Summer Fellowship Report

On

DRUPAL (Web Development)

Submitted by

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Under the guidance of

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May 21st- July 5th ,2019

Acknowledgement

This report has been prepared for the internship that has been done in the National Virtual Library of India (NVLI), Janpath Office (National Mission on Libraries, Janpath Bhawan), Delhi in order to study the practical aspects of the Drupal its implementation in the real field with the purpose of learning and exploring in the mentioned field and for professional development.

The aim of this internship is to be familiar with the implication of Drupal and uses of concerned theoretical knowledge and clarifying the career goals so, I have successfully completed the internship and compiled this report as the summary .

I would like to express my sincere gratitude to my project head Prof . Pradeep Varma who has given me this valuable opportunity to work in such a learning environment to get an industrial based experience . I am also grateful to enthusiastic team of NVLI project especially the Technical team. The Technical team comprising of three great mentors Mr. Pratish Jha , Mr. Manish Kala , Miss. Sonpriya Rawat their constant supervision and support was truly helpful in completing my tasks and my internship.

Anshu Sinha
Place : Delhi
Date : 5th July 2019

Content

Chapter 1

Introduction to Drupal

Drupal is a free and **open-source content management** framework written in PHP and distributed under the General Public License(GNU). Drupal provides a back-end framework for at least 2.3% of all websites worldwide ranging from personal blogs to corporate, political, and government sites.

The standard release of Drupal, known as Drupal core, contains basic features common to content-management systems. These include user account registration and maintenance, menu management, RSS feeds, taxonomy, page layout customization, and system administration. The Drupal core installation can serve as a simple website, an Internet forum, or a community website providing for user-generated content.

Although Drupal offers a sophisticated API for developers, basic Web-site installation and administration of the framework requires no programming skills because of which the user with minimal knowledge of coding can build a website with Drupal. Drupal runs on any computing platform that supports both a web server capable of running PHP and a database to store content and configuration.

Drupal is a content management software. It's used to make many of the websites and applications you use every day. But what sets it apart is its flexibility; modularity is one of its core principles.

Its tools help you build the versatile, structured content that dynamic web experiences need. For any special functionality, one needs in his website can be attained by modules provided by Drupal.

Drupal makes it easy for the user to build a website. Drupal is one of the CMS because:

1.   Drupal comes with the option of choosing from the variety of modules and third-party integrates that can be used for developing a website adhering to your preference.

2.   Drupal comes with clean markup code out of the box that makes it easy for developers to manage content publishing.

3.   The competency of Drupal lies in its versatility. Since it is open-source, any web developer can work on it and provide the user with numerous choices.

Chapter 2

Overview of NVLI

National Virtual Library of India or (NVLI)

NVLI is an initiative by the Ministry of Culture, a platform that hosts data of cultural relevance from various repositories and institutions all over India.

Research, academics and also general users from various sectors are today depending more on digital information. Corresponding to this demand an increasing amount of digitized data and services based on such data are being initiated. Digital Information today serves as an important knowledge asset.

While the expansion of the digital data and information services heralds a new and exciting era, it also presents many issues and challenges. The common user is often clueless about the existence of resources that are useful. The problem is akin to having large collection of printed materials in the form of books and journals but only when it is organized and services are provided, it is called a 'library'. In fact immense amount of information are digitized under several projects carried out by various Agencies and Govt. Departments like MOC, State Govts, etc.

Most of them are available on the web, but are dispersed. There is no comprehensive database built for all such resources. The true potential can only be exploited for use by the masses when it is usefully organized and presented in user-friendly services including multilingual services.

Digital era has also brought in 'digital divide' and has marked the society into digital haves and have-nots. It is no longer a matter of choice but rather a compulsion to find ways and means of bridging the gap between the two sections. Virtual library will go a long way in filling up the gap.

The target users of NVL will be students, researchers, doctors, professionals, and novice users, including educationally, socially, economically, physically disadvantaged groups. They can be built incorporating many modules to cater to information needs.

The objective of National Virtual Library of India (NVLI) is to facilitate the creation of a comprehensive database on digital resources of India on information about India in an open access environment.

Chapter 3

Modules

The basic functionality needed to develop a website is provided by Drupal in its core itself. The user just needs to enable it from the extension. The core modules make it easy to add content, publish them and create pages.

The module gives the user full control over how they want their website's functionality.

A module is a set of PHP, JavaScript, and/or CSS files that extends site features and adds functionality. All the additional functions user need in his site are provided by Drupal in the form of modules. Modules are the elements which provide Drupal with its flexibility and make it one of the best CMS out there.

The user can turn the features and functionality on by installing the module and can turn it off by uninstalling the module but before uninstalling, the user 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.

Hence to improve the features and functioning of the NVLI project here are some of the contributed module we worked on for resolving the issues.

Chapter 4

Flexslider module

4.1 About

Flexslider is a power-full Drupal module which integrates with the flex-slider library which allows us to build responsive and resizable slideshows. It is basically a jQuery plugin by WooThemes and it makes it very easy to create slideshows.

