



Summer Fellowship Report

on

FOSSEE Web development

Submitted by

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Under the guidance of

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July 1, 2019

Acknowledgements

First and foremost, I would like to thank **Prof. Kannan Moudgalya** for establishing this fellowship and highlighting the importance and benefits of free and open source softwares. His suggestions greatly improved the quality of the project.

I would also like to thank **Prof. Mr. P. Sunthar** , fossee manager **Mrs. Usha Vishwanathan** and my mentors **Mr. Nitesh Kumar**, **Mr. Tejas Vaidya** and **Ms. Ruchi Kumari** for providing valuable insight and expertise, as well as assisting me in overcoming the several difficulties I faced during the course of this project. I will forever remain grateful for the constant support and guidance extended by my guide.

I would also like to thank Fossee Group members for their support, my wonderful colleagues and friends for listening my ideas, asking questions and providing feedback and suggestions for improving my ideas.

Mr. Kalpesh Shankar Sonawane

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Chapter 1

Introduction

1.1 Drupal-(8)

Drupal is an open source website development platform. Drupal is open source software (OSS) released under the GNU Public License. This means it has inherent benefits cost, flexibility, freedom, security, and accountability that are unmatched by proprietary software. For example, Drupal is free to download from Drupal.org. Anyone can modify and extend the platform. This ensures freedom from vendor lock in and it empowers users worldwide to monitor Drupals underlying code for compliance and security issues. These benefits sustain Drupal and keep the platform at the cutting-edge of Web technology.

As a result Drupal is a powerful website development platform. Drupal adheres to modern object oriented programming patterns, PHP best practices, HTML5 and YAML standards. It incorporates the best available Web technologies, including Symfony2, Twig, jQuery. And it has a robust assortment of add-ons in the form of modules and themes.

1.2 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 visitors 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.

1.3 Requirements for Development in drupal

- The operating system can be Windows or Linux.
- The web server can be WAMP OR XAMPP for Windows and LAMP (Linux Apache MySQL PHP) for Linux.
- The database can be PostgreSQL or SQLite instead of MySQL, or a MySQL-compatible replacement such as MariaDB or Percona.

1.4 Tools required for manage dependency

- Drush (Drupal Shell): This is a shell-based application used that administers, controls, and manipulates Drupal websites.

- Composer: This is a package manager that runs from command line for PHP that provides a standard format for managing dependencies of PHP software and required libraries.

