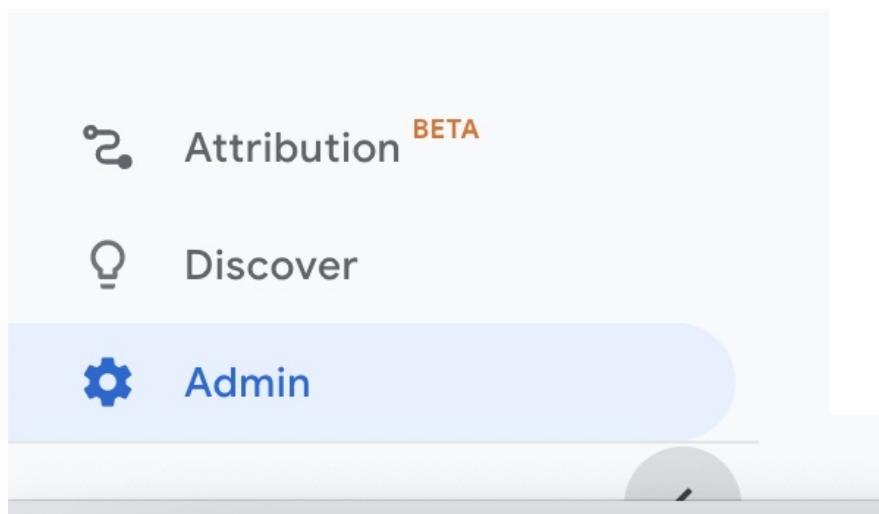
- Once you're done click 'Create'.

Now you've got your first Google Analytics account!

Integrating script in your website header to start collecting data.

>

On the left hand side of your GA dashboard you will see at the bottom 'Admin'. Click on that.



Under the 'Property' column, click on 'Tracking Info'

A screenshot of the Google Analytics Admin interface. On the left, there's a sidebar with options like Account Settings, Account Access Management, All Filters, Account Change History, and Rubbish Bin. The main area shows a list of properties under "Uzair Danish (UA-97342111-1)". Under each property, there are several settings: GA4 Setup Assistant, Property Settings, Property Access Management, and Data Deletion Requests. The "Tracking Info" option is highlighted with a red arrow pointing to it. On the right, there's another sidebar with options like View Settings, View Access Management, Goals, Content Grouping, Filters, Channel Settings, and E-commerce Settings.

Once you click on Tracking Info, click on 'Tracking Code'

< > ▾ Tracking Info

Tracking Code

Data Collection

Data Retention

User-ID

Session Settings

Organic Search Sources

Referral Exclusion List

Search Term Exclusion List

You will be brought to the following screen with a script. This is the script that you will input inside of your header tag on your website. If this is a Wordpress website you can even download plugins like MonsterInsights or GA Google Analytics which will make it easier for you to add the script without having to go into the code.

Tracking ID UA-97342111-1 **Status** No data received in past 48 hours. [Learn more](#)

[Send test traffic](#) [?](#)

Website Tracking

Global Site Tag (gtag.js)

This is the Global Site Tag (gtag.js) tracking code for this property. Copy and paste this code as the first item into the <HEAD> of every web page that you want to track. If you already have a Global Site Tag on your page, simply add the `config` line from the snippet below to your existing Global Site Tag.

```
<!-- Google tag (gtag.js) -->
<script async src="https://www.googletagmanager.com/gtag/js?id=UA-97342111-1"></script>
<script>
window.dataLayer = window.dataLayer || [];
function gtag(){(dataLayer.push(arguments));}
gtag('js', new Date());

gtag('config', 'UA-97342111-1');
</script>
```

The Global Site Tag provides streamlined tagging across Google's site measurement, conversion tracking and remarketing products – giving you better control while making implementation easier. By using gtag.js, you will be able to benefit from the latest dynamic features and integrations as they become available. [Learn more](#)

[Connected Site Tags](#) Load tags for additional properties or products using this property's on-page global site tag. [Learn more](#) 0 connected [?](#)

Now that you created your first account GA will walk you through where things are:

1. Navigating to your reports

All accounts > correlation-one-test **correlation-one-test** Try searching "where did my users come from"

Navigate to reports

Use the side panel to navigate to different reports.

Click Reports.

2 / 8

To set up data collection for your

Property Settings

Property Access Management

2. Next you can see the overview of reports - this is where you can find information about your users and what they do on your website - this screen is where you will spend a lot of your time.

Analytics All accounts > correlation-one-test correlation-one-test Try searching "where did my users come from"

Reports snapshot Realtime

Reports snapshot

Users: 0 New users: 0 Average session duration: 0m

LAST 30 MINUTES

TOP COUNTRIES

Insights

Your Insights will appear here soon. In the meantime, you can create new custom insights to monitor your most important metrics. [Learn more](#)

Create

3. In the left column you will see the different reports that all have different functions and highlight different types of user behavior on your website.

The screenshot shows the 'Reports snapshot' interface. On the left, there's a sidebar with sections like 'Realtime', 'Life cycle' (Acquisition, Engagement, Monetization, Overview), and 'User' (Demographics, Tech). A modal window titled 'Reports' is open, explaining that different reports help learn about your business through life-cycle reports and user reports. It also shows navigation buttons for 'PREVIOUS' and 'NEXT'.

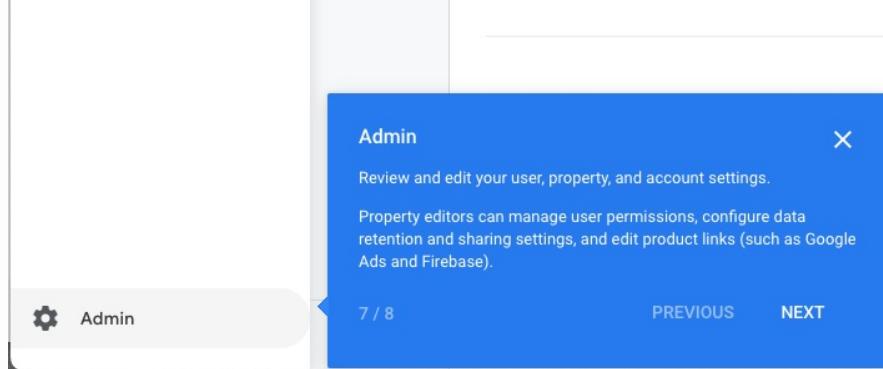
4. Next you have 'Explorations'. This is where you can see a range of advanced methods for digging into customer behavior beyond standard reports. They allow you to adjust and switch between different techniques to uncover more comprehensive insights from your data.

The screenshot shows the 'Reports snapshot' interface with the 'Explorations' section highlighted. A modal window explains that explorations provide a deeper understanding of data using advanced techniques like funnels and cohorts. It also shows navigation buttons for 'PREVIOUS' and 'NEXT'.

5. After that we have the advertising section where you can collect data and insights related to advertising campaigns. This tab is specifically designed for tracking the performance of your online advertising campaigns.

The screenshot shows the 'Reports snapshot' interface with the 'Advertising' section highlighted. A modal window explains that attribution reports help understand conversion paths and channel performance. It also shows navigation buttons for 'PREVIOUS' and 'NEXT'.

6. At the bottom is the 'Admin' section where you can review and edit users, property and account settings.



Understanding Google Analytics Reports

Understanding Google Analytics Reports



Google Analytics 4 (GA4) is a new version of Google Analytics that provides insights about website and app user behavior. It is designed to work with Google's advertising and analytics products and provides new and improved features that can help businesses better understand and engage with their customers.

>

A GA4 report is a collection of data that provides insights into various aspects of a website or app's performance. It includes information about user acquisition and behavior, such as acquisition channels, user demographics, engagement metrics, and conversion rates. The report can also provide information about user behavior on specific pages, such as time on site, bounce rate, and pages per session.

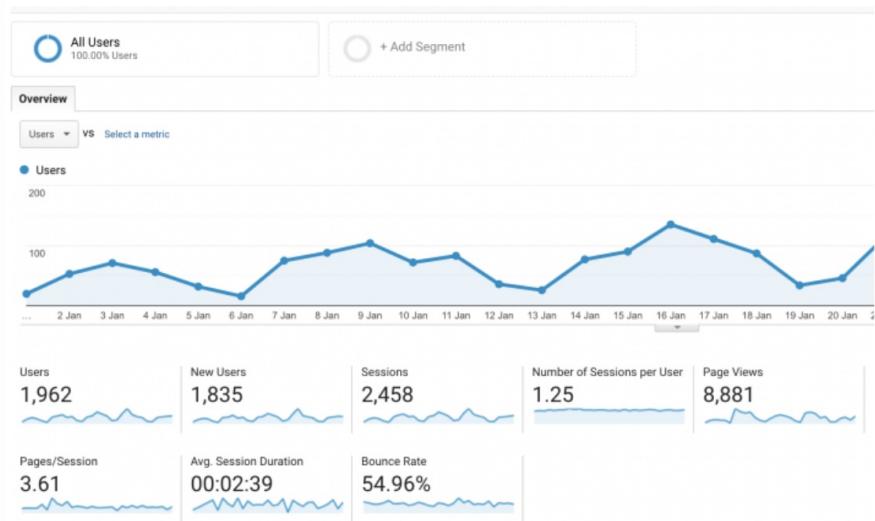
>

Some of the types of reports available in GA4 include:

>

Overview Report

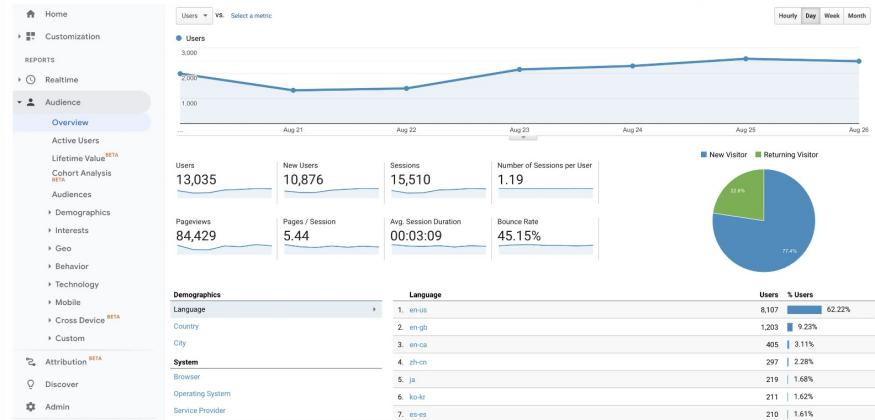
This report serves as a broad overview of crucial metrics that provide an understanding of the overall performance of your website or app. It includes metrics such as the number of sessions, conversion rate, and revenue, which are essential indicators of the health of your business.



(Smart, 2019)

Audience Report

This report offers insights into the characteristics and behavior of your audience, providing a better understanding of who they are and how they interact with your website or app. This includes data on demographics, interests, location, and behavior patterns, which can be used to inform and guide your marketing strategies.