The features provided by Flexslider slideshow 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 plugin (flexslider_views)

4.1 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\nvli2\sites\all\libraries\flexslider**
    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 dropdown 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 5

Paragraph Module

5.1 Introduction

Paragraphs is the new way of content creation and content presentation

It allows us to make things cleaner so that you can give more editing power to your end-users.Instead of putting all the content in one WYSIWYG body field including images and videos, end-users can now choose on-the-fly between predefined Paragraph Types independent from one another. Paragraph Types can be anything you want from a simple text block or image to a complex and configurable slideshow.

What enhancement features Paragraph module provide :-

- Add a block of text with an image left to it
- Add a slideshow between blocks of text
- Add a youtube embed between your text
- Add quotes between your content blocks

5.2 Configuration and Installation

Following are the modules to be installed :-

- Paragraphs

Paragraphs module comes with a new "paragraphs" field type that works like Entity Reference and hence needed to have paragraph types entities

- [paragraphs features](#)
  This module provides add on features for the paragraph modules
- [paragraphs previewer](#)
  Provides a rendered preview of paragraph item before saving the entity.
- [paragraphs asymmetric translation widgets](#)
  This module is offering asymmetric translations to paragraphs based in the paragraphs Classic widget

Dependencies of modules:-

- [entity reference revision](#)
  Adds an Entity Reference field type with revision support.
  It's based on the core Entity Reference module but allows us to reference a specific entity useful for modules like Paragraphs

- [views reference field](#)
  This field in conjunction with the Paragraphs module, makes for a very powerful content management system, allowing the addition of just about any kind of content into an entity page. It does the same as the Views Reference

5.3 Bootstrap Paragraphs

The Bootstrap Paragraphs module provides a suite of content and layout [Paragraph](#) bundles made with the [Bootstrap](#) front-end framework.

Using the Bootstrap Paragraphs Drupal 8 module, we will be able to create Bootstrap features like Accordions, Carousels, Modals, Tabs, and Multi-column layouts. You can also harness the power of Drupal referencing Text, Images, Blocks, and even Views.Some Bootstrap related features modules should be installed and enabled:-

- [Bootstrap layouts](#)
  (machine name- bootstrap_layouts) It provides a basic panels for bootstrap layouts

- [Views bootstrap](#)
  (machine name- views_bootstrap) Views Bootstrap module enables you to create components following the theme structure of the Bootstrap framework all within the configuration settings of Views.

- [views bulk operations](#)
  (machine name- views_bulk_operations)This module augments Views by allowing bulk operations to be executed on the displayed rows.

- [views bulk edit](#)
  (machine name- views_bulk_edit) It allows bulk updating of entity values through views bulk actions.

- [view modes inventory](#)
  (machine name - vmi) This module provides a set of template content as a "View Modes" that are typically used in site

5.4 Varbase Project Modules

All the varbase modules get enabled in any Bootstrap base theme providing more development in functionality . The Varbase modules installation and their dependencies are as follows:-

1.[Varbase media](#)

It manages type of media contents and entity browsers in the site in more enhanced way

To enable this following module should be installed:-
- [Display suite](#) machine name- ds
- [better exposed filters](#) machine name-better_exposed_filters
- [crop api](#) machine name- crop
- [Dropzonejs](#) machine name-dropzonejs,

- the following libraries for dropzone js should be downloaded [dropzone](#) it should be kept in the folder named libraries such that the path is C:\xampp\htdocs\nvli8\libraries\dropzone
- [focal point](#) machine name-focal_point
- [entity browser](#) machine name - entity_browser
- [entity embed](#) machine name- entity_embed
- [views infinite scroll](#) machine name- views_infinite_scroll
- [inline entity form](#) machine name-inline_entity_form
- [entity browser enhance](#) machine name- entity_browser_enhanced

Now install the varbase media the contributing modules will get installed through it.

NOTE:- After every varbase installation clear the cache .

2.[varbase bootstrap paragraphs](#)

After varbase media being installed the Varbase bootstrap paragraphs is also installed. Varbase bootstrap paragraphs is suite of Paragraph bundles to be used for Varbase distribution.

3.varbase core

 It enables the core modules of Varbase . To enable this following module should be installed:-

- Token machine name- token

- Configuration Update Manager machine name-config_update

- Config Filter machine name- config_filter

- Config Ignore machine name- config_ignore

- Block Class machine name- block_class

- Advanced Text Formatter
  machine name-advanced_text_formatter

4. After Varbase core being enabled the Varbase admin should be enabled and installed. Apart Varbase admin is installed and enabled many other default core modules such as Varbase Page, Varbase Security, Varbase Tour, Varbase Development, Varbase Internationalization , Varbase Webform.

5. [varbase editor](#)
Varbase Editor is a feature that integrates a rich editor into Varbase distribution.

6. [varbase styleguide](#)
 It provides custom styling guide for components for Varbase.To enable this following module should be installed:-
- [styleguide](#)

7. [varbase landing](#) (important among Varbase module)
The layout for the editing and adding content. It provides the basis for Landing Pages, which are built to include appealing stacked components that are visually separate.

