Summer Fellowship Report

On

A Drupal Website for Library: Design and Theming

Submitted by

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Under the guidance of

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Abhiraj K R
Place : Kerala
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Chapter 1

Introduction

This report has been prepared for the internship that has been done for FOSSEE under the topic "Web Development" in order to study the practical aspects of the Drupal and its implementation with the purpose of learning and exploring the mentioned field and for professional development. In this report, I will be discussing the nuts and bolts of the library website that we have created using Drupal 8 starting from the Drupal installation to custom theme development. The aim of this internship was to familiarise with the implication of Drupal and uses of concerned theoretical knowledge and clarifying the career goals. I have successfully completed the internship and would love to compile this report as the summary.

1.1 Tasks Assigned

- Primary task was to create a custom theme for the library website, which is compatible with Drupal 8.
- Create a controlled navigation bar.
- Deploy Drupal 8 and manage the basic settings and layout of the site.

Chapter 2

Basic Understanding

2.1 Content Management System

A content management system (CMS) is a software tool that lets users add, publish, edit, or remove content from a website, using a web browser on a smartphone, tablet, or desktop computer. Typically, the CMS software is written in a scripting language, and its scripts run on a computer where a database and a web server are installed. The content and settings for the website are usually stored in a database, and for each page request that comes to the web server, the scripts combine information from the database and assets (JavaScript files, CSS files, image files, etc. that are part of the CMS or have been uploaded) to build the pages of the website. The combination of the operating system that the CMS runs on, the scripting language it is written in, the database it stores its information in, and the web server that runs the scripts to retrieve information and return it to the site visitor's web browser is known as the stack that the CMS runs on; the commonly used combination of the Linux operating system, Apache web server, MySQL database, and PHP scripting language is known as the LAMP stack.

2.2 Drupal

Drupal is a flexible CMS based on the LAMP stack, with a modular design allowing features to be added and removed by installing and uninstalling modules, and allowing the entire look and feel of the website to be changed by installing and uninstalling themes. The base Drupal download, known as Drupal Core, contains the PHP scripts needed to run the basic CMS functionality, several optional modules and themes, and many JavaScript, CSS, and image assets. Many additional modules and themes can be downloaded from the Drupal.org website. Drupal can also run on other technology stacks:

- The operating system can be Windows or Mac OS instead of Linux.
- The web server can be Nginx or IIS instead of Apache.
- The database can be PostgreSQL or SQLite instead of MySQL, or a MySQL-compatible replacement such as MariaDB or Percona.

Other operating systems, web servers, and databases can also be made to work; however, the scripts that the software uses are written in PHP, so that cannot be changed.

2.3 Modules

A module is a set of PHP, JavaScript, and/or CSS files that extends site features and adds functionality. You can turn the features and functionality on by installing the module, and you can turn it off by uninstalling the module; before uninstalling, you may need to remove data and configuration related to the feature or functionality. Each module that is installed adds to the time needed to generate pages on your site, so it is a good idea to uninstall modules that are not needed. The core download provides modules for functionality such as:

- Managing user accounts (the core User module)
- Managing basic content (the core Node module) and fields (the core Field and Field UI modules; there are also core modules providing field types)
- Managing navigation menus (the core Menu UI module)
- Making lists, grids, and blocks from existing content (the core Views and Views UI modules)

2.3.1 Installing modules

Using the administrative interface

1. In the Manage administrative menu, navigate to Extend (admin/modules). The Extend page appears showing all the available modules in your site.
2. Check the boxes for the module or modules you want to install. For example, check the box for the core Activity Tracker module.
3. Click Install. The checked modules will be installed.

Using Drush

1. In the Manage administrative menu, navigate to Extend (admin/modules). The Extend page appears showing all the available modules in your site.
2. Find the machine name of the module you want to install, by expanding the information area for the module. For instance, the core Activity Tracker module's machine name is tracker.
3. Run the following Drush command to install the module: drush pm:enable tracker.

2.3.2 Uninstalling modules

Using the administrative interface

1. In the Manage administrative menu, navigate to Extend ¿ Uninstall (admin/-modules/ uninstall) where you will find the list of modules that are ready to be uninstalled.
2. Check the boxes for the modules you are uninstalling (Search, History, and Activity Tracker). Click Uninstall at the bottom of the page. Note You cannot uninstall a module if it is required by some other module(s) and/or functionality. For example, the core File module is required by the core Text Editor, CKEditor, and Image modules. It can't be uninstalled unless you uninstall its dependent module(s) and functionality first. A module that cannot be uninstalled yet will have a disabled checkbox, restricting you from uninstalling it.
3. Step 2 will prompt you to confirm the module uninstall request. Click Uninstall.

Using Drush

1. In the Manage administrative menu, navigate to Extend (admin/modules). The Extend page appears showing all the available modules in your site.
2. Find the machine name of the module you want to uninstall, by expanding the information area for the module. For instance, the core Activity Tracker module's machine name is tracker.
3. Run the following Drush command to uninstall the module: drush pm:uninstall tracker

2.4 Themes

A theme is a set of files that define the visual look and feel of your site. The core software and modules that run on your site determine which content (including HTML text and other data stored in the database, uploaded images, and any other asset files) is displayed on the pages of your site. The theme determines the HTML markup and CSS styling that wraps the content.The core software provides several basic themes with the core distribution. These themes have largely been designed and built by the community over the last several years and will all be good choices for building your first sites and becoming more familiar with how the core software works. Drupal is a well-established CMS so the market for 3rd party themes - both free and paid - is very robust. If none of the 3rd party options suit your needs, you'll need to create a custom theme. A custom theme can be as simple as a single CSS file that adds styling to the markup provided by the core software.

2.5 Distributions

Distributions provide site features and functions for a specific type of site as a single download containing the core software, contributed modules, themes, and pre-defined configuration. A distribution makes it possible to set up a complex site for a specific purpose, in fewer steps than installing and configuring elements individually. There are two main types of distributions:

2.5.1 Full-featured Distributions

A full-featured distribution is a project that provides a complete solution to set up a site for a specialized purpose, such as academic, business, government, non-profit, publishing, social, etc. For example, you could use an existing distribution for farmers markets to build your own website, or you could share your set-up for the farmers market site as a distribution for others to use.

2.5.2 Other Distributions

Distributions can also be quick-start tools that developers and site builders can use as a starting point.

2.6 Types of data

The data and information on your site is divided up into four types, which are edited, translated, and stored differently. These four types are:

2.6.1 Content

Information (text, images, etc.) meant to be displayed to site visitors. This type of information tends to be relatively permanent, but can normally be edited.

2.6.2 Configuration

Information about your site that is not content, but is also relatively permanent, and is used to define how your site behaves or is displayed. It is sometimes also displayed to site visitors, but tends to be smaller pieces of text (like field labels, the name of your site, etc.) rather than larger chunks that you'd normally think of as Content.

2.6.3 State

Information of a temporary nature about the current state of your site, such as the time when cron jobs were last run.

2.6.4 Session

Information about individual site visitors' interactions with the site, such as whether they are logged in and their cookies. This is technically a subtype of State information, since it is also temporary.

2.7 Regions in theme

Besides its primary content, a web page contains other content such as site branding (site name, slogan, and logo), navigation aids (menus, links, and icons), formatted text, and images. Each theme provides a set of named regions, such as Header, Content, and Sidebar, where site builders may choose to place their content. The available regions depend on the theme design. Only the Content region, which contains the primary content, is required; others are optional.

2.8 Content entity

A content entity (or more commonly, entity) is an item of content data, which can consist of text, HTML markup, images, attached files, and other data that is intended to be displayed to site visitors. Content entities can be defined by the core software or by modules. Content entities are grouped into entity types, which have different purposes and are displayed in very different ways on the site. Most entity types are also divided into entity sub-types, which are divisions within an entity type to allow for smaller variations in how the entities are used and displayed.

2.9 Fields

Within entity items, the data is stored in individual fields, each of which holds one type of data, such as formatted or plain text, images or other files, or dates. Field types can be defined by the core software or by modules. Fields can be added by an administrator on entity sub-types, so that all entity items of a given entity sub-type have the same collection of fields available. For example, the Vendor content type in the farmers market example might have fields for the vendor name, a logo image, website URL, and description, whereas the Basic page content type might only have fields for the title and page body. When you create or edit entity items, you are specifying the values for the fields on the entity item.

2.10 Modular content

Given that the content of your site is stored in a database, it is desirable to make the content modular, meaning that certain pages on your site, rather than being edited as a whole page, are instead generated automatically from other content items. For instance, in the farmers market site scenario, you might create individual content items for recipes. If the recipe content items have a field that keeps track of ingredients, then your site could include a composite page that would list recipes, and allow visitors to search for a recipe that contained some particular ingredient they had bought at the market.