(Moz, 2021)

Acquisition Report

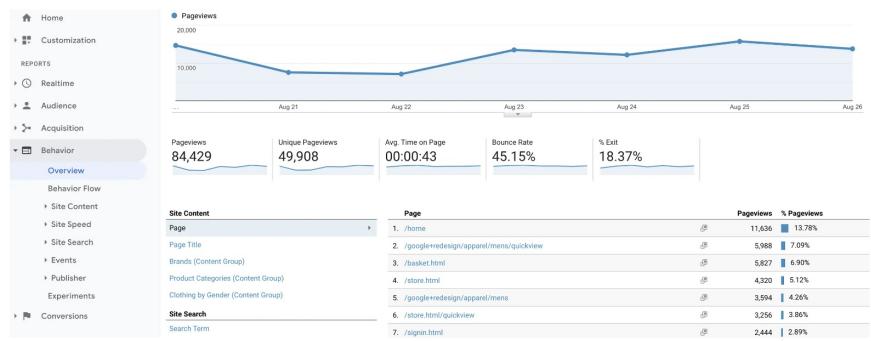
The Acquisition Report helps you understand where your traffic is coming from, providing data on various channels such as organic search, referral, paid search, and more. This information can be used to optimize your marketing and advertising efforts and drive more traffic to your site or app.



(Moz, 2021)

Behavior Report

The Behavior Report provides insights into how users are interacting with your content, including metrics such as pageviews, bounce rate, and average time on site. This information can be used to improve the user experience and increase engagement with your website or app.

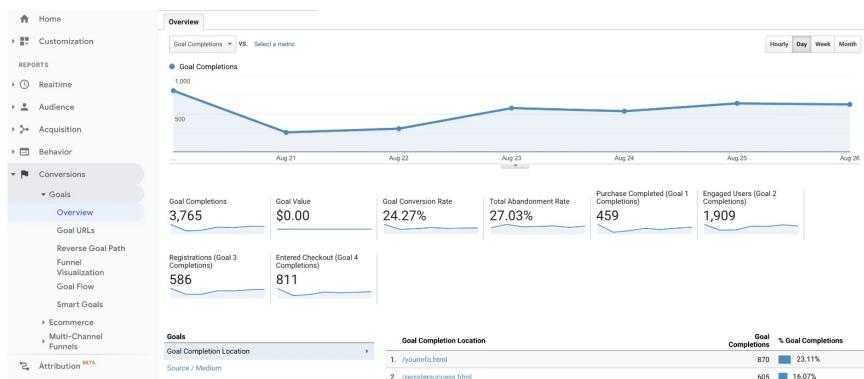


(Moz, 2021)

>

Conversion Report

The Conversion Report is designed to help you understand the outcomes that matter most to you. This includes data on transactions, conversion rate, and revenue, which can be used to optimize your conversion funnel and increase conversions.



(Moz, 2021)

>

Custom Reports

This feature allows you to create your own reports tailored to the metrics and dimensions that are most important to you. This provides greater flexibility and the ability to analyze data in a way that is most relevant to your business.

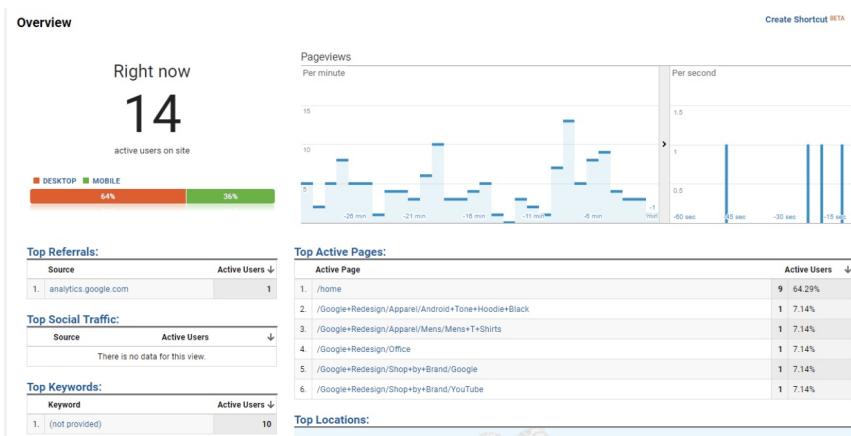
The screenshot shows the 'Create Custom Report' interface. On the left, there's a sidebar with 'CUSTOMIZATION' and 'REPORTS' sections. The 'REPORTS' section includes categories: REAL-TIME, AUDIENCE, ACQUISITION, BEHAVIOR, and CONVERSIONS. The main area is titled 'Create Custom Report' with a 'General Information' tab selected. Under 'General Information', the 'Title' is set to 'All Traffic'. Below this is the 'Report Content' section, which contains three tabs: 'Explorer' (selected), 'Flat Table', 'Map Overlay', and 'Funnel RTA'. The 'Explorer' tab shows 'Metric Groups' like 'Summary', 'Sessions', 'Pages / Session', 'Revenue', 'Site Usage', and 'Goal Set 1'. Each group has dropdown menus for selecting specific metrics such as '% New Sessions', 'Avg. Session Duration', 'E-commerce Conversion Rate', etc.

(Jones, 2017)

>

Real-Time Report

The Real-Time Report provides real-time data on user activity, allowing you to see the number of users currently on your site or app and what they are doing. This information can be used to make informed decisions in real-time and respond quickly to any changes in user behavior.



(Koks, 2018)

>

Conclusion & Takeaways

Conclusion & Takeaways

Overall Google Analytics is a great website tracking tool that provides real-time data on various metrics to help you understand user behavior on your website. Setting it up is important and straightforward. The goal is to integrate it with your site and start tracking everything along with customizing reports to help you understand and find gaps in your website so you can improve and optimize it. The latest version, Google Analytics 4, offers improved features that provide even greater insights. Since it's always improving, the best way to learn is to start generating reports and to be curious!

>

Attribution

- (n.d.-a). Business-performance-analysis-with-graphs. <https://www.freepik.com>. https://www.freepik.com/free-vector/business-performance-analysis-with-graphs_3585415.htm#query=report&position=1&from_view=search&track=sph
- Smart, D. (2019, February 26). Google Analytics Audience Overview Report Explained. Sonet Digital. <https://sonet.digital/blog/seo/google-analytics-audience-overview-report-explained/>
- Moz. (2021, August 27). Audience Reports - Beginner's Guide to Google Analytics. Moz. <https://moz.com/beginners-guide-to-google-analytics/audience-reports>
- Jones, M. (2017, March 1). Google Analytics: Custom Reports, Shortcuts, Dashboards. Practical Commerce. <https://www.practicalecommerce.com/Google-Analytics-Custom-Reports-Shortcuts-Dashboards>
- Koks, P. (2018, March 13). How to Leverage Real-Time Reporting for Your Business. Online Metrics. <https://online-metrics.com/real-time-reporting/>

SEO Score Checker

SEO Score Checker

Goals:

- Understanding SEO score checker: definition and function
- Outline factors affecting the website's SEO score
- Use score checker to analyze website performance: identify areas for improvement
- Prioritize improvement actions as a function of impact on SEO score
- Realize the importance of generating a report of recommendations effectively
- Grasp the difference between mobile and desktop reports as well as the importance of optimization for both
- Track and monitor the progress of the website's SEO score over time
 - >

Introduction



SEO Score Checker is a tool used to evaluate the quality and effectiveness of a website's search engine optimization (SEO) efforts. The tool analyzes various factors related to a website's SEO, such as its content, keywords, meta tags, and backlinks. This tool also provides a score that reflects the website's overall SEO performance.

>

Understanding SEO Score

An SEO Score is a numerical representation of a website's SEO quality, calculated by evaluating various SEO factors. A high SEO score indicates that the website is well optimized for search engines and is likely to rank well in search results. A low score, on the other hand, indicates that the website needs improvement in its SEO efforts.

>

Steps to understanding SEO scores:

>

- Familiarize yourself with the basics of search engine optimization (SEO): Before you can understand an SEO score, it's important to have a basic understanding of what SEO is and what it entails. Read up on the various on-page and off-page factors that can impact a website's search engine performance. You can even run your own website or a website of your choice through the following SEO checker:
<https://www.seobility.net/en/seocheck/>
- Choose an SEO score checker: There are many SEO score checkers available online, and each one may have a slightly different approach to calculating scores. Choose one that you feel comfortable using and that provides the information you need. Here's a couple options to choose from:
 - Google Pagespeed Insights: <https://pagespeed.web.dev/>
 - GTMetrix: <https://gtmetrix.com/>
 - SEOAbility: <https://www.seobility.net/en/seocheck/>
 - SEO Site Checkup: <https://seositecheckup.com/>
 - Neil Patel's SEO Analyzer: <https://neilpatel.com/seo-analyzer/>
- Enter your website's URL: Once you've chosen an SEO score checker, enter the URL of the website you want to analyze. The score checker will then analyze various elements of the website and provide you with an SEO score.
- Interpret the SEO score: SEO scores are usually represented as a percentage or a numerical value on a scale (e.g., 1-100). The higher the score, the better the website's SEO performance. Keep in mind that different score checkers may use different scales, so it's important to understand how your chosen checker calculates scores.
- Analyze the report: In addition to the SEO score, the score checker will likely provide a report detailing various on-page and off-page factors that are impacting the website's performance. Read through this report carefully and make note of any areas where the website can improve.
- Implement recommended changes: Based on the report, implement any changes that are recommended by the score checker. This might include optimizing title tags, meta descriptions, and header tags, improving content quality, or building more high-quality backlinks.
- Repeat the process: Once you've made the recommended changes, re-run the analysis in a few weeks to see how your SEO score has changed. Continuously monitor and improve your website's SEO performance to stay ahead of your competition.

>

By following these steps, you should have a good understanding of your website's SEO score and what you can do to improve it. Remember that SEO is an ongoing process, so be prepared to continuously monitor and improve your website's performance.

>

SEO Factors

Many factors can impact a website's search engine optimization (SEO)

performance, and they can be broadly categorized into on-page factors and off-page factors.

- On-page factors refer to elements that are within a website's control and include:
 - Content quality and relevance: The quality and relevance of the website's content for its target audience.
 - Keyword usage: The strategic use of keywords (target search terms) in titles, meta descriptions, header tags, and throughout the website's content.
 - User experience: The overall user experience of the website, including website speed, mobile responsiveness, and ease of navigation.
 - Meta tags: The use of title tags and meta descriptions to accurately describe the website's content and entice users to click through from the search results.
- Off-page factors refer to elements that are outside of a website's control and include:
 - Backlinks: The quantity and quality of links from other websites to the website in question.
 - Social signals: The presence and activity of the website on social media platforms.
 - Domain authority: The overall authority and credibility of the website's domain.
 - Brand reputation: The overall reputation of the website's brand.

>
These are some of the most important SEO factors, but it's worth noting that search engines like Google are constantly updating their algorithms and what they consider to be important, so it's important to stay up-to-date on best practices for SEO. Here's one of the best resources to stay up to date: <https://www.searchenginejournal.com/>.