1.5 Web services provided by drupal

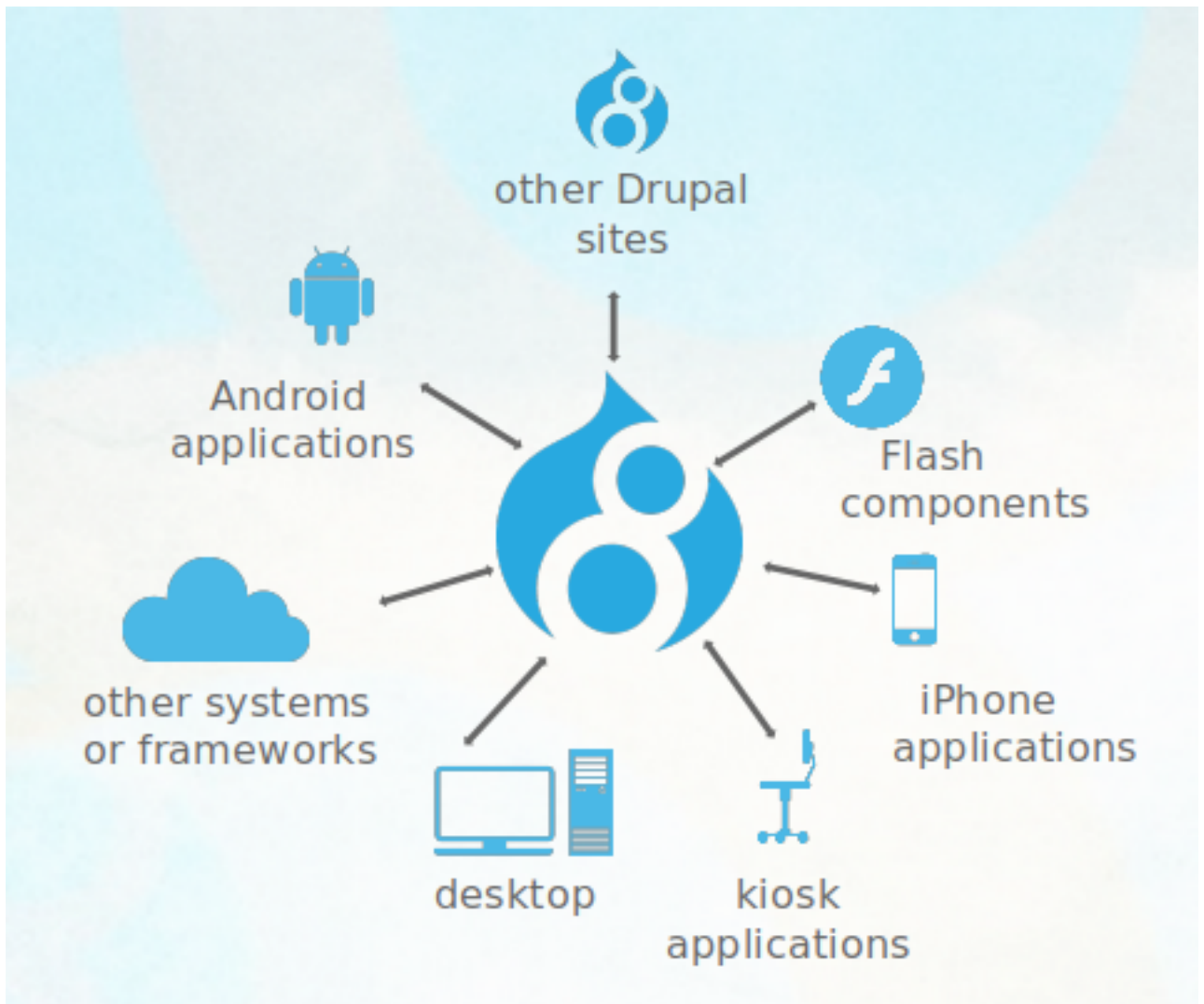


Figure 1.1: Web services provided by drupal

Chapter 2

Analysis of college website

2.1 Distribution

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. 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, nonprofit, publishing, social, etc.

2.2 Academic Distribution

The distribution provide some content type,views of existing modules.A content type is a sub type of the content entity. An existing Academic Distribution was resent initially which contained four Content Types:

- **Faculty Page:** This stores information about faculties.
- **News:** This stores data about recent news related to the institute.
- **Event:** This stores data related to upcoming events on campus.
- **Slider:** This is a slideshow of multiple images accompanied by a subtitle.

2.3 Content types

Additionally, several necessary content types were identified and created by analysis of the department website. They are enlisted below:

1. **Achievements:** This content type enlist the achievements made by the Students.
2. **Laboratories:** This will list all laboratories along with its details.
(e.g.Area, equipment cost, utilisation etc.).
3. **Clubs:** This contains all clubs and its details.
4. **Activities:** This list all the activities perform during respective academics year.
5. **Syllabus:** This contains Year wise academic syllabus.
6. **Photo Gallery:**This contains all images of department events and activities.
7. **Major Recruiters:** This contains company details which conduct campus placements.

2.4 Basic pages

Basic pages are used for static data.several necessary Basic pages were identified and created. They are enlisted below:

1. **About department:** This contains information of department.
2. **Vision Mission:** This contains details of vision mission.
3. **Infrastructure:** This contains details of infrastructure.
(e.g. classrooms, labs, library etc)

Chapter 3

Content with Views

A view is a listing of content on a website. The Views module handles the display of views, and the Views UI module allows you to create and edit them in the administrative interface. When you define views, you are taking data from your website and displaying it to the user.

Drupal provides some style they are listed below.

- Blazy Grid
- Bootstrap Accordion
- Bootstrap Carousel
- Bootstrap Grid
- Bootstrap List Group
- Bootstrap Media Object
- Bootstrap Table
- DataTables
- Grid
- HTML List

- Slick Carousel
- Slick Grouping
- Table
- Unformatted list

I created Views for all the content types. These are the link with a navigation bar. This contains all the menus and submenus which represent views of respective content types. They are listed below.