2.11 Editorial workflow

An editorial workflow is the process organizations follow to create, review, edit, and publish content. Multiple people in different roles in the organization can be part of the process. For example, content creators could collect information and write content; editors could review, edit, ask for changes, and publish the content once it's ready to be shared with the audience. Later on, content revisions could go through a simple process for small changes, or a more complex process with reviews for larger changes.

2.12 Installation

2.12.1 Server Requirements

Disk space

The total amount of disk space needed for your site is not a fixed amount, as it depends on your site. The base files for the core software take up about 100 MB on the web server. You will need more space if you install additional modules or themes, and you'll also need space for media, backups, and other files generated by and uploaded to your site. The database also uses disk space, although that is typically not in the same area (and in some cases, not even on the same server) as that used by the site files.

PHP

PHP 7.2 or higher. PHP must be set up with a minimum memory size of 64MB; if you are running multiple modules on your site or using memory-intensive PHP-based command- line tools (such as Composer), considerably more memory than that may be needed. Certain PHP extensions are also required; the exact list of required PHP extensions depends on how you install the core software and which modules you are using on your site. Generally, hosting service providers have installed all the PHP extensions you will need. If you are self-hosting or running your site on your local computer, you will get error messages during installation if any required PHP extensions are missing, and should be able to install them and continue.

Web server

- Apache (Recommended)
  Apache is the most commonly used web server. The core software will work on Apache 2.x hosted on UNIX/Linux, OS X, or Windows that have the Apache mod_rewrite module installed and enabled. The Apache VirtualHost configuration must contain the directive AllowOverride All to allow the .htaccess file to be used.

- PHP Local Server
  You can temporarily run a local demo site on your computer using just PHP, without installing web server software.

- Nginx
  Nginx is a commonly used web server that focuses on high concurrency, performance and low memory usage. The core software will work on Nginx 1.1 or greater hosted on UNIX/Linux, OS X, or Windows. The ngx_htt_rewrite_module must be installed and enabled.

- Microsoft IIS
  Microsoft IIS is a web server and set of feature extension modules for use with Microsoft Windows. The core software will work with IIS 5, IIS 6, or IIS 7 if PHP is configured correctly. Because clean URLs are required, you may need to use a third party product. For IIS 7, you can use the Microsoft URL Rewrite module or a third party solution.

Database

Use one of the following databases:

- MySQL - 5.5.3 (MariaDB 5.5.20, Percona 5.5.8) or higher with an InnoDB-compatible primary storage engine

- PostgreSQL - 9.1.2 or higher

- SQLite - 3.4.2 or higher. Temporary local demo sites use SQLite, which is distributed aspart of PHP and doesn't require installing separate database software.

2.13 Additional Tools

2.13.1 Command-line tools

Drush and Drupal Console

Command-line tools provide an alternative to using the administrative interface for various operations on your site. Many site builders and maintainers have invested the time to install and learn a command-line tool, because:

- Administrative tasks are typically faster and less tedious when performed at the command line than in the user interface.

- You can write scripts that combine site-related commands with other commands on the server, to automate more complicated tasks.

- Command-line tools provide additional functionality not available via the administrative interface; for example, running database queries.

The most popular tools are Drush and Drupal Console. Drush has been available longer, and has commands for both the core software and contributed modules; Drupal Console started as a tool for module programmers, but has a growing list of commands for site builders. This guide documents commands from the latest stable version of Drush for many tasks; it does not document Drupal Console commands or commands for older versions of Drush, but you can look them up in the Drupal Console and Drush documentation.

2.13.2 Version control system

Git

A version control system is software that keeps copies of files and revision history in a repository, and allows you to add, delete, and update files. For a web site project, revision control software can help you:

- Test locally before deploying files on the live site
- Look at, compare with, and revert to previous versions of files
- Look at the added, changed, or deleted files before you commit the changes (update the repository)
- Merge changes from different team members together
- Keep files and configuration synchronized between local and live sites

There are many proprietary and open-source version control systems to choose from; a popular choice is Git, which is open-source software that runs on most computer platforms. Git is a distributed version control system that allows you to have one or more copies of your repository, which allows you to commit changes to a copy and then only push them to the repository you've designated as canonical when you're ready to share them with others. The canonical git repository can be hosted on your local computer or a server at your company, but many software projects and individuals host their Git repositories using third- party services provided by GitLab or GitHub.

2.13.3 Composer

Composer is a tool for managing PHP dependencies, where the developer specifies what version of each external library is needed, and Composer manages the process of downloading and installing the libraries. The core software is a primary user of Composer, because it makes use of several externally- developed software libraries, which must be downloaded and installed in order for the core software to work. When you install the core software, you either need to download an archive that contains compatible versions of the external libraries, or you need to run Composer to download the external libraries after the initial download. The Drush and Drupal Console command-line tools are also downloaded using Composer.Some contributed modules also make use of externally-developed software libraries; for example, a Facebook integration module might require Facebook's integration library to be installed for the module to work, and a geographical module might make use of a standard library of geographical functions. To install a module with external dependencies, you will need to run Composer

2.13.4 Devel

The contributed Devel module helps with development tasks such as debugging and inspecting code, analysing database queries, and generating dummy content.

2.14 Tools for module and theme developers

2.14.1 Drupal Console

Drupal Console is a command-line tool that generates boilerplate code and interacts with a Drupal site. It can generate, for example, block or form code, install modules and themes, and create dummy content. Drupal Console makes use of the Symfony Console.

2.14.2 Coder

Coder is a command-line tool that checks if your modules and themes comply with coding standards and other best practices. It can also fix coding standard violations.

2.14.3 Browser debugging tools

Web browsers such as Firefox and Chrome include tools that allow viewing, editing, debugging, and monitoring CSS, HTML, and JavaScript. You can open the debugging pane or window by right-clicking the mouse in an area of your window, and choosing ”Inspect” or ”Inspect element”.

2.15 Downloading the core software

Before you can build a site, you will need to first download the core software. Depending on your plans, there are several ways that you can download the core software:

2.15.1 Try a free online demo

If you are evaluating whether or not to use Drupal to build a site, you can use an online provider to get a demo installation of the core software in 20 minutes or less. See the Drupal.org page ”Try Drupal”.

2.15.2 Use a one-click installer from your hosting provider

If you choose to install the core software at your hosting provider, your hosting provider may have specific documentation and/or a one-click install that you can use. See Drupal.org’s list of hosting providers that support Drupal.

2.15.3 Use a pre-configured environment

Use a pre-configured environment or virtual machine that contains Drupal and all the required supporting software to install Drupal locally. See the section for your operating system under Drupal.org's Local server setup guide for possible options.

2.15.4 Download manually from the web site

If you plan to build a site without add-on modules that have complicated dependencies, you can download the core software, or a distribution that contains the core software and additional modules or themes, from the web site.

Steps

- Go to https://www.drupal.org and navigate to Build ¿ Download and Extend in the top-level menu
- If you want to download just the core software, click the Download Drupal zip or download tar.gz link, and save the file to your local machine.
- If you want to download a distribution, click the Distributions icon or link, choose a distribution from the list, click through to its project page, and click the link to download a zip or tar.gz file to your local machine.
- Upload the downloaded file to your hosting account. Log in to the control panel and navigate to the HTML directory. Save the file there.
- Uncompress the tar.gz or zip file, which will create a new directory. If you do not have terminal access, or your hosting server is not running Linux, your hosting control panel's file manager should provide a way to extract the files. If you have terminal access to your hosting server (running Linux), you can use a command like: tar -xzf drupal-8.3.2.tar.gz
- Delete the compressed file from the server, unless your unpacking method already deleted it
- Rename the directory or reconfigure your web hosting, so that the directory name matches the directory your web hosting is configured to use for your site.

2.15.5 Use Composer

If you plan to use the Drush tool , or if you are building a site that might use modules with complicated dependencies, you should use Composer to download the core software, because Composer will manage the dependencies properly. If you start your site by downloading manually, however, you can convert to using Composer to manage dependencies later.