Importance of SEO Score Checker

Importance of SEO Score Checker



SEO score checkers are an important tool for website owners and marketers because they provide valuable insights into the website's search engine optimization (SEO) performance. Here are some of the reasons why SEO score checkers are important:

- **Identifying areas for improvement:** SEO score checkers provide a comprehensive analysis of the website's on-page and off-page factors, including keyword usage, content quality, backlinks, and user experience. This information can help website owners identify areas where they can make improvements to boost their SEO performance.
>
- **Measuring progress:** SEO is an ongoing process, and website owners need to continuously monitor and improve their performance to stay ahead of the competition. SEO score checkers allow website owners to track their progress over time, see how changes to their website have affected their SEO score, and adjust their strategy accordingly.
>
- **Comparing performance to competitors:** Many SEO score checkers also provide competitor analysis, allowing website owners to compare their performance to that of their competitors. This information can help

website owners understand how they stack up against their competition and identify opportunities for improvement.

>

- **Making data-driven decisions:** SEO can be complex, and it can be difficult to know where to focus your efforts. SEO score checkers provide a comprehensive analysis of the website's performance, allowing website owners to make data-driven decisions about where to focus their efforts for maximum impact. Here's an example for Amazon from the Moz tool that you can try yourself: <https://moz.com/competitive-research>

>



Top Competitors

Learn who your top SERP competitors are, powered by our True Competitor engine.

Competitors	DA
www.youtube.com	100
www.amazon.com	96
www.facebook.com	96
www.pinterest.com	94
books.google.com	93

[See more competitors](#)

Keyword Opportunities

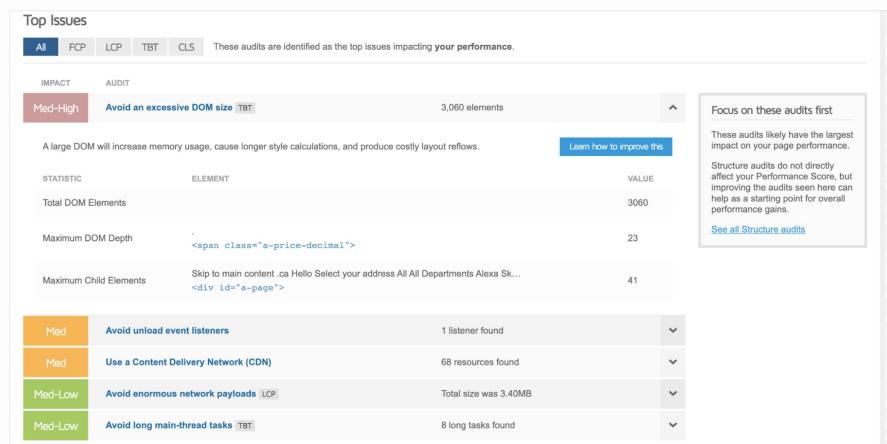
Spot your keyword gaps by understanding your competitors' top keywords and the potential impact on site traffic.

Keyword	Traffic Lift
amazon prime video in	429,473
amazon+prime video	429,473
amazon prime video	386,643
prime video	382,321
alabama football	266,791

[See more keywords](#)

- **Streamlining the optimization process:** Finally, SEO score checkers can help streamline the optimization process by providing step-by-step instructions for implementing recommended changes. This can save website owners time and effort and help ensure that they are making the right changes to boost their SEO performance. Here's an example from GTMetrix for amazon.ca

>



>

How to Use an SEO Score Checker

Using an SEO Score Checker is simple and straightforward. Simply enter the URL of the website that you want to check into the tool, and the tool will

analyze various factors related to the website's SEO and provide a score. Some SEO Score Checkers also provide additional information and suggestions for improvement.

>

One popular SEO checker is SEOability (<https://www.seobility.net/en/seocheck/>).

>

Exercise: Pick one of your favorite websites and input the URL in the SEOability box. List 3 SEO improvements your selected website should make.

Free SEO Checker

The screenshot shows the SEOability free checker interface. At the top, there is a search bar containing the URL 'https://apple.com/'. To the right of the search bar is a blue button labeled 'Analyze Website'. Below the search bar, a message reads 'You have 1 of 3 checks left today.' and 'More options'.

We will use <https://apple.com/> for this example.

>

Here is a screenshot of SEOability's site audit feature, which analyzes various on-page SEO elements and provides recommendations for improvement:

The screenshot shows the SEOability site audit feature for Apple.com. At the top, there is a search bar with the URL 'https://www.apple.com/' and a blue button labeled 'Analyse website'. Below the search bar, a message reads 'You have 1 of 3 checks left today.' and 'More options'.

The main section is titled 'Apple.com - SEO Checker'. It features a 'Overview of the SEO Check' chart showing the percentage completion of various SEO factors: Meta information (67%), Page quality (86%), Page structure (58%), Link structure (63%), Server (79%), and External factors (100%).

To the right of the chart is a 'SEO Score' section with a large yellow circle containing the number '75%' and the text 'SEO Score Widget'.

Below the chart, there is a table with columns: Response time, File size, Words, Media files, and Number of links. The values are: 0.05 s, 157.80 kB, 537, 1, and 98 internal / 11 external.

>

SEO score checkers like SEOability typically provide a variety of information and suggestions for improvement, including:

>

- **Website Crawling and Indexing:** Seobility checks if a website is crawlable and indexable by search engines like Google and provides suggestions to improve the website's crawlability and indexability.

>

- **On-Page Optimization:** Seobility analyzes the content of a website and provides suggestions for optimizing the page title, meta description, heading tags, and other on-page elements for better visibility in search engine results.
 - >
 - **Technical SEO:** Seobility checks technical SEO aspects such as website speed, mobile-friendliness, and schema markup, and provides suggestions to improve these aspects for better SEO performance.
 - >
 - **Backlink Analysis (A backlink is a hyperlink from one website to another, typically using an anchor text):** Seobility analyzes the backlink profile of a website and provides suggestions for improving the quality and quantity of backlinks to the website.
 - >
 - **Keyword Analysis:** Seobility analyzes the keywords used on a website and provides suggestions for optimizing the content for relevant and high-traffic keywords.
- >
In addition to providing this information, SEO checkers often include step-by-step instructions for implementing recommended changes, making it easier for website owners to improve their search engine optimization.
- >
In general, SEO checkers analyze various elements of a website to assess its performance in search engines. These elements may include on-page factors like title tags, meta descriptions, header tags, and content quality, as well as off-page factors like backlinks and social media signals. The goal is to identify any issues that could be hurting the site's visibility in search results and provide recommendations for improvement.

Generating a Report of Recommendations

Generating a Report of Recommendations

Generating a report of recommendations for an SEO Score Checker is an important step in improving the SEO performance of a website. A well-written report provides actionable recommendations that help website owners improve their SEO and increase their website's visibility in search results.

Components of a Report

A good SEO Score Checker report should include the following components:

Executive Summary: A brief overview of the report and its findings.

Current SEO Score: A detailed analysis of the website's current SEO score, including the specific factors that contributed to the score.

Recommendations for Improvement: A list of specific recommendations for improving the website's SEO, such as optimizing keywords, improving page titles, and increasing the number of backlinks.

Next Steps: A list of actionable steps that the website owner can take to implement the recommendations and improve their SEO.

>

Implementing Recommendations

Once the report has been generated, the next step is to implement the recommendations. This may involve making changes to the website's content, structure, and technical aspects.

>

The report should provide clear and concise instructions for implementing each recommendation, and website owners should take the time to carefully review the recommendations and make the necessary changes.

>

Implementing the recommendations from an SEO score checker report is a critical step in improving a website's search engine optimization (SEO) performance. Here are some best practices for implementing the recommendations:

- Prioritize recommendations: Not all recommendations will have an equal impact, so it's important to prioritize the recommendations based on their potential impact and the effort required to implement them.
- Create a plan of action: Once you have prioritized the recommendations, create a plan of action that outlines the steps you need to take to implement each one.
- Make changes gradually: Avoid making too many changes at once, as this can cause confusion and negatively impact the website's performance. Instead, make changes gradually, test them, and adjust as necessary.

- Monitor the impact of changes: As you implement the recommendations, monitor the impact of the changes on the website's performance. Use analytics tools and other metrics to track the website's traffic, search engine rankings, and other important metrics.
- Stay up-to-date with best practices: SEO is an ever-evolving field, and best practices are constantly changing. Stay up-to-date with the latest developments in SEO by reading industry blogs, attending conferences, and participating in online forums.

>

By following these best practices, website owners can implement the recommendations from an SEO score checker report effectively and efficiently. This will help improve their website's SEO performance, drive traffic, and increase conversions.

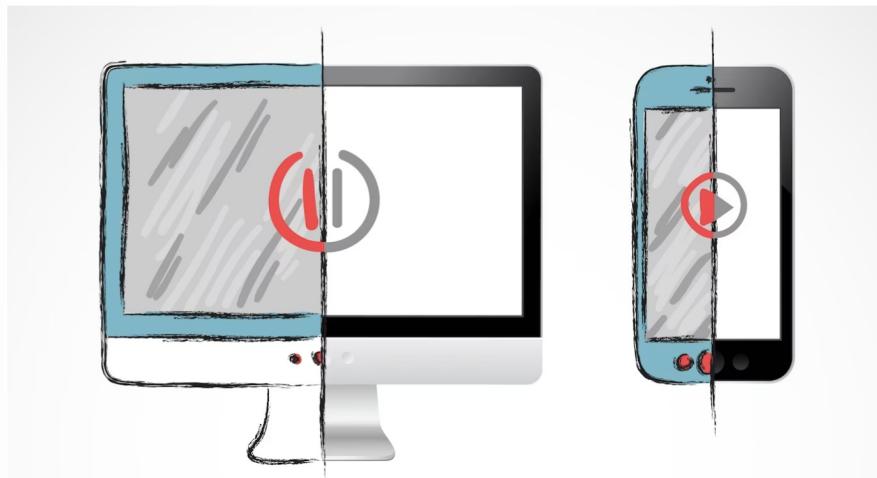
>

Here are some resources for you to run a check on your own website and implement one suggestion:

- Google Pagespeed Insights: <https://pagespeed.web.dev/>
- GTMetrix: <https://gtmetrix.com/>
- SEOability: <https://www.seobility.net/en/seocheck/>
- SEO Site Checkup: <https://seositecheckup.com/>
- Neil Patels' SEO Analyzer: <https://neilpatel.com/seo-analyzer/>

Mobile vs. Desktop Reports

Mobile vs. Desktop Reports



Introduction

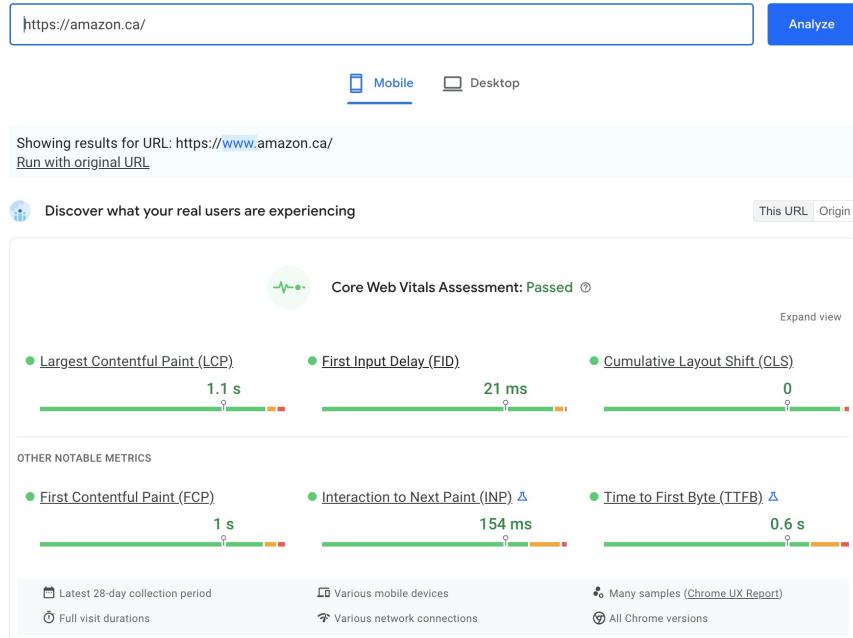
In today's digital age, it's important to understand the differences between mobile and desktop SEO as more and more people are using mobile devices to access the internet. An SEO Score Checker can generate reports specifically for mobile and desktop devices to help website owners understand how their site is performing on each platform.