- Achievement
- Laboratory
- Activity
- Photo Gallery
- Major Recruiters
- Syllabus

3.1 Website view



Figure 3.1: Website view

3.2 Laboratory view



Figure 3.2: Laboratory view

3.3 Photo Gallery view



Figure 3.3: Photo Gallery view

3.4 Major Recruiters view



Figure 3.4: Major Recruiters view

3.5 Activity view

Workshop on "Soft skill training program"	Seminar on "Current IT Automation Languages Trends & Project Guidance "	Seminar on "Spotlight"
Workshop on "Soft skill training program" By Mr. Vyankatesh, Mr. Anil Kumar, Mr. Ashutosh Joshi, Mr. Shravan Globarena Pvt Ltd, Bangalore on 26th June to 1st July 2018	Seminar on "Current IT Automation Languages Trends & Project Guidance " By Mr. Anil Wale, Team Lead, PSPL, Pune	Seminar on "Spotlight" By Mr. Gourang Ambulkar, Consulting Professional Nashik
Tue, 06/26/2018 - 12:00	Sat, 06/30/2018 - 12:00	Fri, 07/06/2018 - 12:00

Figure 3.5: Activity view

3.6 Achievement view

Ms. Inamdar Samrin, Ms. Kak Shriya Shibani, Ms. Sayyed Jazeb Nazar , Mr. Dhale Ashutosh R. participated in a project competition
Mr. Banerjee Trideep S., Ms. Bafana Divya M., Mr. Badame Saket P., Ms. Bejekar Rajashree, Mr. Chakor Aditya A., Ms. Ahir Pallavi D. participated in a Paper Presentation Competition
Mr. Khare Kaustubh D., Mr. Yeolekar Nikhil B., Mr. More Nilesh R., Ms. Deshmukh Sharada, Mr. Devgire Vishal K., Ms. Dange Vishakha V., Ms. Wagh Sayali H. participated in a project competition
Ms. Dhanwate Anuja, Mr. Hiray Mayur S., Mr. Fernandis Oniel R., Ms. Bhamare Jyoti D. participated in a project competition
Mr. Vishal S Kumar, Mr. Aher Yogesh R., Mr. Walde Deepak N., Mr. Aher Nitish G. participated in a project competition

Figure 3.6: Achievement view

Chapter 4

Migration using CSV

4.1 What is a migration?

We use the word "migration" as a generic term for any process that seeks to take data from some source external to the current Drupal 8 site and use it to automatically create nodes, users, configuration, and any other component of your site. In short, automating what might otherwise be a tedious job of copying and pasting.

Drupal 8 brings a new migration system into Drupal core, with the goal of making it easier to import data from a variety of sources. The migrate system is both a framework designed to facilitate writing custom migrations, and an implementation of that framework aimed at Drupal-to-Drupal migrations.

4.2 Migration understand drupal

The migrate system is smart about things like content type configuration. It will automatically import content into whatever fields you've defined for your application's unique information architecture. And it even knows how to validate the content for each field type prior to saving new data.

Some of the things you can create with a migration include:

1. Content (nodes, taxonomy, any generic entity) including any attached files and images.
2. Content types.
3. Roles and permissions.
4. Complex configuration like image styles.
5. Paragraph types.
6. Taxonomy terms.

4.3 Migration plugins

Download the following plugins from www.drupal.org and enable it.

1. Migrate Source CSV.
2. Migrate Plus.
3. Migrate Tools.

4.4 Example of migration

1. Create a CSV-file called `articles.csv`

ID	name	email	firstname	lastname	Status	roles
1	uddesh	uddesh@gmail.com	uddesh	sonawane	1	administrator
2	Kalpesh	kalpesh@gmail.com	kalpesh	sonawane	1	authenticated
3	om	om@gmail.com	om	Jadhav	1	testuser

Figure 4.1: Article.csv file

2. Create a YML-file called articles.yml

```
id: demo_user_migration
migration_tags: null
migration_group: default
label: 'User migration from CSV'
source:
  plugin: csv
  path: /home/kalpesh/Downloads/article.csv
  header_row_count: 1
  keys:
    - ID
process:
  name: name
  mail: email
  roles: roles
  field_last_name: lastname
  field_first_name: firstname
  status: Status
destination:
  plugin: 'entity:user'
migration_dependencies:
  required: { }
  optional: { }
```

Figure 4.2: Article.yml file

3. After creating article.yml file follow the steps.

- Navigate to Administration > Configuration > Development > Synchronize (admin/config/development/configuration/single/import)
- select Migration as the Configuration type.
- Copy-paste the YAML format migration definition(i.e. article.yml) and click Import. Note that the path to the CSV file is defined in the configuration.

