SUMMER FELLOWSHIP REPORT 2022

Drupal Development

Submitted by

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With Regards,

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Introduction

1.What is Drupal ?

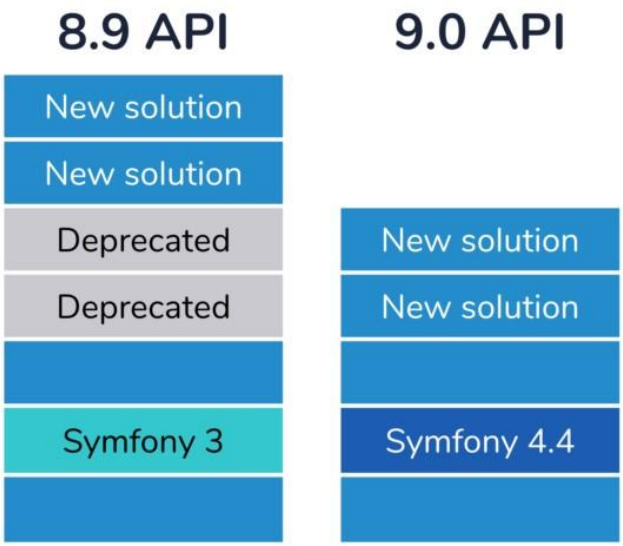
Drupal is an “out of the box” web content management tool as well as a customizable platform -- **to help you build the right tool to serve your content management strategy**. Business and technology leaders use Drupal to create realworld enterprise solutions that empower web innovation.

2. What is new in Drupal 9 ?

After November 2021, a newer Symfony version of Symfony 4 or 5 will replace Symfony 3. Additionally, Twig 2.0 will be upgraded.

As a benefit of Drupal 9, these upgrades will lead to improved developer experience, higher performance of the platform, and heightened security.

Drupal 9.0 API =
Drupal 8.9 API minus deprecated parts plus third party dependencies updated



Flexibility, meet simplicity

Solutions for content management struggle to balance flexibility and simplicity. If a solution is simple, it can only be used for a single purpose and if it is flexible, it may be too difficult for newcomers to learn.

The average content management system (CMS) is like a toy truck. Specific assumptions have been made about how it will be used and these assumptions are difficult to override. Content management frameworks, on the other hand, are like the raw materials needed to make any toy—no assumptions have been made about how they'll be used and the builder needs expert technical knowledge in order to make anything at all.

Drupal is designed to be the perfect content management solution provider for nontechnical users who need both simplicity and flexibility. It accomplishes this through its modular approach of site-building. Unlike other CMSs, Drupal isn't a prefabricated toy truck, but rather a collection of wheels, windshields, axles, frames, etc., that a toy-maker can easily connect together. With Drupal, a maker could create a toy truck and similarly can also create a toy such as an airplane, submarine, or robot. For this reason, Drupal may be described as both a content management system and a content management framework—one unified system that strives to have the strengths of both, without their deficiencies.

So, whether a site builder is looking to create a news site, online store, social network, blog, wiki, or anything else, it's just a matter of combining the right modules. The only limitation is the creator's imagination.

Drupal in action

To clarify the difference between Drupal and other CMSs, consider the example of a news site. You want to be able to post news articles on the site and you want the homepage to have a section featuring the five most recent ones. Next, you decide that you want to add a blog section and put a list of links to the five most recent blog entries on the homepage as well.

If you were using an ordinary CMS, first you would install a plugin that handled news articles and could put short blurbs on the homepage. Next, you'd install a plugin that would track the latest blog posts and put a list of those on the homepage. Each plugin would only be responsible for tracking and managing a particular kind of content and each would remain relatively isolated from the others.

But, what happens when you have that brilliant, middle-of-the-night idea to blend these two functions by showing a list of blog posts about the latest news items, ordered according to contributor activity? If you're using a "toy truck" CMS, you may be out of luck. Or, you may need to hire a developer to write a custom plugin from scratch. But through the power of the Drupal way, the way of manageable abstraction, you can accomplish this task quickly and easily. Since Drupal's modules do things in a standard way and interface with a common underlying system, building all sorts of clever, customized features is just a matter of snapping parts together. In this example, you could just use views.
Of course, this flexibility comes at a certain cost. While a toy truck is instantly understandable and ready to use without much thought, a modular vehicle construction kit will, by nature, require you to read the instruction manual first. The building blocks are available, but you'll need to learn how they fit together before you can take a paper prototype and turn it into a full-featured website.