Steps

If you are unable to install the Composer tool on your live server, you can follow the steps in any of the sections below on your local server, and then transfer any updated or added files to your live server. The recommended procedure is to make an archive or zip file of the new and changed directories, transfer the archive to your live server, delete the directories that have changed, and extract the archive. Make sure to check for updates and additions to the following files, in the root of your installation:

- vendor directory
- autoload.php
- composer.json
- composer.lock

Using Composer to download the core software Follow these steps if you have not yet downloaded or installed the core software, and you want to use Composer to download both the core software and its external dependencies:

- At the command line, change to one level above the directory where you want the software to reside.
- Enter this command, where mydir is the directory you want to create: composer create-project drupal-composer/drupal-project:8.x-dev mydir –no-inter
- The latest release of the core software will be downloaded to the mydir/web sub- directory; you'll also get some extra tools such as Drush and Drupal Console in the mydir/ vendor directory.

2.16 Installing the core software

2.16.1 Behind-the-scenes installer

If you choose to use an online demo or one-click installer from a hosting provider, the core software may be installed for you automatically.

2.16.2 Interactive installer

The core software has an interactive installer that presents you with several on-line forms, and then completes the installation using the information you provide in the forms.

Steps

- If you are using a 1-click install from a hosting provider or demo site, you will most likely see some or all of the following screens as part of the installation process. If you uploaded the core files manually or using Composer, to start the installer, open a browser and visit the URL that you set up for your hosting.

- Select a language on the first page of the installer; for example, English. You could optionally choose from any of the other listed languages. The language files for the chosen language will be downloaded and installed so that the rest of the installation process can be finished in the chosen language. After choosing a language, click Save and continue.

- Select an installation profile. Installation profiles provide site features and functions for a specific type of site as a single download containing the core software, contributed modules, themes, and pre-defined configuration. Core contains two installation profiles. Select the core Standard installation profile. Click Save and continue.

- The next step in the installer will verify that your system meets the minimum requirements. If it does not, you'll be presented with an outline of what needs to be corrected in order to proceed. If it does, the installer will automatically advance to the next step

- Provide details of the database. Then click Save and continue. Field name Explanation Value Database name The custom name given to the database drupal8 Database username Username created databaseUsername Database password Password chosen

- The next step will display a progress bar under the heading Installing Drupal. After the installer has completed, it will automatically advance to the next step.

- The final step is to configure some basic information about your new site. Note that the user account you create in this step is the site's admin account. You can safely name this account ”admin”, and make sure to choose a secure and unique password. Fill in the form with the following information: Field name Explanation Value Site name The name chosen for the site Site email address The email associated with the site info@example.com Username The designated user's credentials admin Password The password chosen Confirm password Repeat the password Email address The user's email admin@example.com The remaining fields can likely be left at their default values.

- Click Save and continue.

- You will be redirected to the front page of your new site and you should see the message Congratulations, you installed Drupal! displayed at the top of the page

2.16.3 Demo site installer

If you download the core software to your local computer, you can quickly create a temporary demo site that uses the built-in web server and SQLite database that are part of PHP.

2.16.4 Command-line tool

Command-line tools can also be used to perform the installation steps.

2.16.5 Steps

- Choose methods for downloading and installing the core software. The rest of these instructions apply to the Composer and manual download options and the interactive installer; if you chose other options, the software should be installed for you.

- Set up a URL and hosting for your site on the server. Verify that the hosting is working by putting a simple HTML file in the web root directory of the hosting, and visiting the URL for your site.

- Create a database, along with a database user account with full access.

- Download the core software files to the web root directory, using the method you decided on.

Chapter 3

Flexslider module

3.1 About

Flexslider is a power-full Drupal module which integrates with the flex-slider library which allows us to build responsive and resizeable slide shows. It is basically a jQuery plug-in by WooThemes and it makes it very easy to create slide shows. The features provided by Flexslider slide show are as follows:-
Touch enabled navigation
* Keyboard navigation
* Configurable slide animations
* Multiple sliders per page
It can be used in different ways integrating with different sections :-

- As a library to be used with any other theme or module by calling drupal_add_library('flexslider', 'flexslider') or preferably with libraries_load('flexslider') or with flexslider_add()
- Integrates with Fields (flexslider_fields)
- Integrates with Views using a style plug-in (flexslide_views)

3.2 Configuration and Installation

The steps followed to enable the flexslider module are as follows :-
* Dependencies of modules
1. entity browser
2. libraries
3. GIT-hub libraries
* Installation of Libraries
1. The path of the required library should be as follows C: xampp/htdocs/drupal/sites/all/libraries/flexslider (if using XAMPP)
2. The unzip file should be renamed as "flexslider".
* After installing the given module should be enabled.
1. The required libraries should be set up before enabling the modules.
* A flexslider drop-down will be enabled in the manage display of the required field.

* In a given view the required field should be edited and configured The flexslider should be selected in the formatter option and flexslider full in image style option.

Chapter 4

Custom Theme

In simple terms, a theme is the presentational layer. Regardless of the content management system (CMS), without a theme, all you have is content that looks very much like a Word document. A theme generally consists of HTML markup, CSS, JavaScript, and media (images, video, and audio).

4.1 Configuring the Theme(default case)

4.1.1 Steps

1. In the Manage administrative menu, navigate to Appearance (admin/appearance).
2. Under Installed themes, you will find Bartik listed as your default theme. Under Bartik (default theme), click Settings.
3. Under Color scheme, click inside each color build box and type the proper color codes you would like to add. For example, use the following colors: Area Color
Header background top (green)
Header background bottom (dark green)
Main background (white)
Sidebar background (light orange)
Sidebar borders (orange)
Footer background (dark green)
Title and slogan (white)
Text color (black)
Link color (dark green)
Note: You can also use the color wheel on the right to select colors of your choice. The web color codes will be added for you.
4. Under Logo image, uncheck Use the logo supplied by the theme.
5. Under Upload logo image, locate a logo file and upload it to your site. Note: You can also set a universal logo for all themes under Appearance ¿ Settings (admin/appearance/ settings). A custom logo for your theme will override the universal logo. Once you have selected the file you would like to upload, you will see its filename next to the Choose File or Browse button in your browser.
6. In order to save your changes and see the updated colors and logo on your site,

click Save configuration at the bottom of the page. Note: Under Color scheme, there is a Preview section that displays a sample of how your website will look with the new settings.
7. Click Return to site or Home in the toolbar to verify that you have updated the core Bartik theme settings for your website.

4.2 File Structure

We used to place all of themes, modules, and third-party library assets like Font-Awesome, jQuery,... at the sites/all/themes directory in Drupal 7. So in the past, if you want to create a custom theme, you would place it in /sites/all/themes/-custom/. File structure in Drupal 8 has changed. Now, the core folder contains all the modules and themes that are used in Drupal core, and other custom or contributed modules and themes will live inthe /modules, and /themes respectively. To create a custom theme, you will need to place it at /themes/-custom/themename. All the custom files and folder comes under the theme folder.

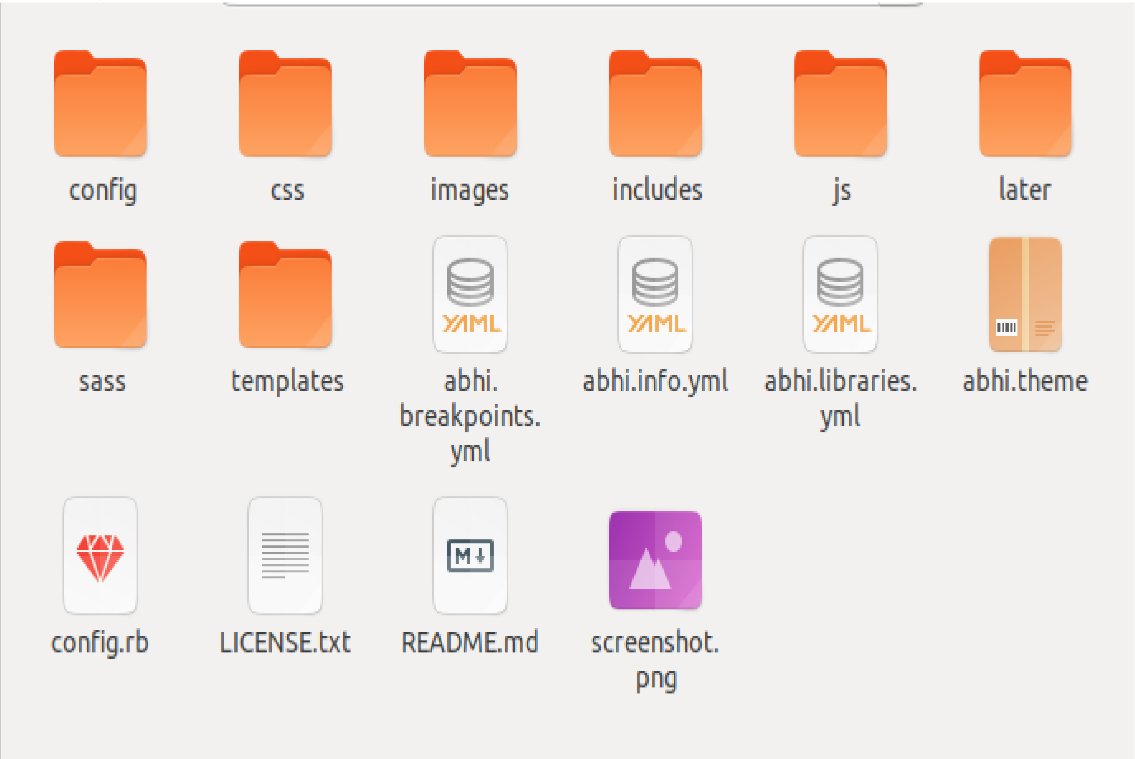


Fig: Content of theme's folder for my theme "Abhi"