4.5 Executing the migration

The contributed Migrate Tools provides 'migrate-import' Drush command that you can execute on the command line of our server:

- **drush migrate-import demo_user_migration.**
- where 'demo_user_migration' is the ID of the migration.

4.6 Modifying the migration definition

- It is possible to modify the configuration using the Drupal Console command line tool: **drupal config:edit migrate_plus.migration.demo_user_migration**
- You will need to run **drush cr** to rebuild the cache before the import is executed again.
- After configuration refresh; refresh the migration record via its originating configuration. **drush migrate-status**

Chapter 5

Drupal-8 Theme

5.1 What is a Theme?

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.

5.2 File Structure of drupal-8 Acadmix theme

5.2.1 ThemeName.info.yml

A theme must contain an .info.yml file to define the theme. Among other things the .info.yml files define metadata, libraries, and block regions. This is the only required file in the theme.

5.2.2 ThemeName.libraries.yml

The .libraries.yml file is used to define JavaScript and CSS libraries that can be loaded by the theme.

5.2.3 ThemeName.theme

The .theme file is a PHP file that contains all the conditional logic and data (pre)processing of the output. It may also extend basic theme settings.

5.2.4 css/

It is good practice to store .css files in the 'css' subfolder. For a theme to load CSS files they must be defined in .libraries.yml file and can be overridden or removed in .info.yml file.

5.2.5 js/

Theme specific JavaScript files are stored in the 'js' folder. For a theme to load JavaScript files they must be defined in .libraries.yml file.

5.2.6 images/

It is good practice to store images in the 'images' subfolder.

5.2.7 screenshot.png

If a screenshot.png file is found in the theme folder, then it will be used on the Appearance page. Alternatively, you can define a screenshot in .info.yml file

5.2.8 logo.svg

If a SVG vector file of your theme's logo is found in the theme folder, then it may be used in the header of the website. Logos can also be uploaded at **Appearance > Settings**.

5.2.9 templates/

Templates provide HTML markup and some presentation logic. Contrary to Drupal 7, in Drupal 8 template files (*.html.twig files) must be stored in the 'templates' subfolder.