>

Differences between Mobile and Desktop Reports

The main difference between mobile and desktop reports is that the former focuses on optimizing the website for small screens and touch-based navigation, while the latter focuses on optimizing for larger screens and keyboard-based navigation. This means that the recommendations for improving mobile and desktop SEO will differ, even though some of the underlying principles may be the same. You can run your own report here: <https://pagespeed.web.dev/> and toggle between mobile and desktops to see the difference. Here's a screenshot:

>



| Mobile Reports | Desktop Reports |

|——|——|

| Focus on small screens and touch-based navigation | Focus on larger screens and keyboard-based navigation |

| Recommendations tailored for optimizing small screens |

| Recommendations tailored for optimizing larger screens |

| Emphasis on mobile-friendly design and user experience | Emphasis on traditional desktop user experience |

| Aimed at improving the visibility of websites on mobile devices | Aimed at improving the visibility of websites on desktop devices |

>

Importance of Mobile Reports

Mobile devices have rapidly become the preferred method for accessing the internet, and this trend is only expected to continue in the future. As a result, it's critical for website owners to ensure that their website is optimized for mobile devices. Here are some of the reasons why mobile reports are important:

>

- **Improving user experience:** A well-optimized mobile website provides users with a fast, responsive, and easy-to-use experience. This can improve user engagement, reduce bounce rates, and increase the likelihood of users returning to the site.

>

- **Improving visibility in mobile search results:** Google and other search engines prioritize mobile-friendly websites in their mobile search results. A mobile-optimized website is more likely to rank well in mobile search results, which can drive more traffic to the site and increase conversions.

>

- **Improving mobile accessibility:** Mobile reports help website owners identify any technical issues that may be affecting the site's performance

on mobile devices. This can include issues with the website's code, design, and functionality. Fixing these issues can improve the site's mobile accessibility and provide users with a better experience.

>

- **Staying ahead of the competition:** With the increasing importance of mobile optimization, it's critical for website owners to stay ahead of their competition. Mobile reports provide valuable insights into the site's mobile performance and can help website owners identify areas for improvement and make the necessary changes.

>

In conclusion, mobile reports are an essential tool for website owners looking to improve their mobile SEO performance. By providing valuable insights into the site's mobile performance, mobile reports can help website owners improve their site's user experience, visibility in mobile search results, and overall performance.

>

Importance of Desktop Reports

Although mobile devices are becoming increasingly popular, many people still use desktop computers to access the internet. Therefore, it's important to have a well-optimized desktop website as well. A good desktop SEO report can help website owners understand how their site is performing on desktop devices and provide recommendations for improvement. Here are some of the reasons why desktop reports are important:

>

- **Reach a wider audience:** Not everyone uses mobile devices to access the internet. Many people still prefer desktop computers, and it's important to cater to this audience by having a well-optimized desktop website.

>

- **Improved search engine rankings:** A well-optimized desktop website is more likely to rank well in desktop search results, which can drive more traffic to the site and increase conversions.

>

- **Better user experience:** A good desktop website provides users with a fast, responsive, and easy-to-use experience. This can improve user engagement, reduce bounce rates, and increase the likelihood of users returning to the site.

>

- **In-depth insights:** Desktop reports provide in-depth insights into the site's desktop performance, including its load times, technical issues, and user behavior. This information can help website owners identify areas for improvement and make the necessary changes to improve their site's performance.

>

- **Improved accessibility:** Desktop reports help website owners identify any technical issues that may be affecting the site's performance on desktop devices. This can include issues with the website's code, design, and functionality. Fixing these issues can improve the site's desktop accessibility and provide users with a better experience.

>

In conclusion, desktop reports are still an important tool for website owners looking to improve their desktop SEO performance. By providing valuable insights into the site's desktop performance, desktop reports can help website owners understand how their site is performing and provide recommendations for improvement.

Conclusion & Takeaways

Conclusion & Takeaways

SEO score checkers provide valuable insights into the overall health and optimization of a website, allowing website owners to identify areas for improvement. Regularly checking and monitoring the SEO score of a website is an important aspect of search engine optimization and can lead to improved visibility and ranking in search engine results.

>

Attribution

- [2] (n.d.-b). Search-engine-optimization. Freepik.
https://www.freepik.com/free-vector/search-engine-optimization_5596347.htm#query=google%20analytics&position=3&from_view=search&track=ais
- >
- (n.d.-d). Seo-concept-illustration. Freepik. https://www.freepik.com/free-vector/seo-concept-illustration_13549607.htm#query=SEO&position=2&from_view=search&track=sph
- >
- (n.d.-b). Digital-devices-set. Freepik. https://www.freepik.com/free-vector/digital-devices-set_1536553.htm#query=mobile%20vs%20desktop&position=0&from_view=search&track=ais
- >
- (n.d.-f). Surprised-talking-robot-speech-bubbles-chatbot-dialog-online-lesson. Freepik. https://www.freepik.com/free-vector/surprised-talking-robot-speech-bubbles-chatbot-dialog-online-lesson_3734224.htm#query=robots%20txt&position=23&from_view=search&track=ais

Robots.txt Generators, Hit Counter and A/B Testing

Robots.txt Generators, Hit Counter and A/B Testing

Robots.txt Generator

Goals:

- Understand the purpose of robots.txt file: control web crawlers and search engine bots
- Create basic robots.txt file to restrict website access
- Learn syntax and commands for writing robots.txt file: User-Agent, Disallow rules
- Structure and organize robots.txt files for proper interpretation
- Connect robots.txt files to optimizing websites for search engines: improve web dev and SEO knowledge

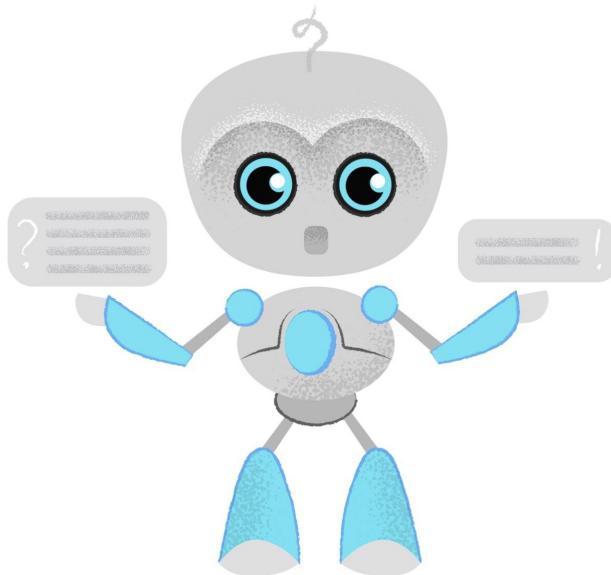
>

Introduction

The robots.txt file is an important aspect of website optimization. It provides information to search engine robots about which pages or sections of the site should be crawled and indexed. By using a Robots.txt Generator, you can quickly and easily create a robots.txt file for your website. You can generate your own Robots.txt file here:
<https://en.ryte.com/free-tools/robots-txt-generator/>

What is a Robots.txt File?

What is a Robots.txt File?



A robots.txt file is a simple text file that is placed in the root directory of a website which is the public_html folder. It tells search engine robots which pages or sections of the site they should crawl and index. This can be useful if you have certain pages or sections of your site that you don't want to be indexed by search engines.

>

The robots.txt file is essentially a set of instructions for search engine robots (also known as crawlers or spiders) that visit your website. By including a robots.txt file, website owners can control which pages or sections of their site are crawled and indexed by search engines.

>

The file consists of simple text commands that specify which parts of the site should be crawled, and which should be excluded. For example, if a website owner wants to exclude a certain directory, such as a staging environment or a private area of the site, they can do so by adding the following line to their robots.txt file:

>

User-agent:

Disallow: /admin/

Disallow: /private/

Disallow: /secret-page.html

>

This robots.txt file instructs all web crawlers (User-agent:) not to index the pages in the /admin/, /private/ and /secret-page.html directories. This can be useful for preventing sensitive pages or pages that are not relevant to search engine indexing from being crawled and indexed.

>

It's important to note that while the robots.txt file can be used to limit the visibility of a website in search results, it is not a foolproof method for hiding content. Determined users or search engines can still access excluded pages if they have a direct link or know the URL.

>

Here are a few examples of how the robots.txt file can be used:

- Excluding a directory:

User-agent:

Disallow: /private/

>

This line tells all search engines not to crawl or index the “private” directory on the website.

- Excluding a specific page:

User-agent:

Disallow: /page-to-exclude.html

>

This line tells all search engines not to crawl or index the specific page “page-to-exclude.html.”

- Allowing all pages to be crawled:

User-agent:

Disallow:

>

This line allows all search engines to crawl and index all pages on the website.

- Blocking specific search engines:

User-agent: Googlebot

Disallow: /

>

This line blocks Googlebot from crawling or indexing any pages on the website.

>

These are just a few examples of the many ways that the robots.txt file can be used to control which pages on a website are crawled and indexed by search engines. It's important to note that not all search engines and robots follow the instructions specified in the robots.txt file, so it's not a foolproof method for hiding content. However, it is still a useful tool for website owners to have in their SEO toolkit.

>

Exercise 1:

>

Write a robots.txt file for a website that has a “blog” section that you want to be excluded from search engine indexing.