Drupal core and the thousands of contributed modules that build on it, requires an initial investment to learn, but mastering the Drupal way is immensely rewarding; the passionate community is a testament to Drupal's power to liberate site builders from the simplicity/flexibility dilemma. Once you've tried Drupal, you'll likely leave your toy truck and boat in the closet to gather dust.

How Drupal does it

Intrigued yet? Let's take a closer look at how Drupal works.

People often think of a website as a collection of static pages, perhaps with some functions like a blog or a news engine thrown in to round it out. When they go to manage their site, they are thinking in terms of a tree-like hierarchy of pages that they will edit.

Drupal, however, treats most content types as variations on the same concept: a node (more on this in a moment). Static pages, blog posts and news items (some possible node types) are all stored in the same way and the site's navigation structure is designed separately by editing menus, views (lists of content) and blocks (side content which often has links to different site sections).

It’s a lot like the separation you find in standards-compliant page coding—XHTML provides the meaningful structure of the information, while CSS arranges it for presentation. In Drupal, nodes hold the structured information pertaining to a blog post (such as title, content, author, date) or a news item (title, content, go-live date, take-down date), while the menu system, as well as taxonomy (tagging of content) and views, creates an information architecture. Finally, the theme system, along with display modules like Panels, controls how all this looks to site visitors.

Since these layers are kept separate, you can provide a completely different navigation and presentation of your content to different users based on their specific needs and roles. Pages can be grouped differently, prioritized in a different order and various functions and content can be shown or hidden as needed.

Get started quickly, customize extensively

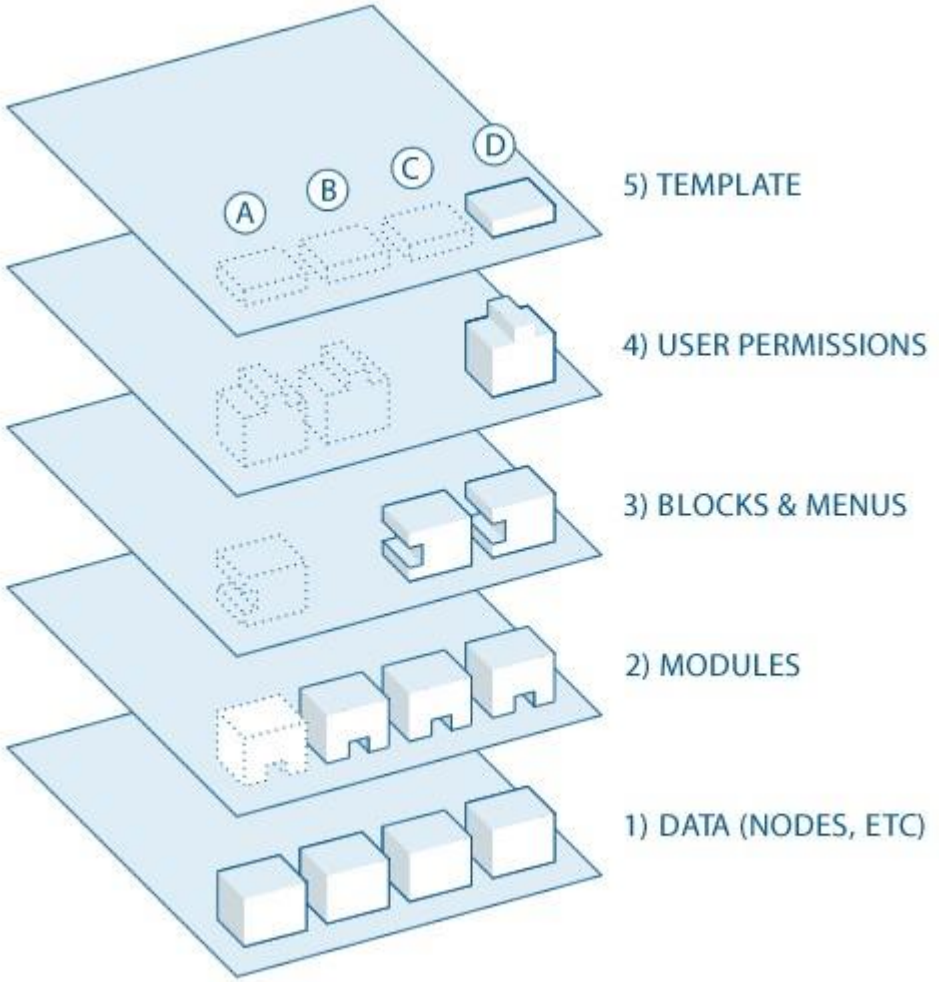
Drupal's flexibility is incredible, but installing it is surprisingly easy. With a simple FTP upload and a few short web-based configuration questions, you can connect to your database and have your first Drupal site up and running within an hour.