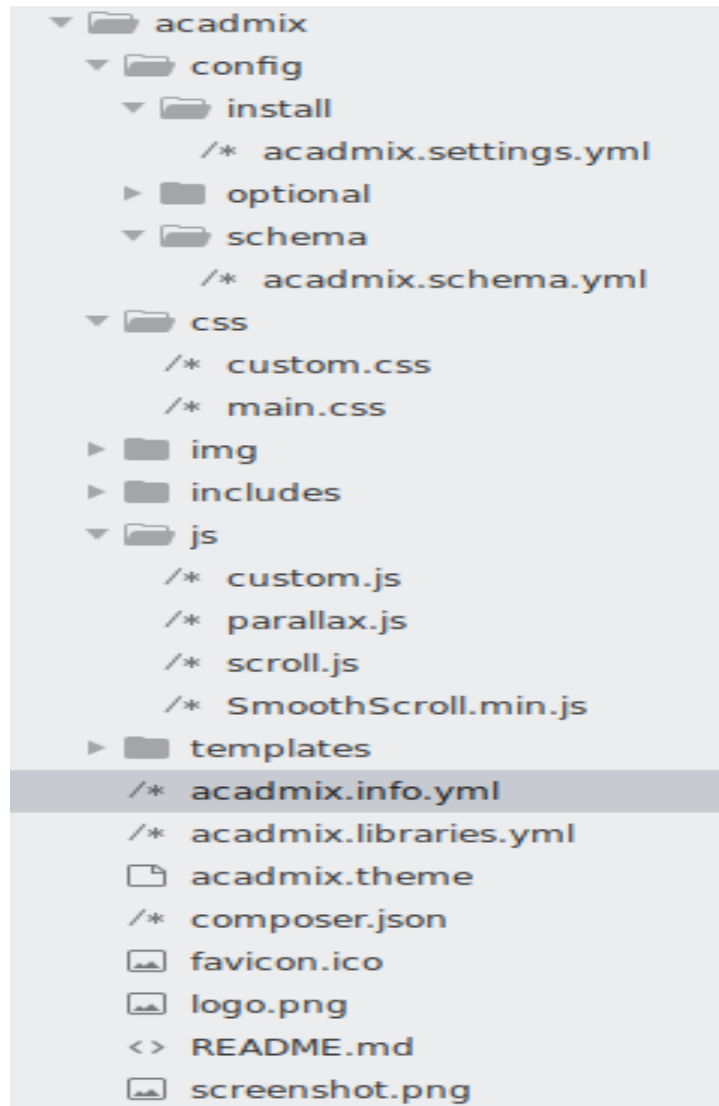


Figure 5.1: Theme file structure

Chapter 6

Drupal-8 Sub-Theme

6.1 What is a Sub-Theme?

Sub-themes are just like any other theme, with one difference: they inherit the parent theme's resources. There are no limits on the chaining capabilities connecting sub-themes to their parents. A sub-theme can be a child of another sub-theme, and it can be branched and organized however you see fit. This is what gives sub-themes great potential.

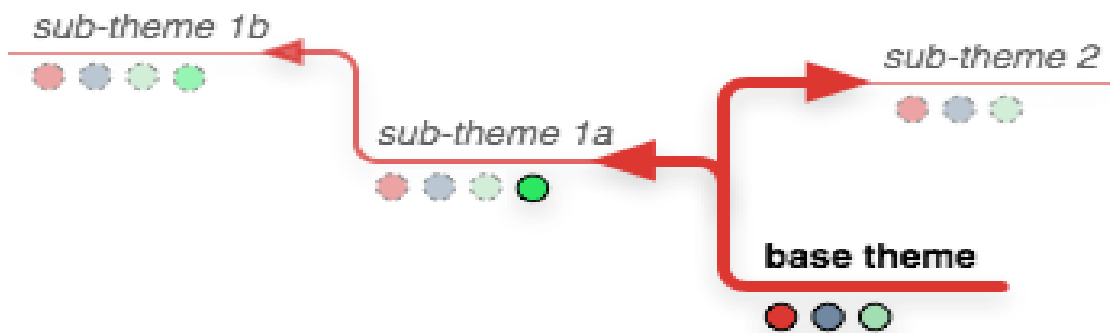


Figure 6.1: Sub-Theme concept

6.2 Drupal-8 Acadmix_Sub-theme

6.2.1 Folder acadmix_sub-theme

The sub-theme to-be should be located in its own directory. This folder should have the same name as the internal name of the sub-theme (e.g.,acadmix_subtheme). The sub-theme folder should be located inside the folder `/themes/custom/acadmix_subtheme`.

6.2.2 Subtheme_Name.info.yml

To declare your theme to be a sub-theme of another, you must put a acadmix_subtheme.info file inside your acadmix_subtheme folder. Then you need to add the following line to acadmix_subtheme.info file to declare its parent or base theme.

```
core: 8.x
type: theme
base theme: acadmix

name: 'acadmix_subtheme'
description: 'A sub-theme of acadmix.'
```

Figure 6.2: Subtheme.info.yml

6.2.3 Subtheme_Name.libraries.yml

The .libraries file is used to define JavaScript and CSS libraries.

```
global-styling:
  css:
    theme:
      css/style.css: {}
  js:
    js/custom_subtheme.js: {}
  dependencies:
    - core/jquery
```