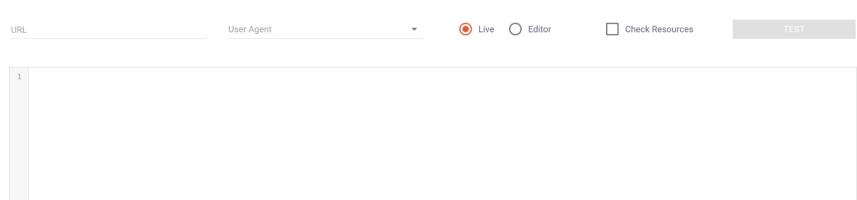
>

Instructions:

>

1. *Imagine you are the owner of a website that has a “blog” section.*
2. *Write a robots.txt file using the format described in the content.*
3. *Use the robots.txt file to exclude the “blog” section from search engine indexing.*
4. *Test the robots.txt file to make sure it is working correctly. Here’s how to test it:*
 - a. *Go to this site: <https://technicalSEO.com/tools/robots-txt/>*
 - b. *Type in your website URL you want to test, choose any user agent (Googlebot) is a good one, leave it to live, tick check resources and click ‘Test’*

Test and validate your robots.txt with this testing tool. Check if a URL is blocked, which statement is blocking it and for which user agent. You can also check if the resources for the page (CSS, JavaScript, images) are disallowed.



You will get results showing any URLs you have disallowed and the result of your robots.txt file. Here’s an example of <https://amazon.ca>

```
1 User-agent: *
2 Disallow: /exec/obidos/account-access-login
3 Disallow: /exec/obidos/change-style
4 Disallow: /exec/obidos/flex-sign-in
5 Disallow: /exec/obidos/handle-buy-box
6 Disallow: /exec/obidos/tg/cm/member/
7 Disallow: /exec/obidos/refer-a-friend-login
8 Disallow: /exec/obidos/subt/partners/friends/access.html
9 Disallow: /exec/obidos/subt/marketplace/sell-your-stuff.html
10 Disallow: /exec/obidos/subt/marketplace/sell-your-collection.html
11 Disallow: /exec/obidos/subt/associates/join
12 Disallow: /gp/cart
13 Disallow: /gp/customer-media/upload
14 Disallow: /gp/flex
15 Disallow: /gp/sign-in
16 Disallow: /gp/slides/make-money
17 Disallow: /gp/yourstore
18 Disallow: /gp/content-form
19 Disallow: /gp/customer-reviews/common/du
20 Disallow: /gp/customer-reviews/write-a-review.html
```

robots.txt: https://www.amazon.ca/robots.txt (200 OK) URL Path: / Result: Allowed

Answer:

Robots.txt file:

>

User-agent:

Disallow: /blog/

>

Explanation: This robots.txt file instructs all search engines (User-agent: *) not to index the pages in the /blog/ directory.

>

Testing: To test this robots.txt file, you can use a robots.txt tester tool (such as Google’s robots.txt tester) to see if the “blog” section is being excluded from search engine indexing.

Best Practices for Robots.txt Files

Best Practices for Robots.txt Files

Best practices for robots.txt files are essential for ensuring that the file is effective and that search engines can access it. Here are some of the best practices in detail:

- > - Ensuring that the file is accessible to search engines: The robots.txt file should be placed in the root directory of the website and should be easily accessible to search engines. This can be done by ensuring that the file is located at the root URL (e.g. <https://www.example.com/robots.txt>).
- > This is important because if the file is not easily accessible to search engines, they may not be able to find it and therefore, the instructions in the file will not be followed. Having the file accessible in the root directory ensures that search engines can quickly and easily find the file, allowing them to follow the instructions contained within it. This can help prevent search engines from crawling and indexing pages that are not meant to be indexed, improving the overall SEO of the website.
- > - Using clear and concise instructions: The robots.txt file should use clear and concise commands to specify which pages or sections of the site should be crawled and indexed. For example, the file should use a disallow statement to specify the pages that should not be crawled and indexed.
- > Using clear and concise instructions helps search engines understand exactly what is allowed and what is prohibited on the site. This ensures that search engines only crawl and index the desired pages, reducing the risk of any unwanted pages appearing in search results.
- > - Avoiding the use of wildcard characters: Wildcard characters (e.g. * or) should be avoided in robots.txt files. This is because they can lead to unintended consequences and can make the use of wildcards problematic. Instead, use a specific pattern like "/*" to represent any sequence of characters, and end patterns with "*" to signify the end of a name.
- > For instance:
 - > To block access to every URL containing a question mark "?":
User-agent:
Disallow: /?
 - > The "?" symbol is employed for "end of URL" matches. In this example, GoogleBot is prevented from crawling URLs ending with ".php".
User-agent: Googlebot
Disallow: ./php\$
 - > To exclude all files of a specific file type, apply the following:
User-agent: Googlebot-Image
Disallow: ./gif\$
 - > By designating Googlebot-Image as the User-agent, images will be omitted from Google Image Search.
 - > - Avoiding the use of disallow statements: Disallow statements should be used with caution. If possible, allow statements should be used instead. This is because disallow statements can prevent search engines from accessing important pages on the site, which can negatively impact its SEO.
 - > The use of disallow statements in the robots.txt file tells search engines not to crawl and index certain pages or sections of the website. However, if these disallow statements are not used carefully, they can prevent search engines from accessing important pages on the site. This can negatively impact the site's SEO by preventing search engines from discovering and indexing all of the site's content.
 - > For instance, consider an online store that has a blog section and a private customer account section. The website owner wants search engines to crawl and index the blog but not the customer account section. If the disallow statement is not used carefully, it may block search engines from accessing both the blog and the customer account sections. This would

negatively affect the website's SEO by preventing search engines from indexing the blog's content.

>
Here's an example of a properly configured robots.txt file:
>

```
User-agent: *
Disallow: /customer-account/
Allow: /blog/
```

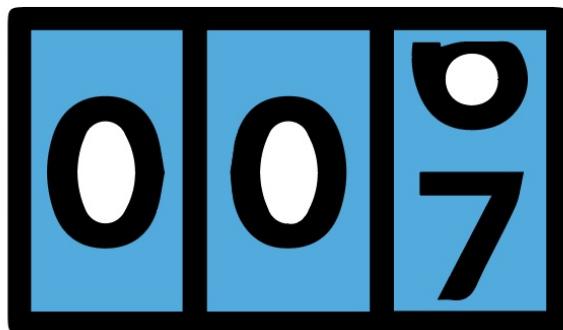
By following these best practices, website owners can ensure that their robots.txt file is effective and that search engines can access it. This can help improve the visibility of the site in search results and provide a better experience for users.

Hit Counter

Hit Counter

Goals:

- Understand website hit tracking and its importance
 - Learn to implement a hit counter using HTML/JS/programming language
 - Integrate and display hit counter results on websites
 - Customize hit counter appearance and functionality for website needs
 - Enhance web dev and data analysis skills by tracking website traffic for informed decisions
- >
- ### What is a Hit Counter?



A hit counter is a tool used by website owners to track the number of visits or hits to their website. It is often displayed as a graphical representation of the number of visits, and it provides valuable information to website owners about the popularity and usage of their website.

>

How a Hit Counter Works:

A hit counter works by counting the number of times a page on a website is accessed. When a user visits a page on the website, the hit counter code sends a request to a server, which increments the counter by one. This information is then displayed on the website as a hit counter.

>

Why Use a Hit Counter:

Hit counters are useful for website owners for several reasons. Firstly, they provide a way to track the number of visitors to the site, which

helps the website owner understand the popularity of their website and make decisions about how to improve it.

>

Secondly, hit counters can be used to track the success of different marketing campaigns by measuring the number of visitors to the site before and after the campaign.

>

Finally, hit counters provide a way to monitor the performance of different pages on a website, by measuring the number of visits to each page.

>

In conclusion, a hit counter is a useful tool for website owners to track the popularity and usage of their website. By understanding the number of visits and the performance of different pages, website owners can make informed decisions to improve their websites and attract more visitors.

>

Examples:

Simple Text Hit Counter: This type of hit counter displays the number of visitors in a simple text format. This can be implemented using basic HTML and JavaScript.

>

Image-based Hit Counter: This type of hit counter uses a small image to display the number of visitors. This can be implemented using basic HTML, JavaScript and PHP.

>

Graphical Hit Counter: This type of hit counter displays the number of visitors in a graphical format, such as a bar or pie chart. This can be implemented using JavaScript and PHP.

>

Animated Hit Counter: This type of hit counter animates the numbers as they change, to show the number of visitors. This can be implemented using JavaScript and PHP.

>

Log File Hit Counter: This type of hit counter uses a log file to store information about the number of visitors to the website. The information can then be displayed in various formats, such as a simple text or graphical display.

>

Example of a hit counter in JavaScript:

>

A simple hit counter in HTML and JavaScript that utilizes a free third-party API is a more suitable example for a real-world use case. This example uses the “CountAPI” (<https://countapi.xyz/>) service to create and maintain the hit counter.

>

1. Create an index.html file and paste the following code:

```

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>Hit Counter Example</title>
    <script>
        async function updateHitCounter() {
            const namespace = 'example-website'; // Replace with your
desired namespace
            const key = 'homepage'; // Replace with your desired key
            const response = await
fetch(`https://api.countapi.xyz/hit/${namespace}/${key}`);
            const data = await response.json();
            document.getElementById("hitCounter").innerHTML =
data.value;
        }
    </script>
</head>
<body onload="updateHitCounter()">
    <h1>Hit Counter Using CountAPI</h1>
    <p>This page has been visited <span id="hitCounter">0</span>
times.</p>
</body>
</html>

```

In this example, replace **your-namespace** and **your-key** with custom values that uniquely identify your hit counter. The **updateHitCounter** function fetches the current hit count from CountAPI, increments it, and updates the **hitCounter** span element with the new count.

>

2. Open the index.html file in your web browser, and you'll see the hit counter increment each time you refresh the page.

>

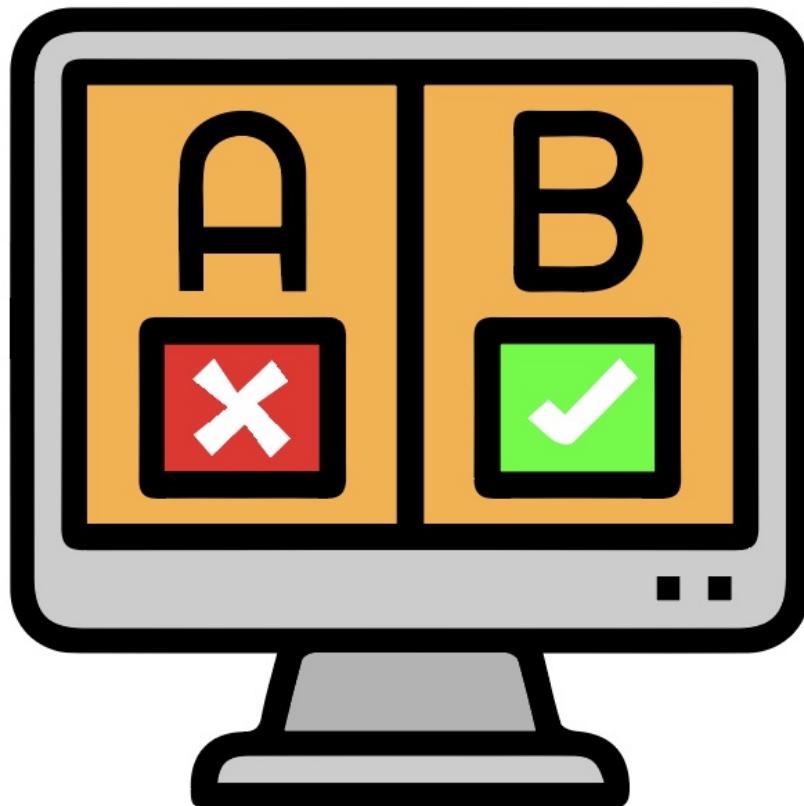
This hit counter utilizes a third-party service to store and manage the hit count, making it suitable for real-world usage. However, if you require more control and scalability, consider implementing server-side tracking or using a more comprehensive analytics service like Google Analytics.