Pick one of the included themes and just start adding content. Do you want to have visitors log in? Then you should switch "authentication" on or off. Want to switch on some of the included tools? Then you should turn on "forums"; enable commenting on node types; turn on the book module for wiki-like collaboration; create forms and polls; use taxonomy to give site content structured, hierarchical categorization or free-form tagging.

Do you want your own skin applied to the site? Drupal's theme system uses the Twig templating system allows you to insert dynamic content without needing any raw PHP. Drupal’s generated markup is clean, standards-compliant XHTML. No oldschool tables. No cruft. No kidding.

The Drupal flow

If you want to go deeper with Drupal, you should understand how information flows between the system's layers. There are five main layers to consider:



1. At the base of the system is the collection of nodes, the data pool. Before anything can be displayed on the site, it must be an input as data.
2. The next layer up is where modules live. Modules are functional plugins that are either part of the Drupal core (they ship with Drupal) or they are contributed items that have been created by members of the Drupal community. Modules build on Drupal's core functionality, allowing you to customize the data items (fields) on your node types; set up e-commerce; programmatically sort and display content (custom output controlled by filters you define); and more. There are thousands of different options within the fast-growing repository of contributed Drupal modules. They represent the innovation and collaborative effort of everyone from individuals to large corporations.

3. At the next layer, we find blocks and menus. **Blocks** often provide the output from a module or can be created to display whatever you want and then can be placed in various spots (Regions) in your template (theme) layout. Blocks can be configured to output in various ways, as well as only showing on certain defined pages, or only for certain defined users. **Menus** are navigators in Drupal, which define the content coming in each defined menu path (relative URL). Menus are a core element of Drupal which provide links to all the pages created in Drupal.
4. Next are user permissions. This is where settings are configured to determine what different kinds of users are allowed to do and see. Permissions are defined for various roles and in turn, users are assigned to these roles in order to grant them the defined permissions.
5. On the top layer is the site theme (the "skin"). This is made up predominantly of XHTML and CSS, with some Twig variables intermixed, so Drupal-generated content can go in the appropriate spots. Also included with each theme is a set of functions that can be used to override standard functions in the modules in order to provide complete control over how the modules generate their markup at output time. Templates can also be assigned on-the-fly based on user permissions.

Requirements

PC :

RAM Size : 4 GB Minimum

System Type : 64-bit operating system

Database:

XAMPP v3.3.0

- **Apache**
- **MySQL**

Browser:

All browsers are supported.