Figure 6.3: Subtheme.libraries.yml

6.2.4 File Structure of Acadmix Sub-theme

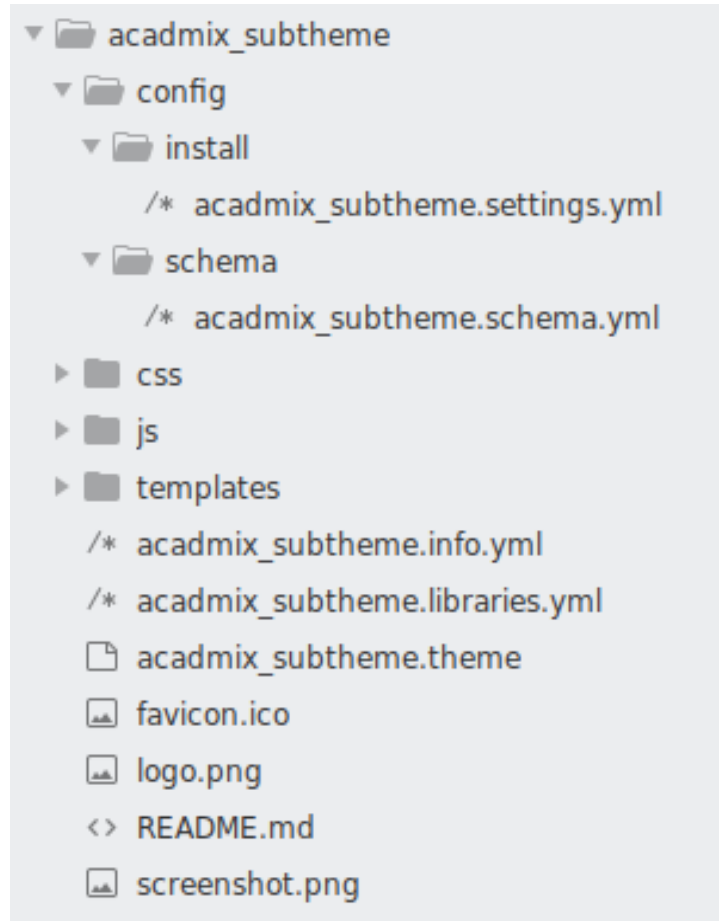


Figure 6.4: Subtheme file structure

6.3 Example of acadmix_subtheme

In the `acadmix_subtheme` the base theme is `acadmix`. Copy the files from base theme folder to subtheme folder which we want to override.

6.3.1 Twig in Drupal 8

Twig is a template engine for PHP and it is part of the Symfony2 framework. In Drupal 8 Twig replaces PHPTemplate as the default templating engine. PHP Template based ***.tpl.php** files have been replaced by ***.html.twig** templating files.

Drupal 8 currently uses Twig version 1.x. However, Drupal 8.7 and later is compatible with Twig 2.x.

6.3.2 Override the base theme template

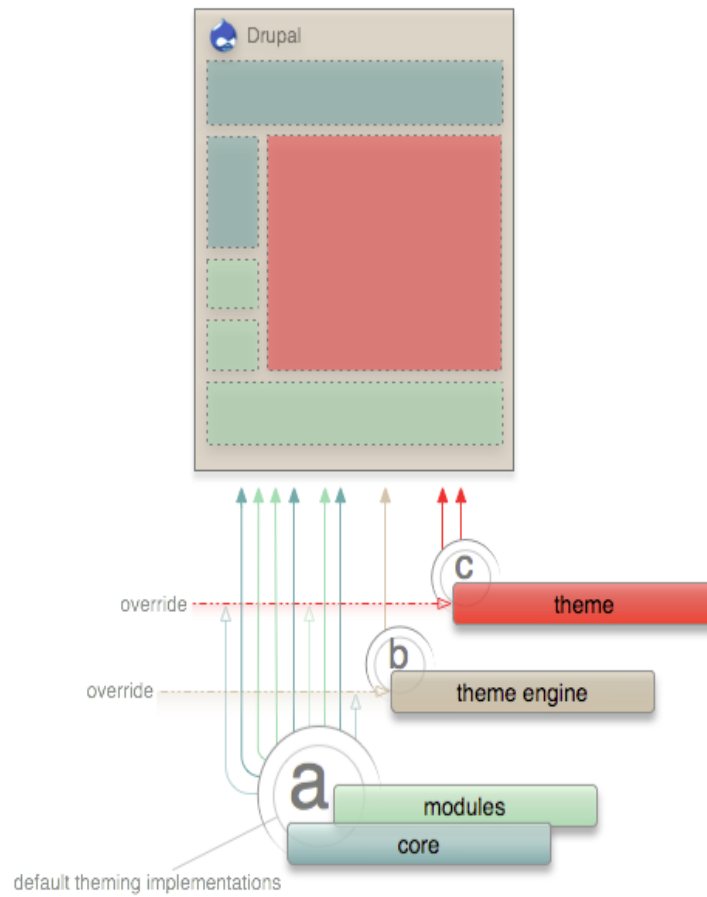


Figure 6.5: Override the base theme

1. Node template contain the actual content of respective node. for override the node template follow the steps.
 - (a) Copy the file of this format **Ds-1col-node-machine name of content type.html.twig** from base theme folder.
 - (b) Past this file in sub-theme folder and rename it according to our content type
 - (c) Ex.**ds-1col-node-laboratories.html.twig**, here the laboratories is the machine name of content type laboratory.
 - (d) Paragraph types.
 - (e) Taxonomy terms.
2. View template contain the view of respective content type. for override the view template follow the steps.
 - (a) Copy the file of this format **Views-view-unformatted- Machine Name of content type – display id .html.twig** from base theme folder.
 - (b) Past this file in sub-theme folder and rename it according to our content type
 - (c) Ex.**views-view-unformatted-laboratories-page_1.html.twig**, here the laboratories is the machine name of content type laboratory and page_ 1 is display id of that page.