A/B Testing

A/B Testing

Goals:

- Understand the purpose of A/B testing in website optimization and digital product improvement.
- Learn to design and conduct basic A/B tests.
- Use A/B testing tools and techniques to collect and analyze data.
- Make informed decisions based on A/B test results.
- Enhance skills in web development, UX design, and data analysis through A/B testing.



A/B testing is a method of comparing two versions of a website or a marketing campaign to determine which one performs better. This process involves randomly dividing website visitors or target audiences into two groups. The first group is shown the original version of the website or campaign (referred to as "A"), while the second group is shown a variation of it (referred to as "B"). By measuring the conversion rate and other key performance indicators of each group, businesses can determine which version of the website or campaign is

more effective.

>

A/B testing is a crucial component of modern digital marketing and website optimization. By comparing two variations of a website or campaign, businesses can gain valuable insights into what resonates with their audience and what doesn't. This information can then be used to make informed decisions about the design and content of their website or campaign, leading to more effective results.

>

A/B testing can be applied to a variety of different elements, including website layout, color scheme, headlines, images, call-to-action buttons, and more. By testing different combinations of these elements, businesses can find the combination that provides the best results for their specific audience.

>

It's important to note that A/B testing should be an ongoing process, not a one-time event. As customer preferences change and new technologies emerge, businesses must continually adapt and test their online presence to ensure they're providing the best possible experience for their audience.

>

In conclusion, A/B testing is a valuable tool for businesses looking to optimize their online presence and drive more revenue. By continually testing and optimizing different elements of their website or marketing campaign, businesses can make data-driven decisions that lead to improved results and a better user experience.

>

Example use case scenario 1:

A clothing retailer wants to increase the conversion rate on its product detail page (PDP). The retailer creates two versions of the PDP: Version A, the original version, and Version B, which includes product reviews and testimonials.

>

The retailer uses A/B testing to randomly divide website visitors into two groups. Group A sees Version A of the PDP, while Group B sees Version B of the PDP. Over the next two weeks, the retailer tracks the conversion rate of each group.

>

At the end of the two weeks, the retailer discovers that Group B had a higher conversion rate compared to Group A. The retailer then concludes that the addition of product reviews and social proof on the PDP has a positive impact on the conversion rate.

>

Based on this data, the retailer decides to implement Version B of the PDP for all visitors. The retailer can then continue to run A/B tests on different elements of the PDP to further optimize its conversion rate.

>

This example demonstrates how A/B testing can be used to make data-

driven decisions about the design and content of a website. By testing and optimizing different elements, businesses can continuously improve their online presence and drive more revenue.

>

Example use case scenario 2:

A financial services company wants to increase the click-through rate on its email marketing campaigns. The company creates two versions of its email marketing campaign: Version A, the original version, and Version B, which includes a personalized subject line and a different call-to-action.

>

The company uses A/B testing to randomly divide its email subscribers into two groups. Group A receives Version A of the email marketing campaign, while Group B receives Version B of the email marketing campaign. Over the next week, the company tracks the click-through rate of each group.

>

At the end of the week, the company discovers that Group B had a higher click-through rate compared to Group A. The company then concludes that the personalized subject line and the different call-to-action in Version B had a positive impact on the click-through rate.

>

Based on this data, the company decides to implement Version B for all future email marketing campaigns. The company can then continue to run A/B tests on different elements of its email marketing campaigns, such as the subject line, the call-to-action, and the email content, to further optimize its click-through rate.

>

This example demonstrates how A/B testing can be used to make data-driven decisions about the content and design of email marketing campaigns. By testing and optimizing different elements, businesses can improve their email marketing performance and drive more revenue.

Tools available for A/B Testing:

Tools available for A/B Testing:

- **Google Optimize:** A free A/B testing tool offered by Google that allows businesses to test different versions of their website to see which one performs better. As an exercise, you can go here follow the instructions and set up your own website A/B test:
<https://support.google.com/optimize/answer/6211930?hl=en>
>
- **Optimizely:** A popular A/B testing and website optimization platform that offers a range of testing and personalization capabilities.
>
- **VWO:** A cloud-based website optimization platform that allows businesses to perform A/B tests, split tests, and multivariate tests on their websites.
>
- **Unbounce:** A landing page optimization platform that offers A/B testing and personalization capabilities.
>
- **Convert:** An A/B testing and optimization platform that helps businesses improve their website's performance and conversion rates.
>
- **Adobe Target:** An enterprise-level A/B testing and personalization platform that integrates with Adobe Experience Cloud.
>
- **Crazy Egg:** A heat mapping and A/B testing tool that helps businesses understand how visitors interact with their website.
>

These are just a few of the many A/B testing tools available. The right tool for a particular business will depend on its specific needs, budget, and level of technical expertise.

>

Why A/B Testing is Important:

A/B testing is an important tool for businesses looking to optimize their online presence and drive better results. In this section, we will discuss the key benefits of A/B testing and why businesses need to implement it.

>

- **Improving Conversion Rates**
 - A/B testing can help businesses improve conversion rates by identifying which elements of a website or marketing campaign have the greatest impact and make improvements accordingly.
- **Enhancing User Experience**

- A/B testing can help businesses improve user experience by understanding what their audience responds to, creating higher engagement and customer satisfaction.

>

- **Driving Revenue**

- A/B testing can drive revenue by improving conversion rates, enhancing user experience, and generating more leads and sales, resulting in financial success and goal achievement for businesses.

>

- **Reducing Risk**

A/B testing reduces the risk of negative changes to a business's website or marketing campaign by testing changes before making them permanent, ensuring any changes have a positive impact and avoiding costly mistakes.

>

In conclusion, A/B testing is an important tool for businesses looking to optimize their online presence and drive better results. By testing different elements of their website or marketing campaign, businesses can improve conversion rates, enhance the user experience, drive more revenue, and reduce the risk of negative changes. As a result, A/B testing is an essential tool for any business looking to succeed in the digital landscape.

Conclusion & Takeaways

Conclusion & Takeaways

In conclusion, understanding SEO score checker tools can help improve a website's visibility in search engine results, while properly implementing a robots.txt file can prevent search engine crawlers from indexing certain pages. A/B testing can also provide valuable insights into the effectiveness of different website elements and inform decisions for optimizing user experience and conversion rates.

>

Attribution

- (n.d.-f). Surprised-talking-robot-speech-bubbles-chatbot-dialog-online-lesson. Freepik. https://www.freepik.com/free-vector/surprised-talking-robot-speech-bubbles-chatbot-dialog-online-lesson_3734224.htm#query=robots%20txt&position=23&from_view=search&track=ais

Website Performance

Website Performance

Goals

By the end of this case you will:

- Understand the various factors that impact website performance, including load time, the number of scripts and stylesheets, image optimization, and caching.
- Become proficient in using tools such as Pagespeed Insights and Lighthouse to analyze website performance and identify performance bottlenecks.
- Learn how to generate a report of recommendations, prioritize improvement actions based on their potential impact, and optimize website performance for both mobile and desktop devices.

>

Introduction



Website performance is an essential aspect of modern websites, as it directly impacts the user experience and search engine optimization. A

slow website can lead to a high bounce rate, lower conversion rates, and reduced search engine rankings. In this lesson, we will cover the various factors that impact website performance and how to optimize them.

Load Time

Load Time

The load time of a website is a critical factor in the overall user experience. A website that takes too long to load can lead to a high bounce rate, lower conversion rates, and reduced search engine rankings.

>

The load time of a website is **the time it takes for a page to fully load in a user's browser**. The size of the website, the number of images, videos, and other multimedia content, and the number of scripts and stylesheets all play a role in determining load time. To improve the load time of your website, it's important to consider these factors.

>

Factors that Impact Load Time:

The load time of a website is influenced by several factors, including:

- **Size of the website:** The larger the website, the longer it takes to load.
- **Number of images, videos, and other multimedia content:** These types of content are typically larger in size and can slow down the load time.
- **Number of scripts and stylesheets:** Scripts and stylesheets are an essential part of website functionality, but they can also slow down the load time.

>

Examples of Load Time Impact:

Here are a few examples of how load time can impact a website:

- **User Experience:** A slow-loading website can frustrate users and lead to a high bounce rate. Users are more likely to abandon a website if it takes too long to load.
- **Search Engine Optimization:** Search engines like Google consider load time as a ranking factor. A slow website can result in a lower search engine ranking, which can impact visibility and traffic.
- **Conversion Rates:** A slow website can also reduce conversion rates, as users are less likely to complete a purchase or sign up for a service if the website takes too long to load.

>

Case 1: Question: Large Website Size

Async and Defer Scripts

Async and Defer Scripts

Async and Defer are attributes that can be added to the script tag to control how and when the script is loaded. They are used to manage the loading and execution of external scripts in order to optimize the performance of a website.

Async Scripts

Async: Scripts marked with the async attribute means a script loads in the background and doesn't block the page from rendering. The script runs as soon as it's finished downloading. Once the script has finished downloading, it is executed immediately. This is useful for scripts that do not need to be executed as soon as the page loads and do not depend on the completion of other scripts. This helps improve page load speed and allows multiple scripts to run independently.

>

Here's an example of how that looks:

>

```
<script async src="example.js"></script>
```

>

In this example, the script file "example.js" is loaded in the background, allowing the rest of the page to continue loading while the script is downloading. Once the script has finished downloading, it will be executed immediately.

>

Defer Scripts

Scripts marked with the defer attribute are loaded and executed in the order they appear in the HTML, after the page has finished loading. This is useful for scripts that need to be executed in a specific order or are dependent on the completion of other scripts.

>

Here's an example of how that looks:

>

```
<script defer src="example1.js"></script>
<script defer src="example2.js"></script>
```

In this example, both script files “example1.js” and “example2.js” are loaded using the defer attribute. The browser will wait until the page has finished loading before executing the scripts. The scripts will be executed in the order they appear in the HTML, so in this case “example1.js” will be executed first and then “example2.js”. This is useful if the scripts are dependent on each other or need to be executed in a specific order.

Exercise: Case Study

You have a webpage with multiple external scripts. Your goal is to optimize the performance of the webpage. You have three external scripts:

1. “A.js”
1. “B.js”
1. “C.js”

Here is the scenario:

- “A.js” is not dependent on any other scripts and does not need to be executed immediately when the page loads.
- “B.js” needs to be executed in a specific order and depends on the completion of “A.js”.
- “C.js” does not need to be executed immediately when the page loads and does not depend on any other scripts.