Drupal v9.3.1

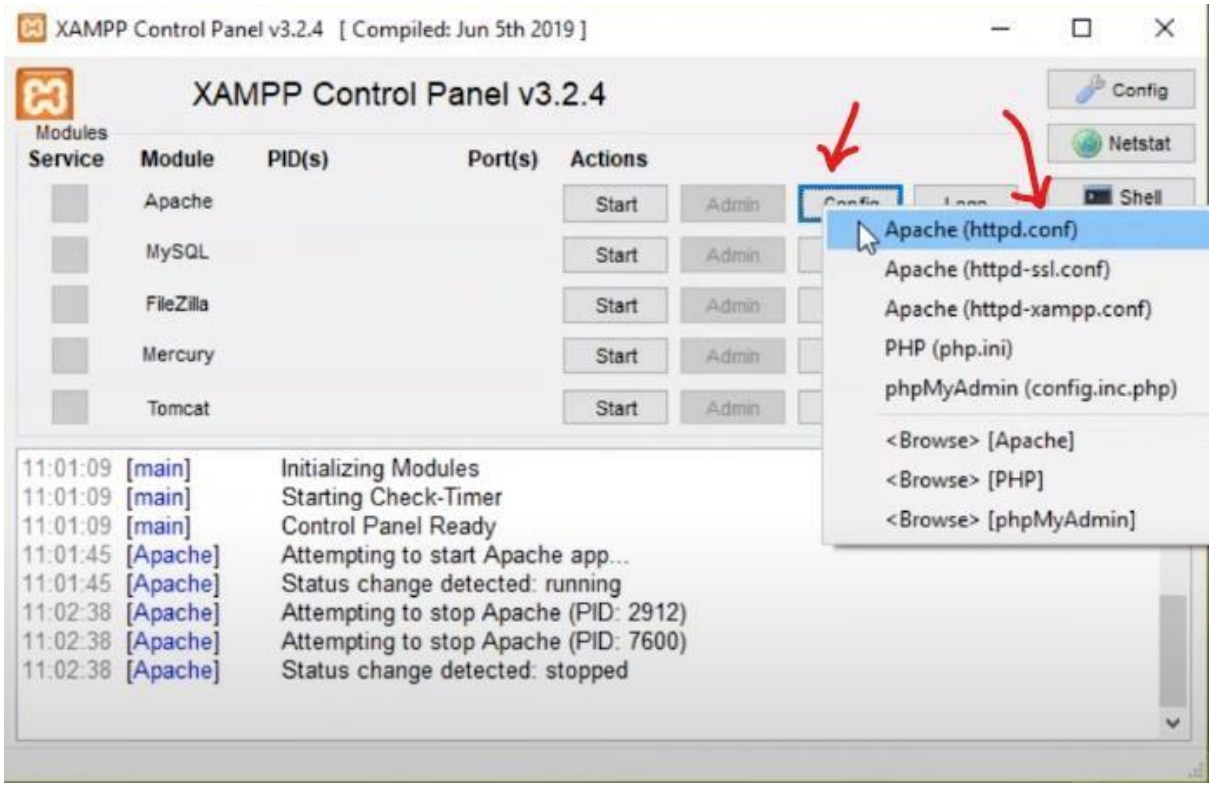
Installation

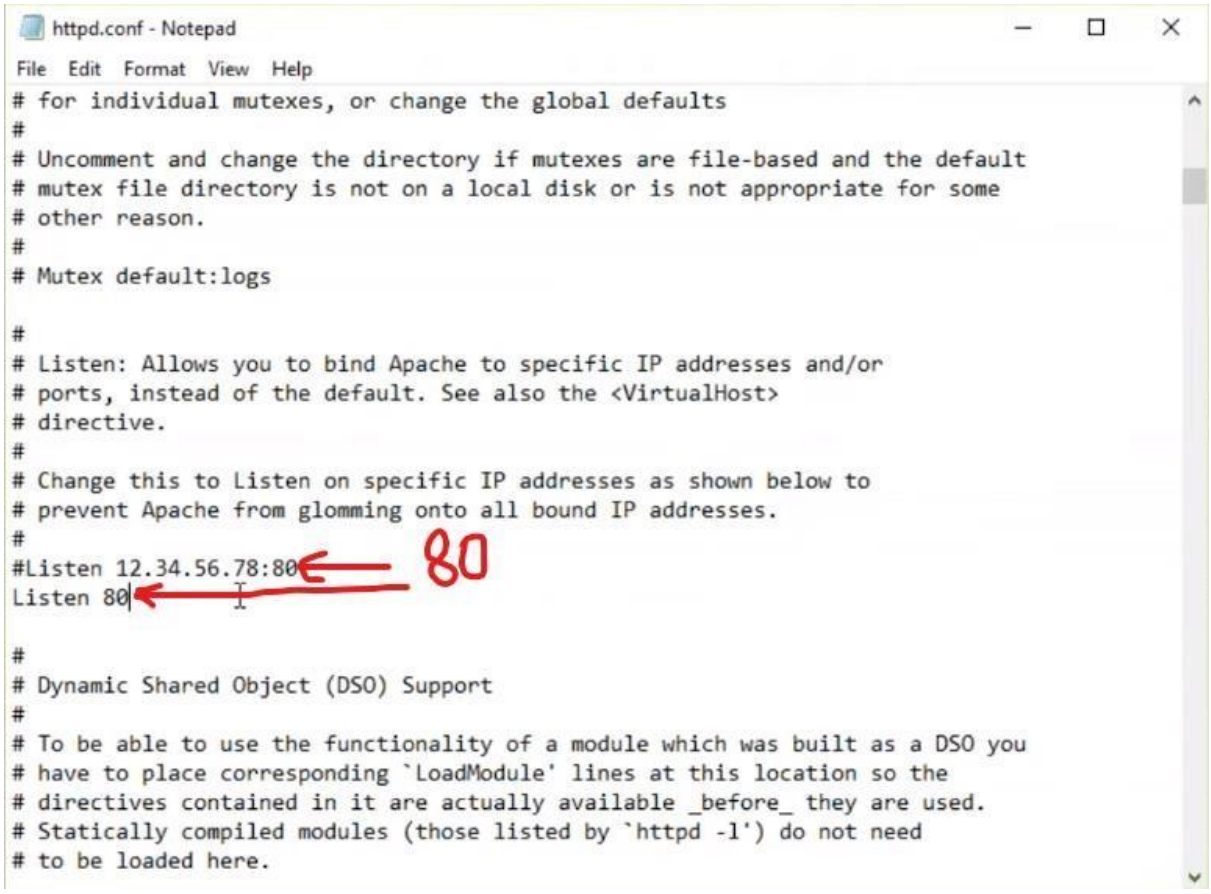
1.Download XAMPP

Using this link download XAMPP

https://sourceforge.net/projects/xampp/

After Installation click on Apache Config. And then click on Apache(httpd.conf) and then change port 80 to 8080 at given location.


XAMPP Control Panel v3.2.4 [Compiled: Jun 5th 2019]
XAMPP Control Panel v3.2.4
Modules
Service
Module
PID(s)
Port(s)
Actions
Config
Netstat
Shell
Apache
MySQL
FileZilla
Mercury
Tomcat
Start
Admin
Apache (httpd.conf)
Apache (httpd-ssl.conf)
Apache (httpd-xampp.conf)
PHP (php.ini)
phpMyAdmin (config.inc.php)
<Browse> [Apache]
<Browse> [PHP]
<Browse> [phpMyAdmin]
11:01:09 [main] Initializing Modules
11:01:09 [main] Starting Check-Timer
11:01:09 [main] Control Panel Ready
11:01:45 [Apache] Attempting to start Apache app...
11:01:45 [Apache] Status change detected: running
11:02:38 [Apache] Attempting to stop Apache (PID: 2912)
11:02:38 [Apache] Attempting to stop Apache (PID: 7600)
11:02:38 [Apache] Status change detected: stopped


httpd.conf - Notepad
File Edit Format View Help
for individual mutexes, or change the global defaults
#
Uncomment and change the directory if mutexes are file-based and the default
mutex file directory is not on a local disk or is not appropriate for some
other reason.
#
Mutex default:logs
#
Listen: Allows you to bind Apache to specific IP addresses and/or
ports, instead of the default. See also the <VirtualHost>
directive.
#
Change this to Listen on specific IP addresses as shown below to
prevent Apache from glomming onto all bound IP addresses.
#
#Listen 12.34.56.78:80
Listen 80
80
#
Dynamic Shared Object (DSO) Support
#
To be able to use the functionality of a module which was built as a DSO you
have to place corresponding `LoadModule' lines at this location so the
directives contained in it are actually available _before_ they are used.
Statically compiled modules (those listed by `httpd -l') do not need
to be loaded here.

2.Setup Drupal

1.Now install drupal 9.3.13 version in your pc in .zip form.