4.3 The .info.yml file

Drupal will scan the theme directory and search for the theme_name.info.yml file to install your theme. Drupal 8 will look at the .info.yml the same way Drupal 7 looks at .info file. Drupal 8 has adopted the Symfony YAML (.yml) format. Create a file named themename.info.yml, inside 'themename' folder. They will provide meta-data about the theme, and its basic functionality. A region is basically a section on the page of your theme. You can define as many regions as you wish on your .info.yml file.And the next step you have to update your page.twig file to inform the new regions.

4.4 Libraries

In Drupal 7, you would include all of your stylesheets and scripts of your theme in the .info file. Now, in Drupal 8 you have to include in both the theme_name.info.yml and theme_name.libraries.yml to enable the stylesheets, and scripts. In Drupal 8, if you define a library in the .libraries.yml file, you have to declare it in the .info.yml file respectively. Drupal 8 takes this approach to create the new library file in order to improve website performance. Rather than loading all CSS, JS and other assets, only those that are specified in the library are loaded. With the example, in the .info file, we define a library called global-styling. Global-styling means that this library will be included on every page. And in the library file, we indicate the css, and js file that will load with the global-styling library.

4.5 Dependencies

Libraries have the ability to choose other libraries as dependencies. This is to help Drupal know what is necessary to load. You can notice that we have dependencies: core/jquery. By default,Drupal8 does not load any scripts. J query is not included sidewise, like in Drupal 7. So we have to inform to include the J Query version of Drupal core. And we also define core/drupal dependencies to take advantage of Drupal behaviours.

4.6 Creating Stylesheets

Add the CSS and JS files defined in themename.libraries.yml. You can design it in your own unique way. The code simply sets the content background color, width, and margin of the navigation bar and so on. It tells about styling the text of sidebars, footer, navigation bar. You can give a unique touch to different elements of content through a stylesheet. You can also add more stylesheets as per your needs.

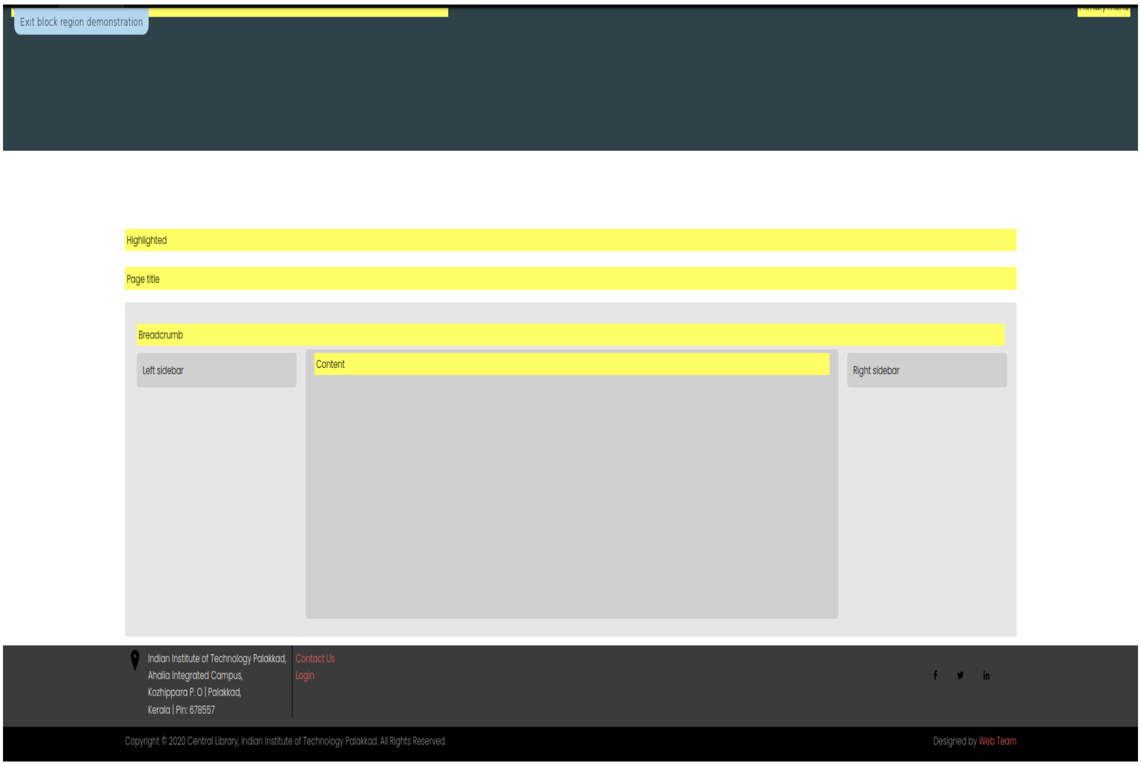
4.7 Adding regions

A region is basically a section on the page of your theme. You can define as many regions as you wish on your .info.yml file. And the next step you have to update your page.html.twig file to inform about the new regions. In order for regions to display any content placed into them, you'll need to make sure your new regions are also added to your page.html.twig file. Regions will be represented as Twig variables whose name corresponds with the key used in your THEMENAME.info.yml file with the string page. prepended. Theme developers don't want to be limited with the default regions of Drupal 8. So defining regions is an inevitable task for any themer.

The first step is to declare the regions you want to add in the .info.yml file. The next step is to copy the page.html.twig file from the core templates folder and place it in a folder named templates within your theme (if you don't have this folder you have to create one).

4.8 Regions defined in the theme:

- Header
- Highlighted
- Breadcrumb
- Left sidebar
- Right sidebar
- Content
- Primary menu
- Home page message
- Top first widget
- Top second widget
- Top third widget
- Page title
- Footer first widget
- Footer second widget
- Footer third widget



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Kozhippara P. O | Palakkad,
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Fig: Small overview of the defined regions

4.9 Templates

Create a templates folder and inside which we will place our all html.twig files. Drupal allows you to override all of the templates that are used to produce HTML markup so that you can fully control the markup that is shown as output within a custom theme. There are templates for each page element ranging from the high level HTML to small fields.

4.9.1 Overriding templates

We can override Drupal core templates by adding templates to your theme folder that follow a specific naming convention. To override templates you need to:

- Locate the template you wish to override.
- Copy the template file from its base location into your theme folder.
- (optionally) Rename the template according to the naming conventions in order to target a more specific subset of areas where the template is used.
- Modify the template to your liking.

4.10 Base theme

Base theme is the theme from which the basic layout is taken for the custom theme. For my theme I have used Bootstrap 3 and Zymphonies Parallax theme as base themes.