1. Decide which of the scripts should use the “async” attribute and which should use the “defer” attribute. Then write the script tags for each of the external scripts, using either “async” or “defer” as appropriate. (eg. `<script async src="etc.js"></script>`)
2. Explain why you chose to use either “async” or “defer” for each script.

Answer:

1. The script tags for each of the external scripts:

```
<script async src="A.js"></script>
<script defer src="B.js"></script>
<script async src="C.js"></script>
```

2. “A.js” was given the “async” attribute because it does not need to be executed immediately when the page loads and does not depend on any other scripts.
“B.js” was given the “defer” attribute because it needs to be executed in a specific order and depends on the completion of “A.js”.
“C.js” was given the “async” attribute because it does not need to be executed immediately when the page loads and does not depend on any other scripts.

Serialization

Serialization

Serialization is the process of converting structured data, such as objects or arrays, into a format that can be stored or transmitted over the internet. The process of serialization allows data to be represented in a compact, easy-to-manipulate format that can be efficiently transmitted and stored.

>

One common use case for serialization is transmitting data between a client (such as a web browser) and a server. By serializing data before sending it from the server to the client, the amount of data that needs to be transmitted can be reduced, resulting in faster load times and improved performance.

>

A good example of understanding serialization is thinking of it like putting your stuff into a suitcase before you go on a trip. Just like you pack your clothes, books, and gadgets into the suitcase so they're ready to go with you, serialization takes data in your computer and packs it into a format that can be easily transported to another place, like from your computer to a server on the internet. The packed data is called a "serialized object." Just like you can unpack your suitcase when you reach your destination, a computer program can "deserialize" the serialized data to get the original information back.

>

There are several popular serialization formats, including JSON, XML, and binary formats like BSON or Protocol Buffers.

>

Example of serializing an object to JSON:

```
let object = {
    name: 'John Doe',
    age: 30,
    address: '123 Main St'
};

let serialized = JSON.stringify(object);
```

Example of deserializing a JSON string back to an object:

```
let deserialized = JSON.parse(serialized);
```

Serialization can also be used for storing data on disk or in a database, for transferring data between different systems or programming languages, or for transmitting data between different layers of an application. By using serialization, you can simplify the process of transmitting and storing complex data structures, which can improve the overall efficiency and scalability of your applications.

Minify Options

Minification is a technique used in web development to reduce the size of JavaScript and CSS files. The process involves removing all unnecessary characters, such as white spaces, comments, and line breaks, without changing the functionality of the code. By reducing the size of these files, the time required to download and parse them is also reduced, which can lead to a faster loading time for a website.

Minification is an important step in optimizing the performance of a website, especially for mobile users who may have limited bandwidth or slow connections. Minified files can also reduce the amount of data transferred, resulting in cost savings for users on limited data plans.

Here's some examples of CSS and Javascript Minifications:

CSS minification:

Before minification:

```
body {  
    background-color: white;  
    font-family: Arial, sans-serif;  
    font-size: 14px;  
}
```

After minification

```
body{background-color:white;font-family:Arial,sans-serif;font-size:14px;}
```

Now here's a Javascript example:

```
Before minification:  
function addTwoNumbers(a, b) {  
    return a + b;  
}
```

After minification:

```
>  
function addTwoNumbers(a,b){return a+b;}  
>
```

Minification can be done manually or using tools, such as online minifiers or build tools like Grunt or Gulp. The process of minifying a file can help improve the load time and overall performance of a website.

Caching

Caching

Caching is a technique that involves temporarily storing data in a cache, or a temporary storage area, to speed up the retrieval of that data. This can be especially useful for web pages and applications, as it can reduce the amount of data that needs to be transmitted over the network, thus improving the overall performance of the website.

>

Several **different types of caching** can be used to improve website performance:

>

Browser caching: This type of caching involves storing frequently used resources, such as images and CSS files, in the cache of the user's web browser. This means that, when the user visits the same website again, these resources can be retrieved from the cache instead of being requested from the server, which can significantly reduce the amount of data transmitted over the network.

>

Server caching: This type of caching involves storing frequently used data on the server itself. This can be useful for websites and applications that have dynamic content that changes frequently, as it can reduce the amount of processing that needs to be done on the server and speed up the delivery of content to the user.

>

CDN caching: Content Delivery Networks (CDNs) are networks of servers located in different locations around the world. They can be used to cache frequently used resources, such as images and videos, so that they can be quickly delivered to users regardless of their location.

>

Here's an example of how caching can be used to improve website performance:

>

A user visits a website for the first time and requests a page. The server generates the HTML, CSS, and JavaScript needed to render the page, and sends it back to the user's browser. The browser stores a copy of these resources in its cache so that they can be quickly retrieved the next time the user visits the same page.

>

When the user visits the same page again, the browser can retrieve the resources from its cache instead of requesting them from the server. This can significantly reduce the amount of data that needs to be transmitted over the network, thus improving the overall performance of the website.

>

Exercise: Configuring optimization plugin for your Wordpress website

>

1. Choose an optimization plugin: There are several optimization plugins available for WordPress, such as WP Rocket, W3 Total Cache, and Autoptimize. For this example, we'll use **Autoptimize**, which is a popular and easy-to-use plugin that covers script loading, CSS and JS minification, and more.

2. Install the plugin: Log in to their WordPress admin dashboard, then navigate to "Plugins" > "Add New". Search for "Autoptimize" and click "Install Now" on the plugin card. After installation, click "Activate".

>

3. Configure the plugin: Once the plugin is activated, go to "Settings" > "Autoptimize" to configure the plugin settings. In the Autoptimize settings, you can enable the following options:

a. HTML Options: Check "Optimize HTML Code" to minify HTML.

b. JavaScript Options: Check "Optimize JavaScript Code" to minify JS files. To load scripts asynchronously, check "Also aggregate inline JS" and "Force JavaScript in head".

c. CSS Options: Check "Optimize CSS Code" to minify CSS files. To load CSS asynchronously, check "Generate data: URIs for images" and "Inline and Defer CSS".

>

4. Enable page caching: Although Autoptimize doesn't include page caching by default, you can install an additional plugin to enable this feature. One popular option is the "Cache Enabler" plugin. To install it, go to "Plugins" > "Add New" and search for "Cache Enabler". Click "Install Now" and then "Activate". After activation, go to "Settings" > "Cache Enabler" to configure the caching settings.

>

3. Test the website: After configuring the optimization and caching plugins, test your personal websites to ensure everything is working correctly. You can use tools like Google PageSpeed Insights or GTmetrix to analyze your website's performance and identify any remaining areas for improvement.

>

By following these steps, you can optimize their personal websites by loading scripts asynchronously, minifying CSS and JS files, and enabling page caching, which will result in improved website performance and a better user experience.

Conclusion & Takeaways

Conclusion & Takeaways

In conclusion, the load time of a website plays a critical role in determining user experience, search engine rankings and conversion rates. Several factors such as website size, number of images, videos, scripts and stylesheets influence the load time and optimization of these elements can improve the speed. “Async” and “Defer” attributes can be added to the script tag to manage the loading and execution of external scripts, which also improve the performance. These are all important factors to be aware of to ensure that your website is running smoothly and loading quickly!

>

Attribution

- (n.d.-c). Digital-marketing-plan-smm-business-online-analytical-interface-display-advertising-analyst-studying-statistical-data-brand-rating. Freepik. https://www.freepik.com/free-vector/digital-marketing-plan-smm-business-online-analytical-interface-display-advertising-analyst-studying-statistical-data-brand-rating_11669164.htm#query=website%20performance&position=6&from_view=search&track=ais

Image Optimization

Image Optimization

Goals

By the end of this case you will:

- Understanding the srcset attribute: The learner should be able to explain the purpose and use of the srcset attribute in HTML for image optimization.
- Utilizing Tinypng for image compression: The learner should be able to effectively use Tinypng to reduce the size of images without sacrificing quality, in order to improve website performance.
- Implementing WebP image format: The learner should be able to identify the benefits of using WebP image format, implement it in their website, and compare its performance with other image formats.

>

Introduction

Image optimization is an important aspect of website development that plays a significant role in determining the load time and overall user experience of a website. Large, unoptimized images can slow down the load time of a website and negatively impact the user experience. In this lesson, we will discuss the various factors that contribute to image size, the importance of image optimization, and the various techniques used to optimize images for the web. By understanding and utilizing these techniques, you can create a faster, more efficient website that provides a better user experience for your users.

Image Optimization

Image Optimization

Image optimization is a crucial aspect of website performance, as images can often be a significant source of slow load times. Here are some of the ways you can optimize images to improve website performance:

>

srcset attribute: The srcset attribute is a HTML attribute that allows you to specify different versions of an image for different devices and resolutions.

>

For example, you can provide a smaller version of an image for smaller screens, and a larger version of the same image for larger screens. This can help reduce the amount of data that needs to be transmitted, which can improve load times on devices with high pixel density displays.

>

Here's an example:

```

```

>

Read more: <https://html.com/attributes/img-srcset/#ixzz7u4y6PvNq>

OR you could watch this video as well: <https://www.youtube.com/watch?v=SyVKRnusyqM>

Tinypng (<https://tinypng.com/>): Tinypng is a tool that can be used to compress images without losing quality. This can significantly reduce the size of images and improve load times. Tinypng uses advanced compression algorithms to reduce the file size of PNG and JPEG images.

File formats: Consider using WebP, a modern image format that provides better compression than other image formats such as PNG and JPEG. WebP images can be up to 25-34% smaller in size than their PNG or JPEG counterparts, which can significantly reduce load times and improve the performance of your website.

>

Here are some ways you can convert images to WebP:

>

1. Adobe Photoshop: Photoshop is a widely-used image editing software that can save images in WebP format. To do this, you need to install the WebP plugin for Photoshop, available at <https://github.com/webmproject/WebPShop>. Once the plugin is installed, open the JPEG image in Photoshop, then go to “File” > “Save As” or “File” >

“Export” > “Save for Web (Legacy)” and choose “WebP” from the format dropdown menu. Adjust the quality settings if needed and save the file to see the size difference.

>

2. **GIMP** (<https://www.gimp.org/>): GIMP is a free, open-source alternative to Photoshop that also supports WebP format. To save an image in WebP format, open the JPEG image in GIMP, then go to “File” > “Export As”. In the export dialog, choose “WebP” from the file format dropdown menu, adjust the quality settings, and save the file.

3. **Online Image Converters:** For those who prefer not to install software, there are several online image converters that support WebP format, such as Squoosh (<https://squoosh.app/>) and Convertio (<https://convertio.co/jpeg-webp/>). Upload the JPEG image to the converter, choose the WebP format, adjust the quality settings, and download the converted file.

>

Example:

```
<picture>
  <source type = "image/webp" srcset = "image.webp">
    <img src = "image.jpg" alt = "image description">
  </picture>
```

By using these techniques and tools, you can optimize images to reduce their size and improve the performance of your website. This can result in a faster, more enjoyable experience for your users.