2.Create new folder and unzip drupal file

3.Now go to http://localhost/phpmyadmin and create new dataset provide same name as folder name of unzip drupal file

4. Now type localhost/(your file name) and finish installation

3.Make Drupal better for use

Install admin toolbar

4.Theme

Bootstrap 5

ABOUT PROJECT

AIM :

Our goal is to implement responsive web design. Also, we use DRUPAL 9 in order to give our project a shape, which is open source and has a large community support. In addition to it it has a lot of contributed modules which makes our life easy and thus give a touch of perfection to our website.

ABOUT FOCAL :

FOCAL (Free and open-source creative art library) is an initiative by FOSSEE, IIT Bombay. This is a project from the Open Source Community, which aims at providing ample opportunity and platform for students and technicians to use open source softwares for Computer Graphics.

OBJECTIVE:

- To encourage students and entrepreneurs to use Open Source Software in computer graphics.
- To promote the learning of open-source graphics and animation software, like –

Inkscape (cross-platform open-source vector design)

GIMP (cross-platform open-source photo/image editing)

Scribus (cross-platform open-source desktop publishing)

Synfig Studio (cross-platform open-source 2d animation)

Blender (cross-platform open-source 3d animation) 12

- To publish users' artwork/computer graphics design in Open Source.

CONTENT :

Our website basically contains five main content types which correspond to each of the open source animation softwares i.e. Inkscape, Blender, Scribus, Synfig studio and GIMP. Each of the content types contains respective fields such as rendered artwork , creator name , links for tutorial and softwares, video samples along with title , introduction and some short notes.

Each of the content type has a gallery of its own where thumbnails of the artworks and their samples are rendered in a responsive 3 x 3 layout. These gallery views have a menu link in the main navigation.