8. [varbase total control dashboard](#)
To enable this following module should be installed:-
- [total control](#) machine name- total_control

Hence,the varbase installation finishes .
(To get the slider the module [Media Hero slider](#) can be used with [Entityqueue](#) module)

5.5 Configuration of Paragraph Types

- After all the modules is enabled there will be some default paragraph types in the configuration section.

- In the Manage form display and the Manage display section some changes should be made by adding two groups the "Component title" and " Styling settings "

- The title section should be included in the component title section and all the other styling widgets should be included in the styling settings.

- Then the following widgets would appear and content will be added according to the desired view

5.6 Configuration of Content Types

- The Varbase Landing module will enable a content type called Landing page

- The given Content type should be labelled as per editor choice .

- The desired content should be edited in the mentioned Content type.

Chapter 6

Multiple PDF view

6.1 Settings and Configurations

The module will let the pdf to show in this way:- (one pdf for a sample and the other pdf in the pop-up)

The module installed for this are :-
- Pop up field group
- System stream wrapper
- Field Group
- Pdf
- To get a previewer for pdf download pdf.js libraries -Pdf.js
  (place the libraries in the following files- C:\xampp\htdocs\nvli6\libraries)
  After unzipping the file rename the folder in the libraries as pdf.js

NOTE :- The Field Group Migrate module should not be enabled

- The required content type should be created and in the Manage field section the fields should be created.

- The required Field for Pdf is created using file type and in Manage form display section the widget settings should be file

NOTE:- For Pop up view there must be two fields for PDf should be created.

- In the Manage display section the following option should be selected. that enable the view of pdf.js in the instance.

- Now in Manage form display and Manage display we should go to **ADD group tab (the tab enable only after field group is installed and enabled)**

- Now in ADD group button PopUP option should be selected , required label should be written in the LABEL section.

- Now the following fields and Pop up field group should be arranged in Manage form display and Manage display section as per the requirement . The file field type will come under the submenu .

Chapter 7

Multiple Video view

6.1 Settings and Configurations

The module installed for this are :-

- [Pop up field group](#)

- [System stream wrapper](#)

- [Field Group](#)
  NOTE:- the given module does not support the Accordion and Accordion terms in the current version of Drupal . Both options comes under the ADD group section in Manage display and Manage form display.

- [video embed field](#) (To embed or play video we can also use [Video-js](#))

- To show the video in tabs the field should be made as per the number of videos
  The field type selected is Video Embed , that comes under media section(Here i have added two videos in different tabs so two fields are made)

- After making the required field in the Manage form display section and Manage display section Select the **ADD group** button for adding field group and select the Tabs section

- This configuration should be done in both Manage form display and Manage display .

- Hence in the content of content type the video is added to the fields the video will appear as the TABS.

Chapter 8

Taxonomy

8.1 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.

8.2 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.

8.3 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.

8.4 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.

Chapter 9

9.1 Contextual Filters

The Master view block has a category for Advance view having one special filters called Contextual filters . The Contextual filters configure a view to filter dynamically rather than the filters and sorting used that provide a static view.

9.2 Relationship

Below the contextual filters we have an option for relationships , the work associated with this is to establish a relationship between two content or even two content types and a content type and taxonomy term.

9.3 Application

1. Using relationships and we can create a FAQ page by using a relationship called content by author in the view section.
2. We can use contextual filter to add a block that contains related content or that presents a list of articles by the same author.

Chapter 10

Adding Analytics to a Drupal Website

10.1 Introduction

Whether its an Ecommerce website or a CMS like Drupal a website analytics is a go through process.Website analytics provide us with the actual reports and analytics on how our site visitors behave on our website; who they are by their age, gender, location and even the demographic information.Website analytics tools like Google Analytics show the admin exactly which content gets the most visits, average duration, and bounce rate for the individual pages, so the admin can analyze, and optimize, for better engagement. The graphical reports on trafficking and charts showing the engagements clearly helps in building the SEO for the website.

If we browse for the top contributed analytics modules for Drupal the content shows the following two most compatible analytics for the site .

10.2 Google Analytics module

The Module adds the web tracking system to your website. It allows following statistics feature to the website:-

1. Single/multi/cross domain tracking
2. Monitor the nodes or the content
3. Demographics and Interests reports
4. Anonymize visitors IP address
5. Cache the Google Analytics code on your local server for improved page loading times
6. User Id tracking across devices
7. Drupal messages tracking
8. Tracking for all the pages

Apart from this we have [Google Analytics Reports](#) that provide graphical tracking of the website.

10.2 Matomo Analytics module

The module allows you to add the following statistics features to your site:

- Single/multi domain tracking
- Selectively track/exclude certain users, roles and pages
- Monitor what type of links are tracked (downloads, outgoing and mailto)
- Monitor what files are downloaded from your pages
- Cache the Matomo code on your local server for improved page loading times
- User Id tracking across devices
- Drupal messages tracking

Reference

For summing up the report the following resources were of great help , thus the above listed sites and links are truly up for consideration in order to build a website

1. [Drupal.org](#)

2. [Spoken Tutorials](#)

3. [Drupal Stackexchange](#)

4. [Ostraining](#)

5. [Modules Unraveled](#)

6. The National Archives of India website (Developed by IITB Team)