Conclusion & Takeaways

Conclusion & Takeaways

In conclusion, image optimization is an important factor in website performance as heavy images contribute to slow load times. To optimize images, you can use the **srcset** attribute to provide different versions of an image for different devices and resolutions, use Tinypng to compress images without losing quality, and consider using the WebP image format, which provides better compression than other formats. By implementing these techniques and tools, you can improve the performance of your website and provide a faster, better experience for your users.

Page 1

PageSpeed Insights

Goals

By the end of this case you will:

- Understand the various metrics used by PageSpeed Insights to evaluate website performance
 - Recognize the importance of optimizing website performance and accessibility, as well as appreciate the role of best practices and SEO in improving a website's visibility and user experience.
 - Implement specific recommendations provided by PageSpeed Insights
- >
- ### Introduction



PageSpeed Insights

PageSpeed Insights (<https://pagespeed.web.dev/>) is a free tool offered by Google that also merged with Google's open-source tool Lighthouse score check. PageSpeed Insights provides website owners and developers with information about their website's performance and suggestions for improvement.

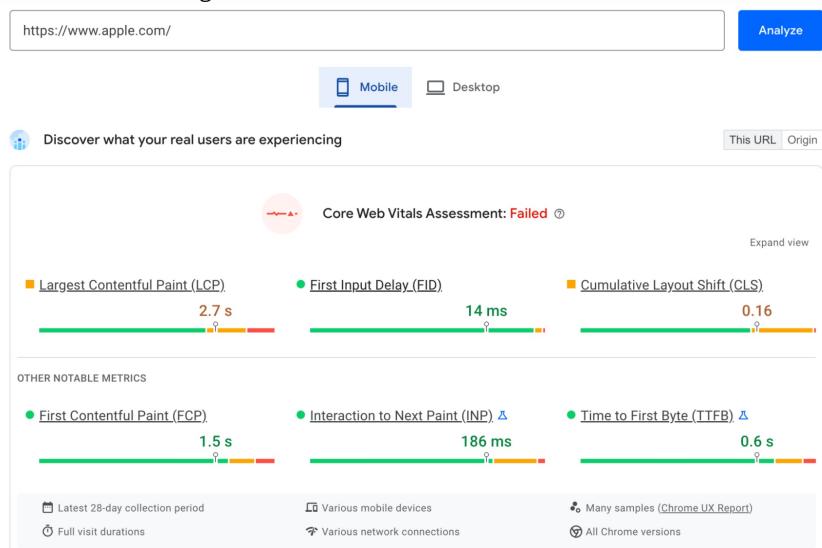
What is PageSpeed Insights?

What is PageSpeed Insights?

PageSpeed Insights (PSI) evaluates the user experience of a website on both desktop and mobile devices, offering recommendations for improvement. The tool provides two types of data, lab and field, to report on the performance of a page. Lab data is collected in a controlled environment and is helpful for identifying problems, but may not reflect real-world performance issues. On the other hand, field data provides a true representation of the user experience, although it has a more limited range of metrics.

>

Visit <https://pagespeed.web.dev/> and analyze www.apple.com. The results will look something like the screenshot below.



You can toggle between the **Mobile** view and the **Desktop** view.

The real-user experience data in PSI is powered by the Chrome User Experience Report (CrUX) dataset. It displays information from real users over the past 28 days, including:

>

Largest Contentful Paint (LCP) - measures the loading time of the largest element (image, text block, video, etc.) that is visible on a user's screen. It provides a user-centric performance metric that represents the loading experience of a user visiting the website.

>

First Input Delay (FID) - measures the responsiveness of a website. It measures the time from when a user first interacts with a page (i.e. clicking a button or typing in a form) to the time when the browser is able to respond to that interaction. The lower the FID, the better the user

experience.

>

Cumulative Layout Shift (CLS) - measures the stability of a website's layout as it is being loaded. The score is used to quantify the amount of unexpected layout shifts that occur on a website.

>

First Contentful Paint (FCP) - measures the time it takes for the browser to render the first meaningful element of the page. This can be a text, an image, or any other content that is visible to the user. The goal is to have the FCP occur as quickly as possible to provide a better user experience and reduce the bounce rate.

>

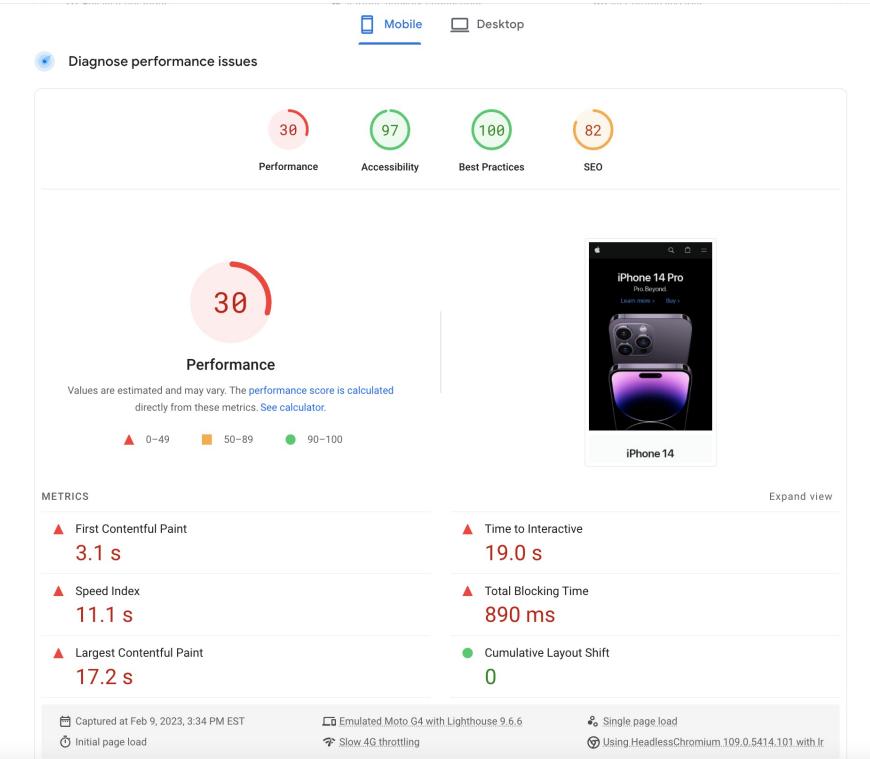
Interaction to Next Paint (INP) - measures the time between when a user interacts with a page (for example, clicking a link) and the time it takes for the browser to paint the next frame of the page. In other words, it's a measure of how quickly a page responds to user input. The lower the score, the better it is.

>

Time to First Byte (TTFB) - measure the time it takes for a browser to receive the first byte of response data from a web server after making an HTTP request. It represents the time that a user must wait before they start to receive content.

>

As you scroll down the page, the section below these metrics addresses performance issues.



Performance refers to how quickly a webpage loads and displays its content to the user. PageSpeed Insights evaluates a webpage's performance

based on various metrics, such as time to first byte, time to display content, and total load time.

>

Accessibility refers to how well a webpage can be used by users with disabilities. PageSpeed Insights considers factors such as the availability of alternative text for images, proper use of heading tags, and the use of descriptive link text.

>

Best practices refer to the recommended standards and guidelines for optimizing webpages for performance and accessibility. PageSpeed Insights provides specific recommendations for improving a webpage's performance and accessibility, such as minifying CSS and JavaScript files, optimizing images, and reducing the number of requests made to the server.

>

SEO (Search Engine Optimization) refers to the process of improving a website's visibility in search engine results pages. PageSpeed Insights provides recommendations for improving a webpage's SEO, such as ensuring that the page has a valid title and description, and that the page's content is easily crawlable by search engines.

>

Under each of these, there are breakdowns and suggestions about what to improve and how to improve it.

>

Some of the recommendations provided by PageSpeed Insights include:

- Minifying CSS and JavaScript files to reduce their size and improve load time
- . Compressing images to reduce their size without sacrificing quality
- Implementing browser caching to reduce the amount of data that needs to be transferred on subsequent page loads
- Optimizing the order in which resources are loaded to reduce the time it takes for a page to become interactive
- Reducing the number of HTTP requests required to load a page

>

Scroll further down the analysis results page to read the tool's recommendations for improving the performance of www.apple.com.



PageSpeed Insights provides separate scores for mobile and desktop versions of a website, reflecting the different performance considerations for each platform.

>

Mobile scores typically focus on the speed and usability of a page on smaller screens, with a greater emphasis on optimization for lower-end devices and cellular networks. Some of the factors that PageSpeed Insights takes into account when scoring mobile performance include the size of the page, the time it takes to load, and the use of appropriate coding practices such as compression and minification.

>

Desktop scores, on the other hand, focus on optimizing the performance of a page on larger screens and high-speed networks. Factors such as server response time, the use of caching, and the optimization of images and other media assets are also taken into consideration.

>

It's important to note that both mobile and desktop scores are affected by similar performance optimization techniques. For example, improving the load time of a page, reducing its size, and optimizing its images and media assets will generally improve scores for both mobile and desktop versions of the page.

>

In conclusion, it is crucial to optimize the performance of a website for both mobile and desktop platforms to ensure the best possible user experience for all visitors, regardless of their device or network.

>

Overall, PageSpeed Insights is a useful tool for improving the performance, accessibility, best practices, and SEO of a webpage, which can lead to a better user experience and increased visibility in search engine results.

Conclusion & Takeaways

Conclusion & Takeaways

PageSpeed Insights is a great tool for evaluating the user experience and performance of a website on both desktop and mobile devices. The report that it provides with recommendations for improvement helps you make adjustments to various metrics such as loading time, responsiveness, layout stability, and optimization for search engines. When building a website and working with landing pages it's important to ensure that they are optimized and this tool is a great place to start.

>

Attribution

- About PageSpeed Insights. (n.d.). Google Developers.
<https://developers.google.com/speed/docs/insights/v5/about>

Analyze a Website

Analyze a Website

Goals

By the end of this project you will:

- Understand how to use PageSpeed Insight tool works
- Use the tool to get insight into possible page improvements
- Decide on 3 page improvements you can make that will optimize your website

>

Instructions

Exercise: Analyzing and Improving Website Performance with PageSpeed Insights

>

Objective: In this activity, you will learn how to use Google's PageSpeed Insights tool to analyze a website's performance and identify areas for improvement.

>

Generate a PageSpeed Insight report and report the 3 most urgent Performance recommendations and how to resolve them. You can choose popular websites or your personal website.

>

1. Visit the PageSpeed Insights tool (<https://pagespeed.web.dev/>) and enter the URL of their assigned website.

>

2. Analyze the website's performance on both mobile and desktop devices. Take note of the overall scores and the individual metrics like Largest Contentful Paint (LCP), First Input Delay (FID), Cumulative Layout Shift (CLS), etc.

>

3. Explore the recommendations provided by the tool for improving the website's performance, accessibility, best practices, and SEO.

>

4. After analyzing the recommendations, choose at least three improvements that you think would have the most significant impact on your assigned website's performance.

>

5. Write down your findings, including the overall scores, individual metrics, and the three chosen improvements.

>

By completing this activity, you will gain hands-on experience using PageSpeed Insights to analyze and improve website performance. This

knowledge will be valuable for future web development projects and understanding the importance of website optimization.

>