6.4 After override templates

All the content type in this acadmix distribution and other content types according to our college website, on that I apply sub-theme on it .

In chapter(3), the views of all content type which display there are also polished by subtheme. Some of them are shown here,

ex. laboratory, Photo gallery, Activities, Events, Major Recruiters, Members etc.

6.4.1 Node: Laboratory



Project Laboratory II

Area	87.5 Sq. m
Equipment cost	Rs.1275265/-
Utilisation	Sem I – 18 Hour/Week Sem II –10 Hour/Week

Figure 6.6: Node: Laboratory

6.4.2 Node: Photo Gallery



Figure 6.7: Node: Photo Gallery

6.4.3 Node: Major Recruiters



Every time the society needed us, we stepped in and helped create a new industry. In 1945, our journey commenced with us getting into the steel business, and over time, we expanded to 22 key industries. A need for change in the agricultural practices pushed us to foray into that sector right before the agriculture revolution began in India. We became one of the key torch-bearers of the IT revolution in our country. Our focus now lies in developing alternate energy sources because we believe energy conservation will play a huge role in ensuring a better future – for not just our country and communities, but the entire world.

Company official site

<https://www.mahindra.com>

Figure 6.8: Node: Major Recruiters

6.4.4 Node: Members



Full Name Mr. kalpesh shankar sonawane Sr., student

Email 11kalpeshsonawane@gmail.com

Category [student](#)

Designation student

Location Nashik

Phone No 7218456087

File uploads

 [Kalpesh's Resume \(3\).pdf](#)

Figure 6.9: Node: Members

Chapter 7

Custom 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.

7.0.1 Folder structure for modules

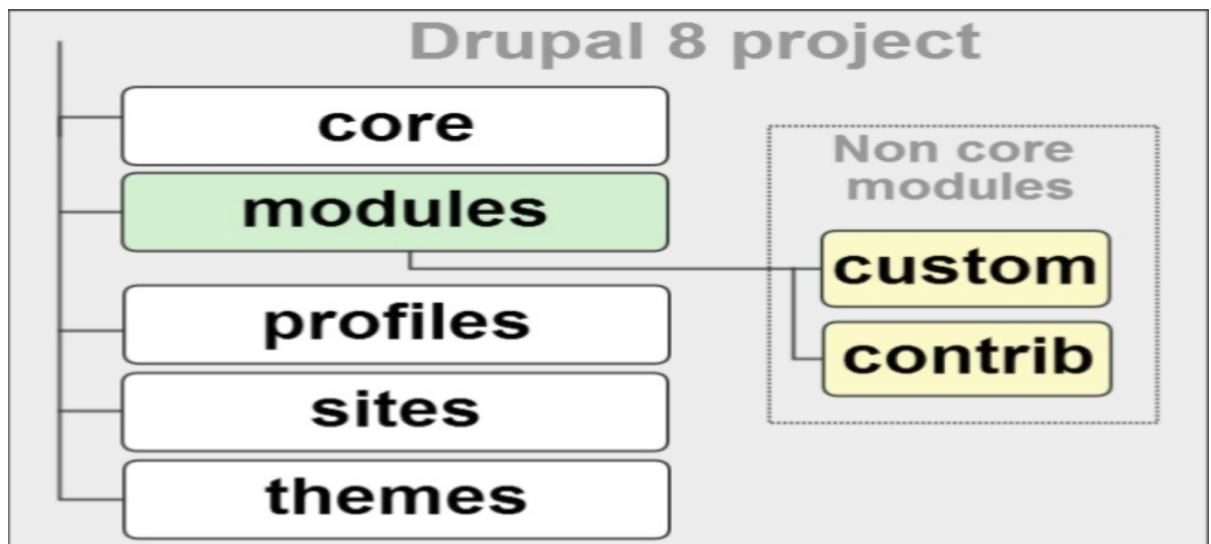


Figure 7.1: Node: Members

7.0.2 Create custom module: Laboratories

To create a module in drupal-8 using drupal console. follow the steps below.

