

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**CS213-ADVANCED PROGRAMMING (3+1)**  
**ASSIGNMENT 01**

**EXPLORING OPEN SOURCE SOFTWARE**  
**DRUPAL MANUAL**

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**Reg No: 228491**

**Class: BSCS 7B**

**Due Date: 16<sup>th</sup> September, 2019**

**Submitted To: Dr. Sidra Sultana**



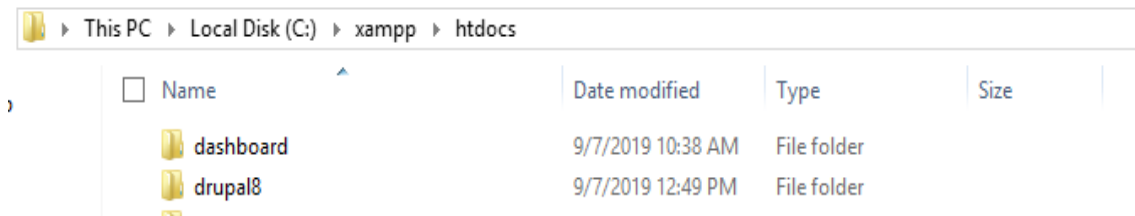
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## Configuration of Drupal (An Open Source Software)

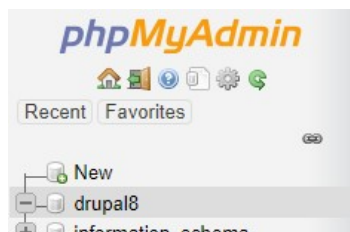
Drupal is an open source software based on content management system (CMS). The installation/configuration is done by the following steps.

1. Drupal requires a web server and a database server. For this purpose, XAMPP, a local web server, is installed having Apache (a web server) and MySQL (a database server).
2. Drupal is download and extracted in the htdocs folder of the XAMPP.

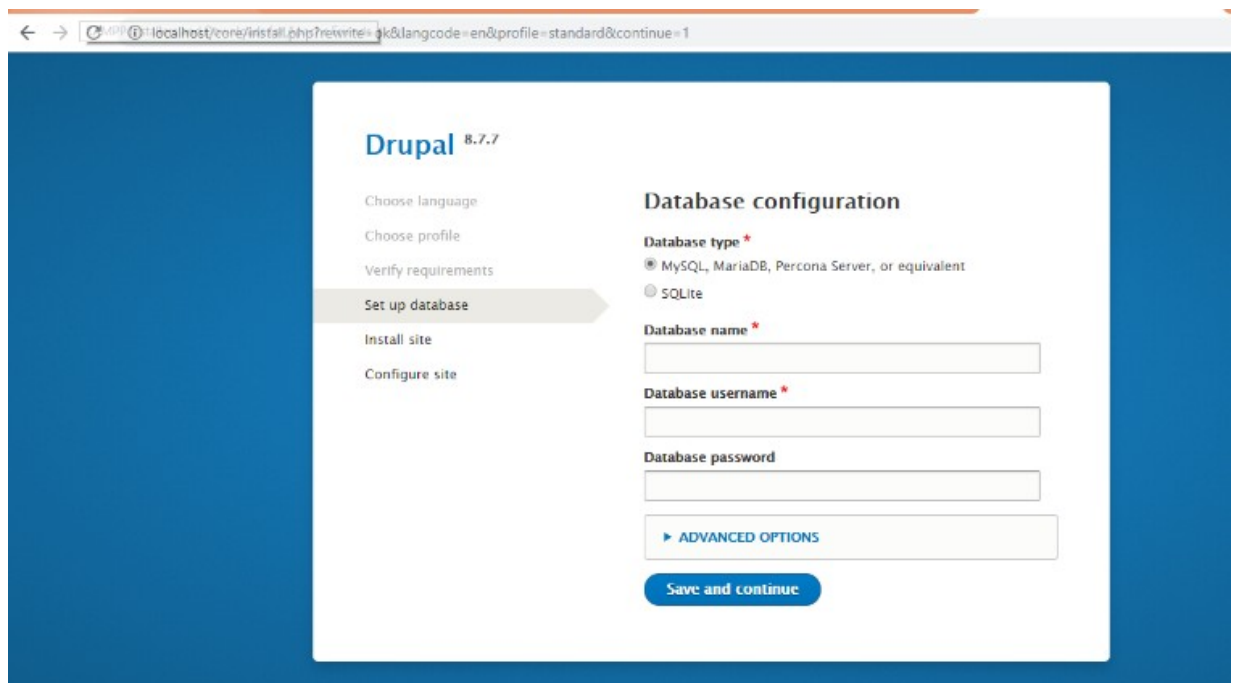


This PC > Local Disk (C:) > xampp > htdocs				
<input type="checkbox"/>	Name	Date modified	Type	Size
<input type="checkbox"/>	dashboard	9/7/2019 10:38 AM	File folder	
<input type="checkbox"/>	drupal8	9/7/2019 12:49 PM	File folder	
<input type="checkbox"/>	.			