4.10.1 Zymphonies theme

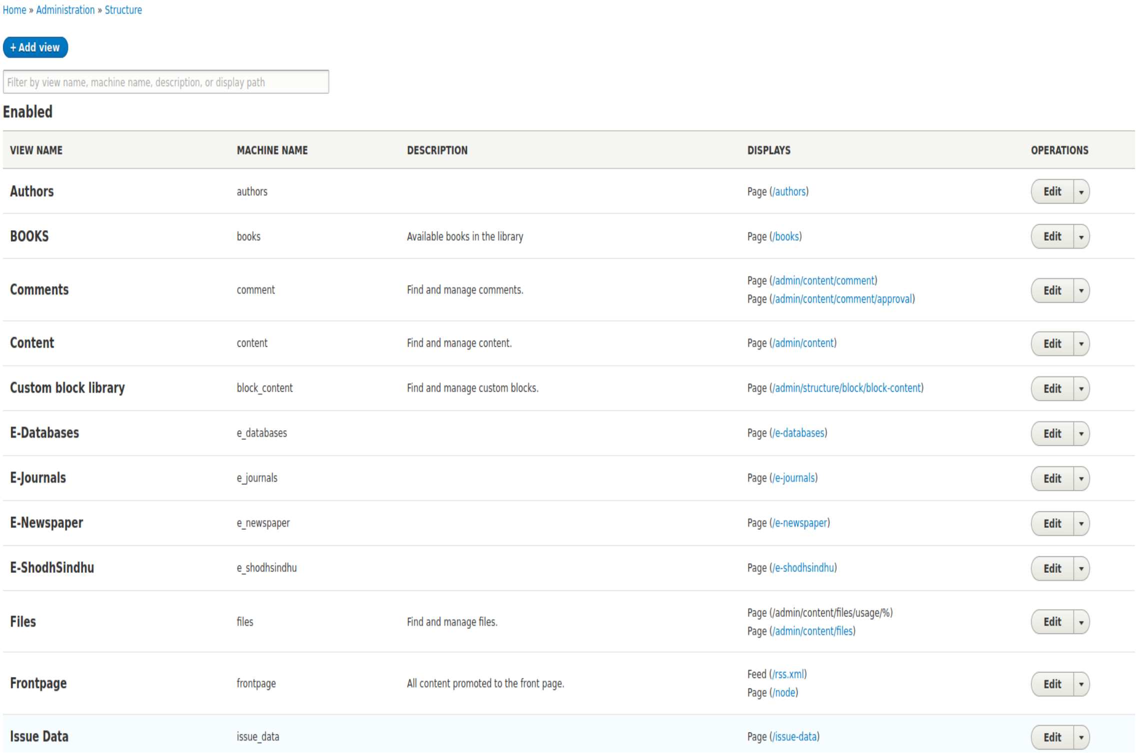
Drupal 8 Parallax Theme is a professional Multipurpose Drupal 8 theme contributed by the Zymphonies team. Clean and mobile-first responsive theme. It has many advanced features like custom slider, 15+ regions, smooth animation etc. Well organized written CSS styles, Coded with clean modular Sass.

4.10.2 Bootstrap

Bootstrap is a true blessing for web developers which is a sleek, intuitive and powerful mobile first front-end framework for faster and easier web development. When you mix that with LESS preprocessor you get a mighty tool for creating a Drupal 8 theme.

4.11 Views

A view consists of listings of content on a webpage. The core. Views module handles the display of views and allows the user to create and edit them in the administrative interface. Views allow users to create a list of only the content that they want, based on the criteria that we define. Views can be created to output any content entity that is stored in the system. A separate view was made for each custom content type. These views were accessible using the main navigation menu of the website. The main navigation menu: An examples of view is as follows:
*A table display of all the book's content type



Home » Administration » Structure

+ Add view

Filter by view name, machine name, description, or display path

Enabled

VIEW NAME	MACHINE NAME	DESCRIPTION	DISPLAYS	OPERATIONS
Authors	authors		Page (/authors)	Edit ▾
BOOKS	books	Available books in the library	Page (/books)	Edit ▾
Comments	comment	Find and manage comments.	Page (/admin/content/comment) Page (/admin/content/comment/approval)	Edit ▾
Content	content	Find and manage content.	Page (/admin/content)	Edit ▾
Custom block library	block_content	Find and manage custom blocks.	Page (/admin/structure/block/block-content)	Edit ▾
E-Databases	e_databases		Page (/e-databases)	Edit ▾
E-Journals	e_journals		Page (/e-journals)	Edit ▾
E-Newspaper	e_newspaper		Page (/e-newspaper)	Edit ▾
E-ShodhSindhu	e_shodhsindhu		Page (/e-shodhsindhu)	Edit ▾
Files	files	Find and manage files.	Page (/admin/content/files/usage/%) Page (/admin/content/files)	Edit ▾
Frontpage	frontpage	All content promoted to the front page.	Feed (/rss.xml) Page (/node)	Edit ▾
Issue Data	issue_data		Page (/issue-data)	Edit ▾

Fig showing some of the available Views in the site

4.12 Taxonomy

4.12.1 Overview

A special structure type in Drupal 8 core ,Taxonomy helps in categorizing and filtering the content . It is basically attached as a reference entity to the content and in this way it classifies content . So we add a vocabulary to the Taxonomy that organizes the term in the hierarchy . The vocabulary consists of the terms that further can be listed in the subterms. For example a vocabulary is created as Novels where the fiction,non-fiction sci-fi , thriller are termed in the terms . Even the terms can be subdivided into other sub-categories.

4.12.2 Basic Configuration

- While adding field in the content type Taxonomy term should be selected and in the field settings the desired vocabulary should be selected
- The Taxonomy field is displayed as the entity reference .
- Even while adding view we can select Taxonomy term to enable the referencing of the tags.

4.12.3 Aggregate settings

The Advance view section has a special feature called Aggregate settings or Aggregate . The Core view settings enabled in Drupal 8 module provide many field and sort settings such as for the count of taxonomy terms and many more advanced applications of aggregation.

4.12.4 Applications of Taxonomy and Aggregate settings

Using the Advanced view settings and Taxonomy structure types we have made a Page and block showing the count of the terms of each vocabulary in Taxonomy. The configuring steps are as follows:-

- First two Vocabulary is added and random number of terms are listed in each vocabulary. For example 3 terms are listed in First vocabulary and 4 terms in second vocabulary.
- The Taxonomy term field is added in the given content type.
- Now Go to View add a page view in Show option instead of selecting Content select Taxonomy term.
- A default field Taxonomy term is created in the field option.

- In the Pager section select the option Display a specified number of items to show the topmost taxonomy terms used and select the number we want to view.

- In the Relationships section select the option Content with the term : Taxonomy term. Go to Add the configure fields make this relationships required.

- In the Advanced section of the view Go to the option Use aggregation check to the Aggregate instead of No , apply it .

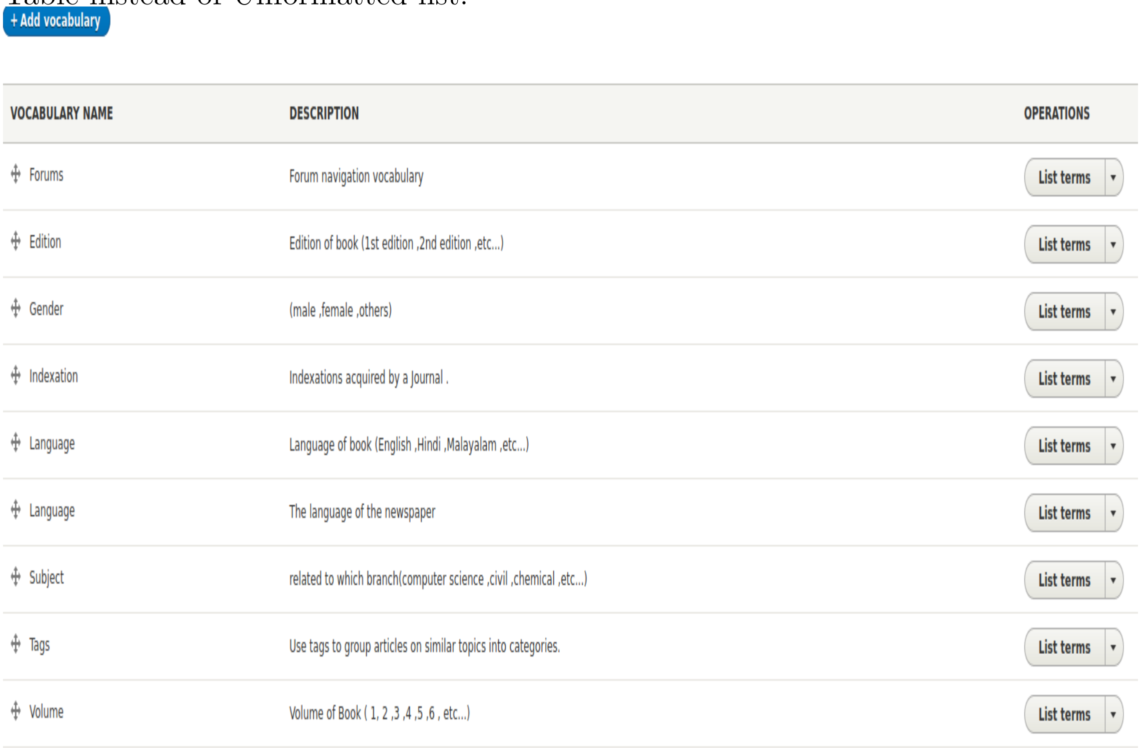
- After checking the aggregation new field is created called Taxonomy term: Name — Aggregation settings.