Our website also contains quick links, contact information, disclaimer and social media links in the footer region. Whole website is clean and eye-catching. On the top of our home page we have presented a carousel (slideshow) of some of the artworks which gives a glimpse into the samples and content inside.

At last, there are few blogs concerned about various softwares and their related artworks . They describe the experiences people have shared using some of these FOCAL based softwares.

THEME

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.

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.

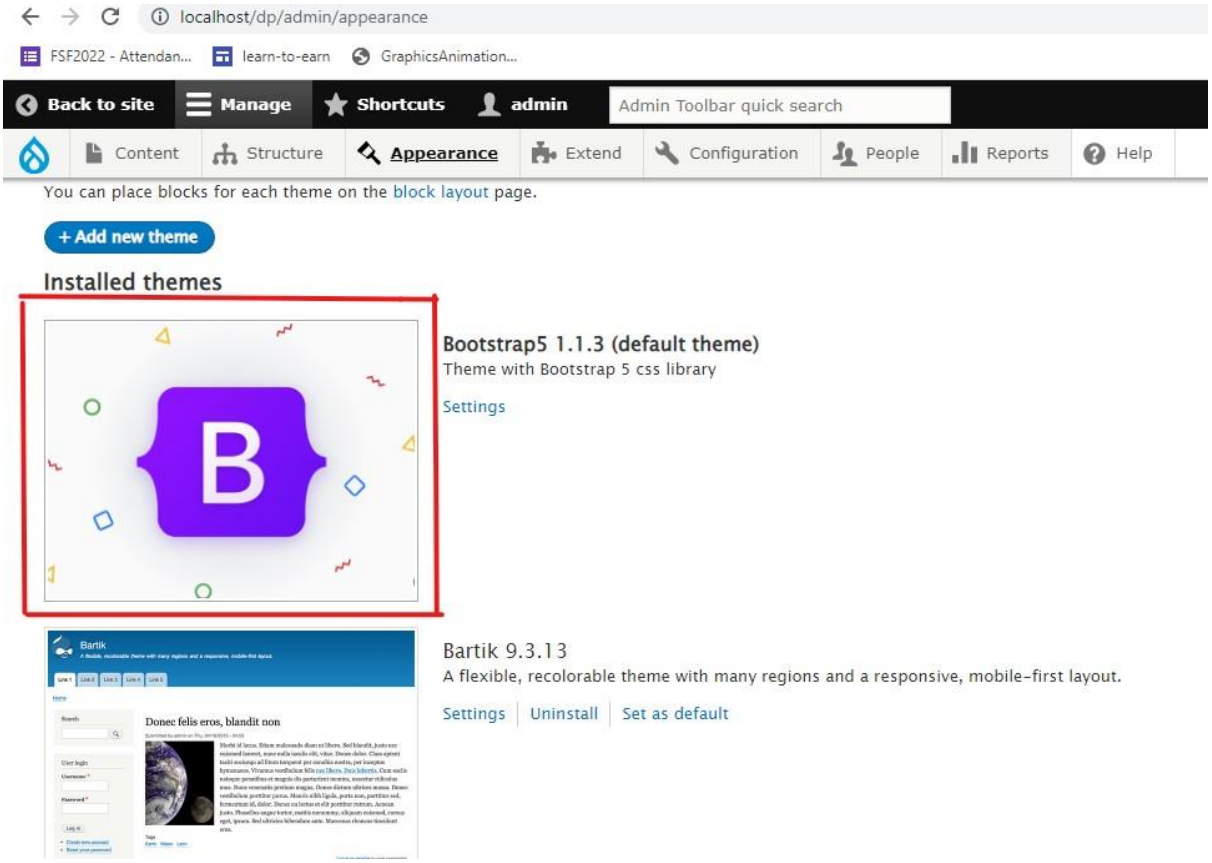
A custom theme can be as simple as a single CSS file that adds styling to the markup provided by the core software. Guidance for creating custom themes in Drupal 8 can be found in the Drupal.org community documentation page "Theming Drupal".

We will use bootstrap 5 for responsive webpage.

Add bootstrap 5 theme

In your drupal page click on install new theme and paste this link at add form url https://ftp.drupal.org/files/projects/bootstrap5-1.1.3.tar.gz

Now make bootstrap 5 as default theme.



RESPONSIVE WEB DESIGN

In the field of Web design and development, we're quickly getting to the point of being unable to keep up with the endless new resolutions and devices. For many websites, creating a website version for each resolution and new device would be impossible, or at least impractical. It's practically essential after all: one design for the BlackBerry, another for the iPhone, the iPad, netbook, Kindle — and all screen resolutions must be compatible, too.