1. Type drupal in the project root directory, it will list all the commands available.
2. To create custom module use drupal generate:module command.
3. And then it will ask for the module name, machine name , location where to generate module files in interactive way.

```
// Welcome to the Drupal module generator
Enter the new module name:
> Laboratories

Enter the module machine name [laboratories]:
>

Enter the module Path [modules/custom]:
>

Enter module description [My Awesome Module]:
> This module contain laboratory details.

Enter package name [Custom]:
>

Enter Drupal Core version [8.x]:
>

Do you want to generate a .module file? (yes/no) [yes]:
>

Define module as feature (yes/no) [no]:
>

Do you want to add a composer.json file to your module? (yes/no) [yes]:
>

Would you like to add module dependencies? (yes/no) [no]:
>

Do you want to generate a unit test class? (yes/no) [yes]:
>

Do you want to generate a themeable template? (yes/no) [yes]:
>

Do you want proceed with the operation? (yes/no) [yes]:
>

// generate:composer
Generated or updated files
Generation path: /var/www/html/kalpesh/docroot
1 - /modules/custom/laboratories/laboratories.info.yml
2 - /modules/custom/laboratories/laboratories.module
3 - /modules/custom/laboratories/tests/src/Functional/LoadTest.php
4 - /modules/custom/laboratories/laboratories.module
5 - /modules/custom/laboratories/templates/laboratories.html.twig
6 - modules/custom/laboratories/composer.json

Generated lines: 100
```

Figure 7.2: Custom Module: Laboratories

7.0.3 Export the content type: Laboratories as Module

For exporting the existing content into custom module we only need the `<module_machine_name>.info.yml` and `<module_machine_name>.module` file.

1. To export the content type config drupal console is having command `config:export:content:type (cect)` in config section of drupal console command list.

```

Export content type in module as an optional configuration (yes/no) [yes]:
> no

Content Type to be exported without uuid key. (yes/no) [yes]:
>

Content type to be exported without the default site hash key. (yes/no) [yes]:
>

Include content type module dependencies in module info YAML file (yes/no) [yes]:
>

// config:export:entity

Export the bundle in the module as an optional configuration (yes/no) [yes]:
> no

[+] The following module dependencies were included at "modules/custom/laboratories/laboratories.info.yml"
  [-] menu_ui
Exporting bundle laboratories
- modules/custom/laboratories/config/install/node.type.laboratories.yml
- modules/custom/laboratories/config/install/core.base_field_override.node.laboratories.promote.yml.yml
- modules/custom/laboratories/config/install/core.base_field_override.node.laboratories.title.yml.yml
- modules/custom/laboratories/config/install/field.field.node.laboratories.body.yml
- modules/custom/laboratories/config/install/field.storage.node.body.yml
- modules/custom/laboratories/config/install/field.field.node.laboratories.field_area.yml
- modules/custom/laboratories/config/install/field.storage.node.field_area.yml
- modules/custom/laboratories/config/install/field.field.node.laboratories.field_lab_equipment_cost.yml
- modules/custom/laboratories/config/install/field.storage.node.field_lab_equipment_cost.yml
- modules/custom/laboratories/config/install/field.field.node.laboratories.field_lab_image.yml
- modules/custom/laboratories/config/install/field.storage.node.field_lab_image.yml
- modules/custom/laboratories/config/install/field.field.node.laboratories.field_utilisation_of_lab.yml
- modules/custom/laboratories/config/install/field.storage.node.field_utilisation_of_lab.yml
- modules/custom/laboratories/config/install/core.entity_form_display.node.laboratories.default.yml
- modules/custom/laboratories/config/install/image.style.thumbnail.yml
- modules/custom/laboratories/config/install/core.entity_view_display.node.laboratories.teaser.yml
- modules/custom/laboratories/config/install/core.entity_view_mode.node.teaser.yml
- modules/custom/laboratories/config/install/core.entity_view_display.node.laboratories.default.yml

```

Figure 7.3: Custom Module: Laboratories

Chapter 8

Conclusion

In fossee fellowship 2019, I successfully develop academic website using drupal 8. Also, create a content type according to our college department website. This content type export as a module to use it on another website. The theming applied on all the view and node of a respective content type.

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