- Go to add field and search for field Taxonomy term:Name select it , move to Add the configure fields and in the Aggregation type select COUNT , Apply and continue it (We can also remove the label, add the required prefix and suffix.)

- Now in Sort Criteria add the Taxonomy term:Term ID select it move to Add the configure fields and in the Aggregation type select COUNT , Apply and continue it, then select the Sort descending option after checking the option apply it.

- In the preview option we can see the terms arranged in the decreasing order of their count.

We can also create a block. For better view go to the show option and select the Table instead of Unformatted list.



VOCABULARY NAME	DESCRIPTION	OPERATIONS
Forums	Forum navigation vocabulary	List terms
Edition	Edition of book (1st edition ,2nd edition ,etc...)	List terms
Gender	(male ,female ,others)	List terms
Indexation	Indexations acquired by a Journal .	List terms
Language	Language of book (English ,Hindi ,Malayalam ,etc...)	List terms
Language	The language of the newspaper	List terms
Subject	related to which branch(computer science ,civil ,chemical ,etc...)	List terms
Tags	Use tags to group articles on similar topics into categories.	List terms
Volume	Volume of Book (1, 2 ,3 ,4 ,5 ,6 , etc...)	List terms

Fig showing the taxonomy terms used in the site.

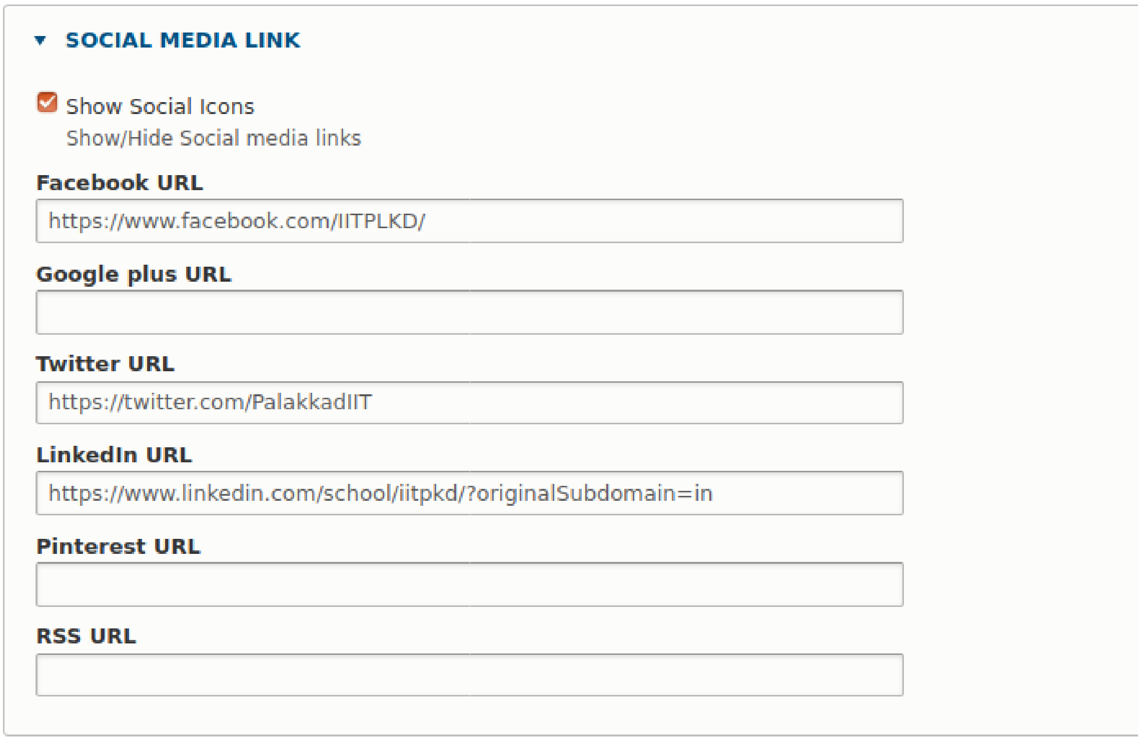
4.13 Custom Theme Setting

In the Drupal administration section, each theme has its own settings page at admin/appearance/settings/themeName. And this page has a form with standard settings like “Logo image settings” and “Shortcut icon settings.”. In Drupal 8, themes can modify the entire theme settings form by adding a PHP function to either the THEMENAME.theme file or to a theme-settings.php file. In one of those files, a theme should use THEMENAME_form_system_theme_settings_alter (form, form_state) hook function.

4.14 Social Media

- The modules provides a configurable block that display links (icons) to your profiles on various popular networking sites.
- Social media platforms such as Facebook, Twitter, LinkedIn, Instagram are easiest ways to communicate with users.

The .theme file is a PHP file that contains theme hooks for preprocessing variables. We will create a theme file specific to our theme that we can use to grab the comment count, based on each individual post, and then return the count to our Twig template as a variable that can be printed. /admin/appearance/abhi/settings/ and you will see the social media form. Site administrator can simply add the url in the text box for particular social media icons then it appear in the site header. If the admin not define the social media url then that social media icon will not show in the site.



▾ SOCIAL MEDIA LINK

☑ Show Social Icons

Show/Hide Social media links

Facebook URL

https://www.facebook.com/IITPLKD/

Google plus URL

Twitter URL

https://twitter.com/PalakkadIIT

LinkedIn URL

https://www.linkedin.com/school/iitpkd/?originalSubdomain=in

Pinterest URL

RSS URL

Fig: Showing the social media setting region

4.15 Setting up our Theme

Once we have created our theme we need to create the directory color and we want to create at least one file named color.inc . There are more files that can be put here to make the preview for the admins better like preview.css, preview.js, preview.html We also need a CSS file with all of your color things that you are letting the admins control with Drupal. Our directory structure should look like the following example. Where your CSS file is and what it is named isn't a requirement of the Color Module, but you do need to properly link to them. The theme_name.libraries.yml is needed to give the path to your CSS that the Color Module will be using. It should look like the following: The theme_name.info.yml is a requirement of every theme, and the only thing worth mentioning here is that it must have a library that it is using so you can pull in your CSS changes. It should look like the following. The color.inc is the file that is doing all of the work, a minimum file would be like the following: Once that file is there you can clear your site's cache and go to the theme settings for your site admin/appearance/settings/ theme_name and you will see the color form. The form should have all of the fields you defined and show a color wheel allowing admin to pick whatever color they'd like for the page. Now admins can choose whatever colors they want. If you change those and view the site, you will see that has happened yet. The next step needed is to create the CSS that Drupal will actually be using to color the site with the values entered in the admin form.

4.15.1 Twig Template naming conventions

Drupal loads templates based on certain naming conventions. This allows you to override templates by adding them to your theme and giving them specific names . After adding a template you must r ebuild the cache in order for Drupal to discover your new template. You can debug Twig templates to figure out which templates are being used to output the markup for any given element. Moreabout Twig debugging here . This page lists the conventions used for the base html structure, the page, regions, blocks, nodes, fields, and other core components. (It's good to know that it is possible to create custom template name suggestions using function hook_theme_suggestions_HOOK_alter .)

4.15.2 HTML (¡head¿ template)

Base template: html.html.twig (base location: core/modules/system/templates/html.html.twig) The following are some examples of how you may override the base template: 1. html–[internalviewpath].html.twig
2. html–node–[nodeid].html.twig
3. html.html.twig

4.15.3 Page template

Pattern: page–[front—internal/path].html.twig
Base template: page.html.twig (base location: core/modules/system/templates/-

page.html.twig)
1. page–node–edit.html.twig
2. page–node–1.html.twig
3. page–node.html.twig
4. page.html.twig

4.15.4 Regions

Pattern: region–[region].html.twig
Base template: region.html.twig (base location: core/modules/system/templates/region.html.twig)
The region template is used when a page region has content, either from the Block system or functions like hook_page_top() or hook_page_bottom() . Possible region names are determined by the theme .info.yml file .

4.15.5 Blocks

Pattern: block–[module—-delta].html.twig
Base template: block.html.twig (base location: core/modules/block/templates/block.html.twig)
1. block–[module]–[delta].html.twig
2. block–[module].html.twig
3. block.html.twig
"module" being the name of the module and "delta", the internal id assigned to the block by the module.