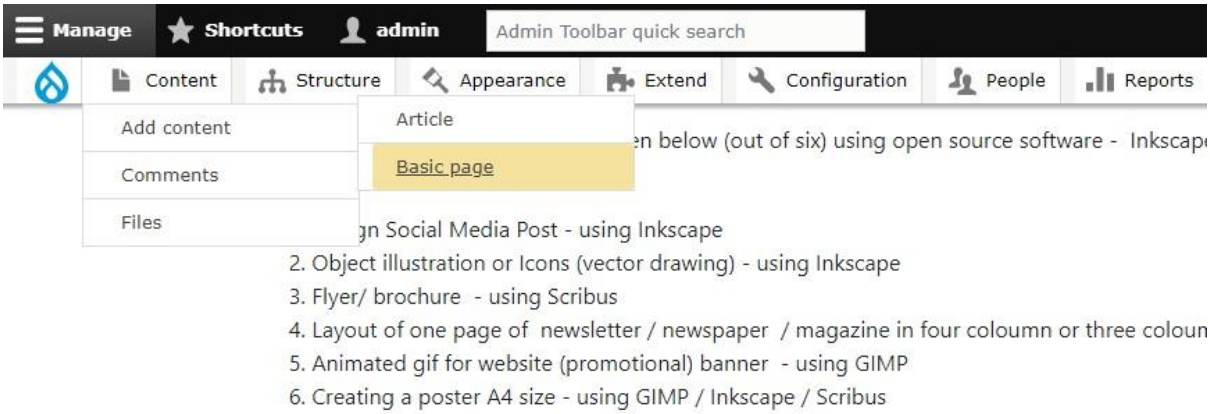
What Is Responsive Web Design?

Responsive Web design is the approach that suggests that design and development should respond to the user's behavior and environment based on screen size, platform and orientation.

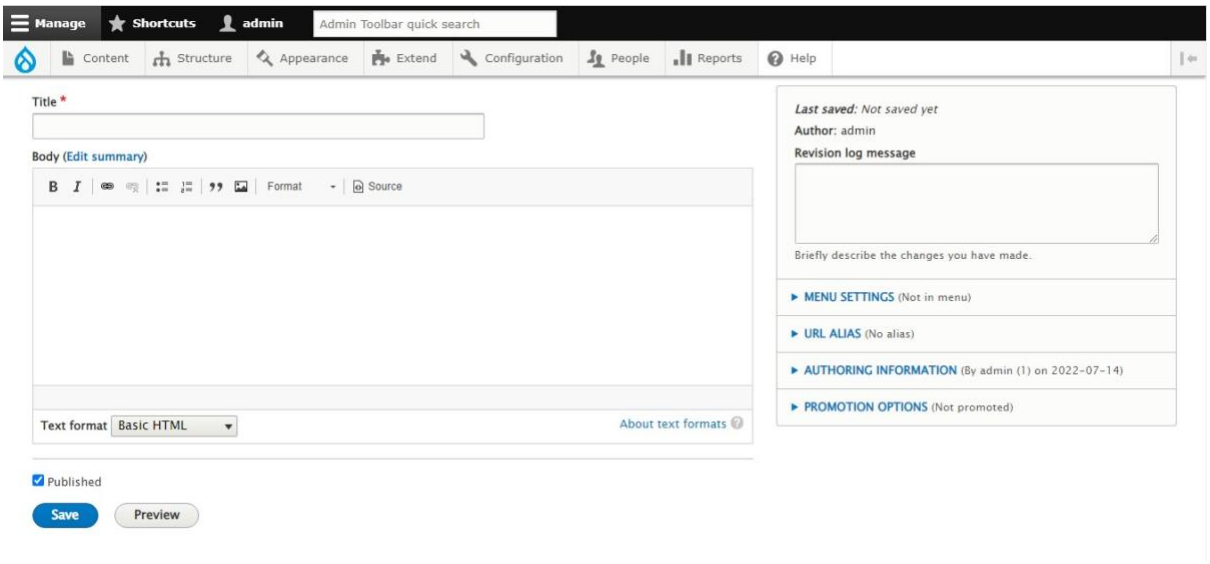
The practice consists of a mix of flexible grids and layouts, images and an intelligent use of CSS media queries. As the user switches from their laptop to iPad, the website should automatically switch to accommodate for resolution, image size and scripting abilities. One may also have to consider the settings on their devices; if they have a VPN for iOS on their iPad, for example, the website should not block the user's access to the page. In other words, the website should have the technology to automatically respond to the user's preferences. This would eliminate the need for a different design and development phase for each new gadget on the market.