4.15.6 Nodes

Pattern: node–[content-type—nodeid]–[viewmode].html.twig
Base template: node.html.twig (base location: core/modules/node/templates/node.html.twig)
Theme hook suggestions are made based on these factors, listed from the most specific template to the least. Drupal will use the most specific template it finds:
1. node–[nodeid]–[viewmode].html.twig
2. node–[nodeid].html.twig
3. node–[content-type]–[viewmode].html.twig
4. node–[content-type].html.twig
5. node–[viewmode].html.twig
6. node.html.twig

4.15.7 Taxonomy terms

Pattern: taxonomy-term–[vocabulary-machine-name—tid].html.twig
Base template: taxonomy-term.html.twig (base location: core/modules/taxonomy/templates/taxono
term.html.twig)

Theme hook suggestions are made based on these factors, listed from the most specific template to the least. Drupal will use the most specific template it finds:
1. taxonomy-term–[tid].html.twig
2. taxonomy-term–[vocabulary-machine-name].html.twig3. taxonomy-term.html.twig

4.15.8 Fields

Pattern: field–[type—name[–content-type]—content-type].html.twig
Base template: field.html.twig (base location: core/modules/system/templates/-field.html.twig)
Theme hook suggestions are made based on these factors, listed from the most specific template to the least. Drupal will use the most specific template it finds:
1. field–node–[field-name]–[content-type].html.twig
2. field–node–[field-name].html.twig
3. field–node–[content-type].html.twig
4. field–node–[field-name].html.twig
5. field–[field-type].html.twig
6. field.html.twig

4.15.9 Forums

Pattern: forums–[[container—topic]–forumID].html.twig
Base template: forums.html.twig (base location: core/modules/forum/templates/-forums.html.twig)
Theme hook suggestions are made based on these factors, listed from the most specific template to the least. Drupal will use the most specific template it finds:
For forum containers:
1. forums–containers–[forumid].html.twig
2. forums–[forumid].html.twig
3. forums–containers.html.twig
4. forums.html.twig
For forum topics:
1. forums–topics–[forumid].html.twig
2. forums–[forumid].html.twig
3. forums–topics.html.twig
4. forums.html.twig

4.15.10 Views

Patterns:

views-view–[viewid]–[view-display-id].html.twig
views-view–[viewid]–[view-display-type].html.twig
views-view–[view-display-type].html.twig

views-view–[viewid].html.twig
views-view.html.twig

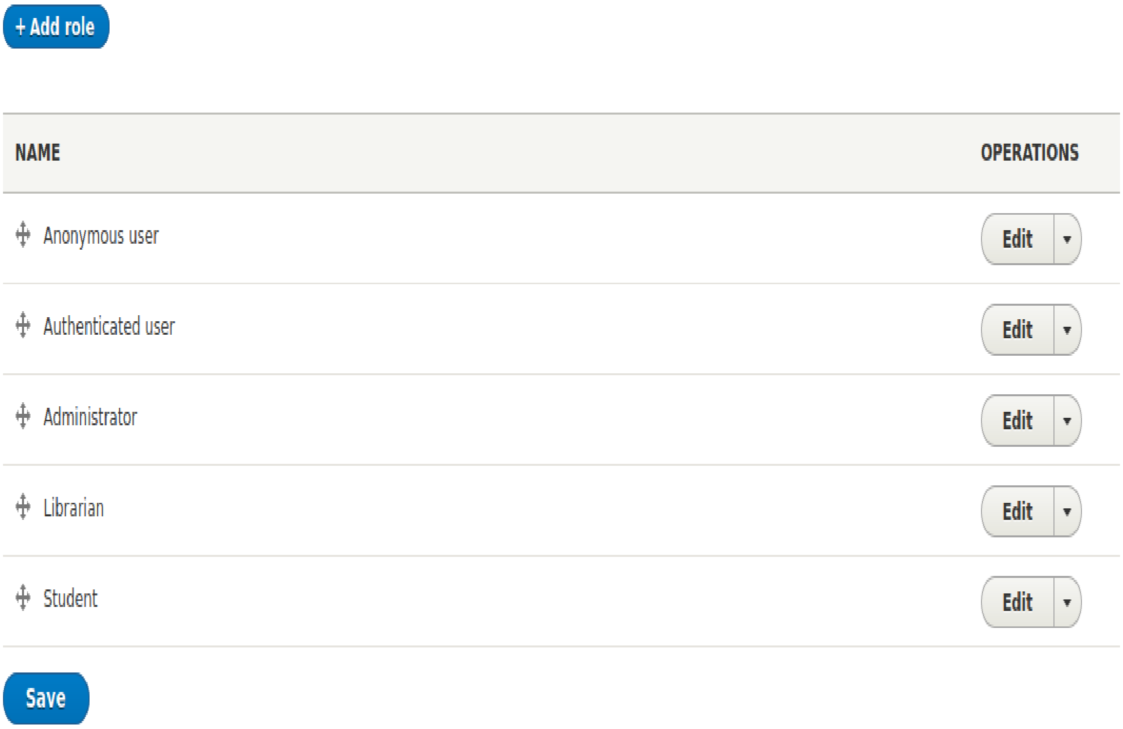
Chapter 5

Creating User Roles

5.1 Roles

I have created two more additional roles along with the default roles provided by Drupal 8. Thus a total of 5 roles are available for the site :

- Anonymous users
- Authenticated users
- Administrator
- Librarian
- Student



NAME	OPERATIONS
Anonymous user	Edit ▾
Authenticated user	Edit ▾
Administrator	Edit ▾
Librarian	Edit ▾
Student	Edit ▾

Fig: Image showing the roles for the site

5.2 Permissions

Detailed permissions can be found from /admin/people/permissions A basic insight into the permissions for each user is given below:

- Anonymous user :
  - Capable of viewing the site
  - Capable of searching for available books
  - Can't comment
- Student
  - Capable of viewing the site
  - Capable of searching for available books
  - Capable of commenting
- Librarian
  - Capable of using the tools
  - Capable of adding books to databases
  - Capable to adding forums,etc..
- Administrator
  - Capable of adding admin privileges to users
  - Can add books and other items to database

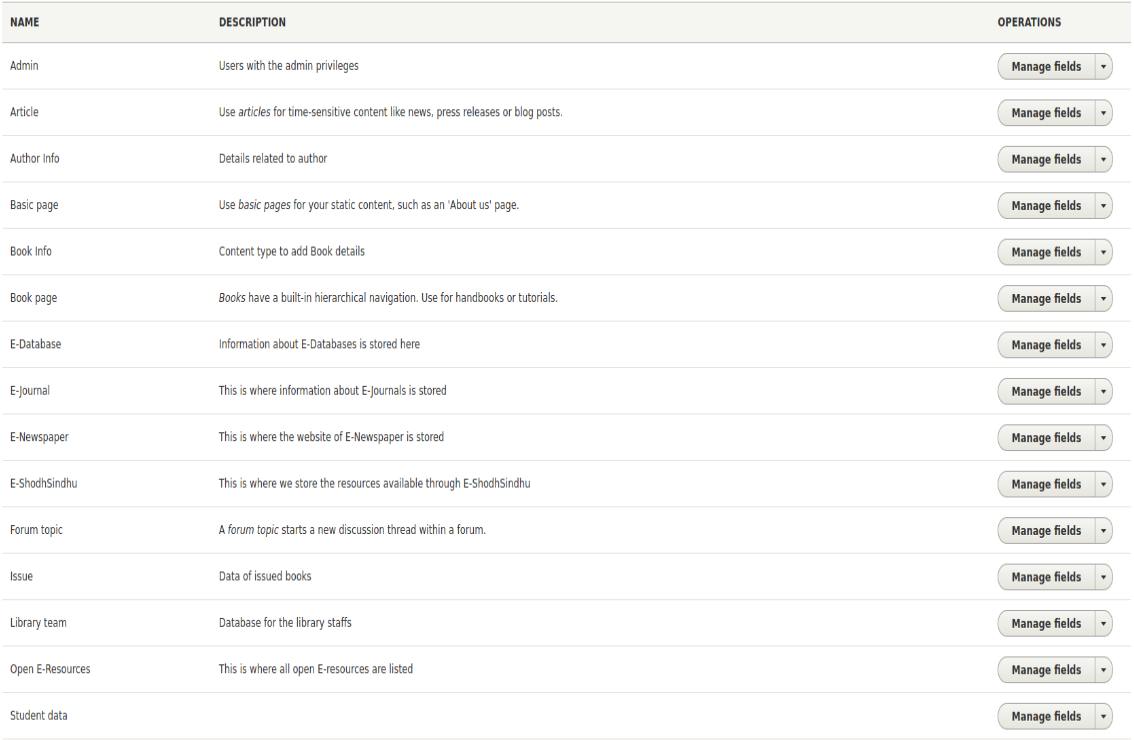
Chapter 6

Overview of Site

6.1 Content types introduced

For a library the main content will be of its book and the users. Therefore we have introduced the following content types to Drupal:

- Book
- Author
- Student info
- Library team

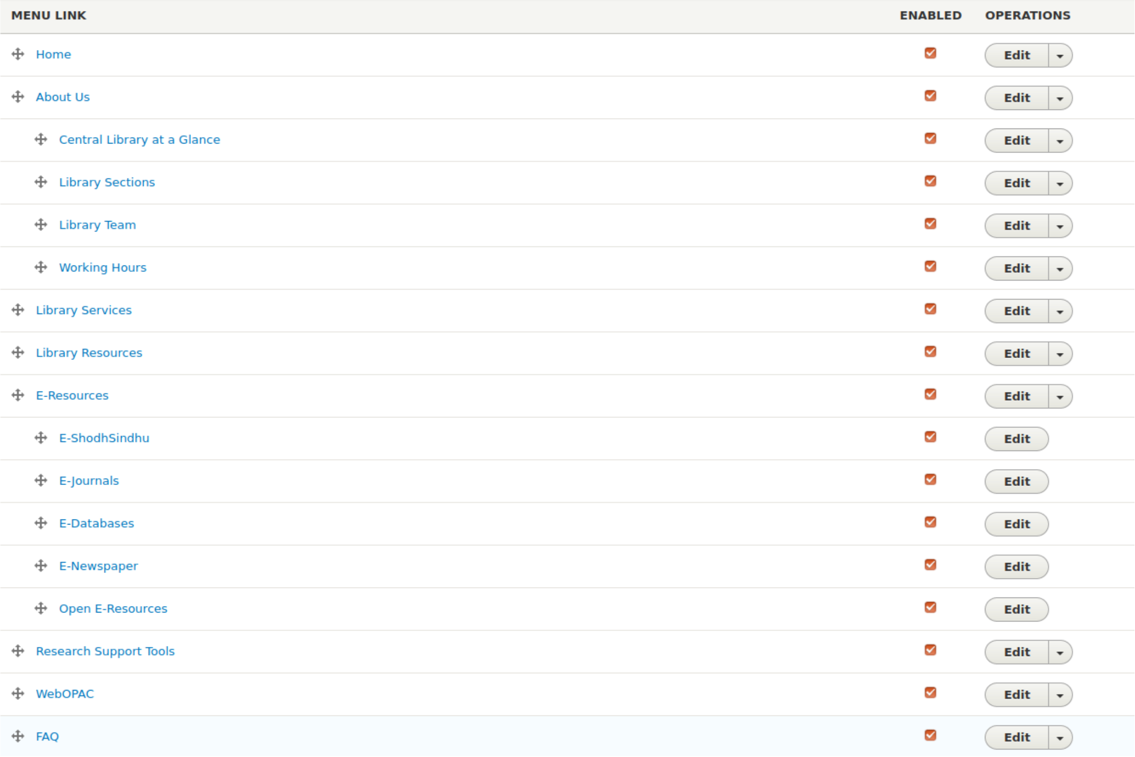


NAME	DESCRIPTION	OPERATIONS
Admin	Users with the admin privileges	Manage fields ▾
Article	Use *articles* for time-sensitive content like news, press releases or blog posts.	Manage fields ▾
Author Info	Details related to author	Manage fields ▾
Basic page	Use *basic pages* for your static content, such as an 'About us' page.	Manage fields ▾
Book Info	Content type to add Book details	Manage fields ▾
Book page	*Books* have a built-in hierarchical navigation. Use for handbooks or tutorials.	Manage fields ▾
E-Database	Information about E-Databases is stored here	Manage fields ▾
E-Journal	This is where information about E-Journals is stored	Manage fields ▾
E-Newspaper	This is where the website of E-Newspaper is stored	Manage fields ▾
E-ShodhSindhu	This is where we store the resources available through E-ShodhSindhu	Manage fields ▾
Forum topic	A *forum topic* starts a new discussion thread within a forum.	Manage fields ▾
Issue	Data of issued books	Manage fields ▾
Library team	Database for the library staffs	Manage fields ▾
Open E-Resources	This is where all open E-resources are listed	Manage fields ▾
Student data		Manage fields ▾

Figure showing the content types in the site

6.2 Main navigation

As per the requirement, the main navigation is placed along with the logo in the header region. The main navigation consists of Home, Library Resources, Library Services, About, E resources, FAQ, etc.. This navigation bar also supports the drop-down facility. The navigation menu will be reduced to a small icon which will expand on clicking, when opened in a mobile device.

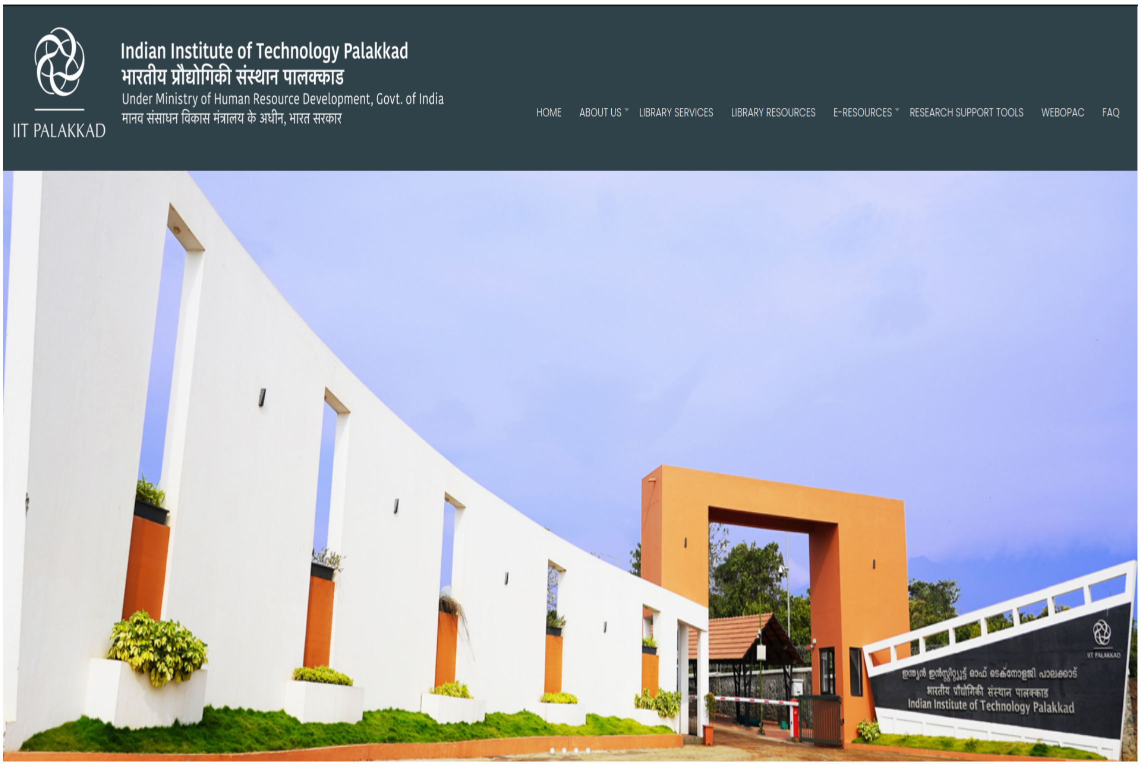


MENU LINK	ENABLED	OPERATIONS
Home	☑	Edit ▾
About Us	☑	Edit ▾
Central Library at a Glance	☑	Edit ▾
Library Sections	☑	Edit ▾
Library Team	☑	Edit ▾
Working Hours	☑	Edit ▾
Library Services	☑	Edit ▾
Library Resources	☑	Edit ▾
E-Resources	☑	Edit ▾
E-ShodhSindhu	☑	Edit
E-Journals	☑	Edit
E-Databases	☑	Edit
E-Newspaper	☑	Edit
Open E-Resources	☑	Edit
Research Support Tools	☑	Edit ▾
WebOPAC	☑	Edit ▾
FAQ	☑	Edit ▾

Figure showing the main navigation menu setting

6.3 Front page features

- Sticky header
- Slide show of images
- Footer with social media links, copyright, etc..
- Sidebars consisting of the controlled navigation
- Sidebar with slide show of latest 5 entry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IIT PALAKKAD
HOME
ABOUT US
LIBRARY SERVICES
LIBRARY RESOURCES
E-RESOURCES
RESEARCH SUPPORT TOOLS
WEBOPAC
FAQ
IIT PALAKKAD
ഇന്ത്യൻ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് ടെക്നോളജി പാലക്കാട്
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Indian Institute of Technology Palakkad

figure showing the home page top portion

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