Adding Content

To add webpage content click on content > add content > Basic page



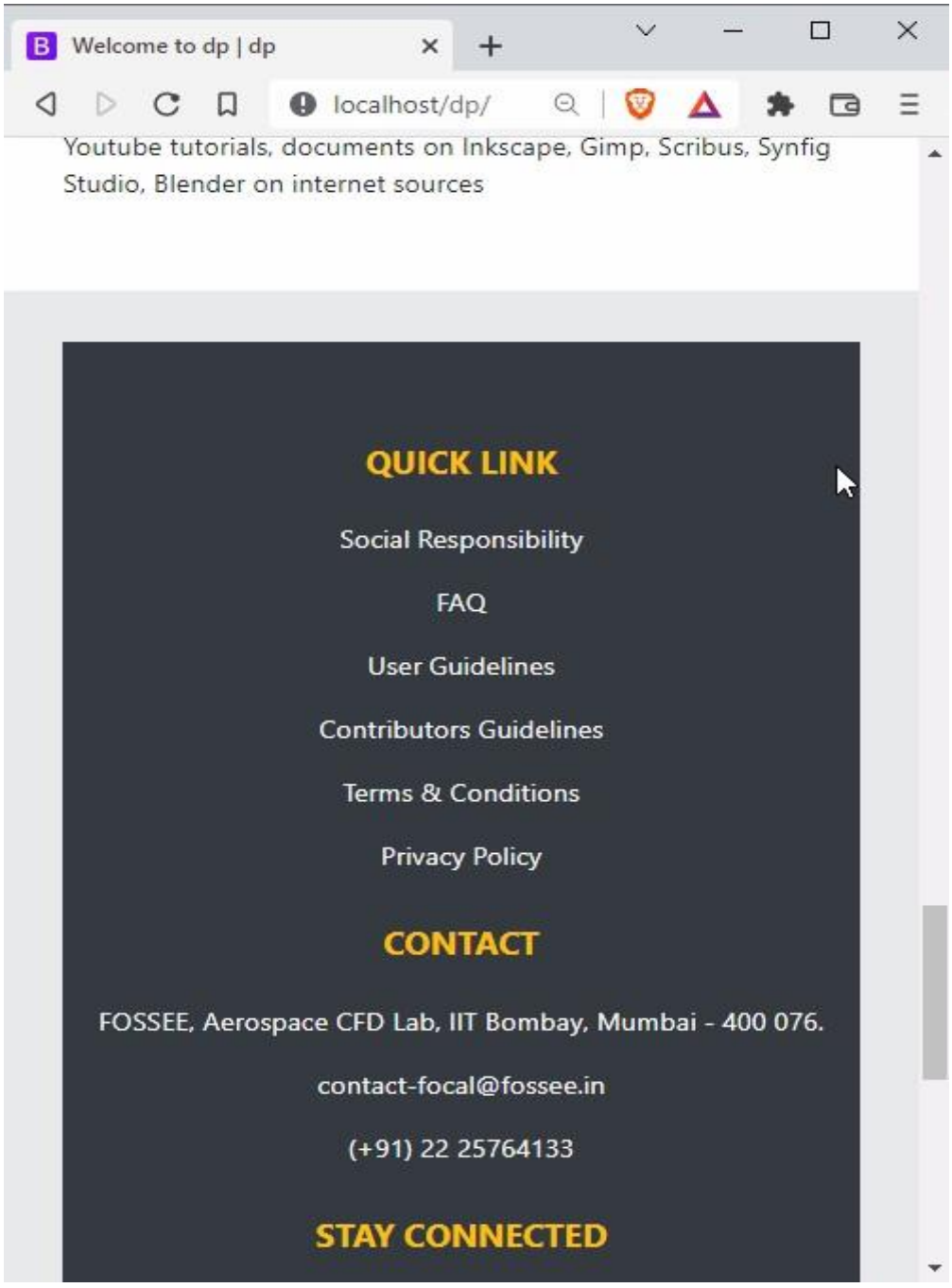
Choose your own title and write your webpage content



Responsive Nav-bar

Structure > block layout > Navigation branding region

Here configure block and add nodes

Responsive Footer

Structure > block layout > Navigation branding region > Footer > add new region