3. Database is created through phpMyAdmin.

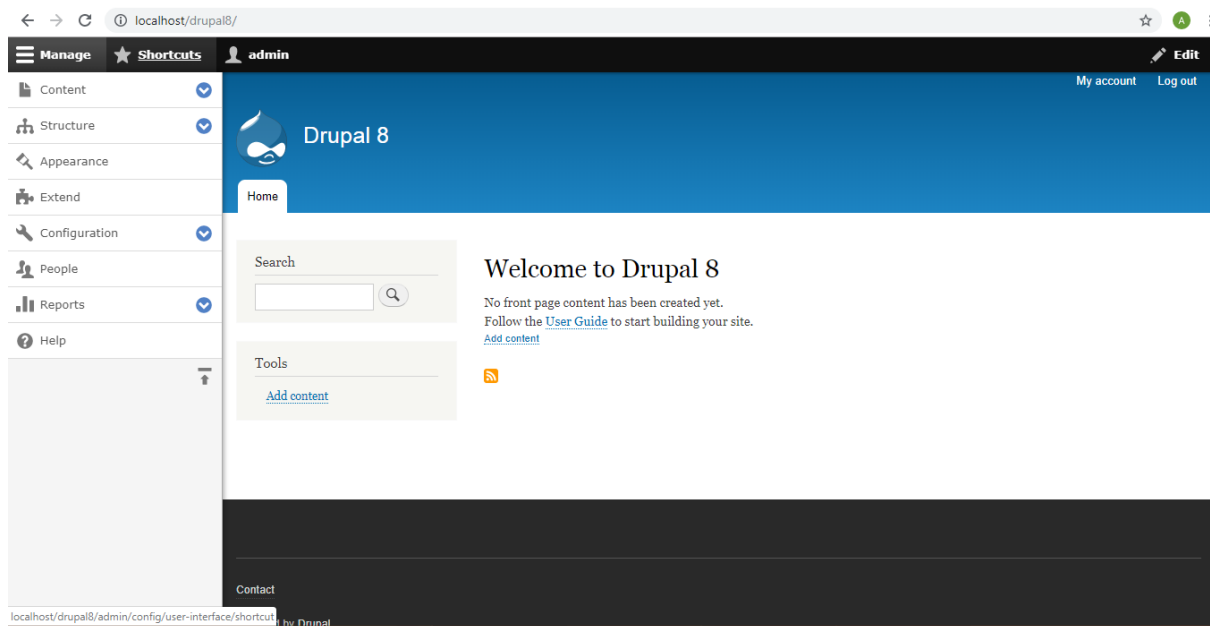


4. Go to the local host (in this case: localhost/drupal8) and setup the website i.e. connect the database, set up admin and site information etc.



# Explore Drupal with User Perspective

After Drupal is configured, the index page is displayed (as shown in the figure below).

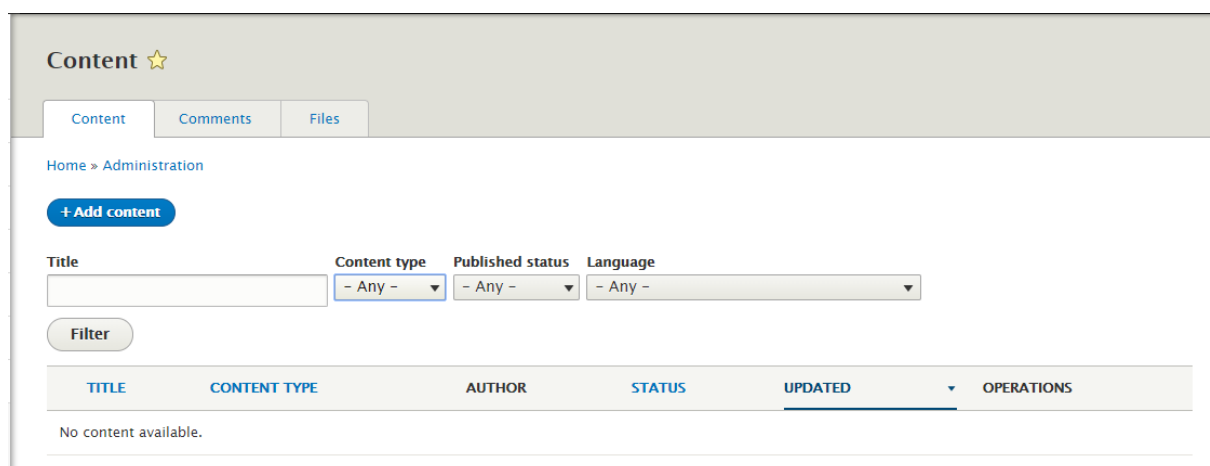


The main layout contains a basic search bar and tools to add content with a simple introduction to the website having the site name i.e. Drupal 8, no content is added to the website yet. The footer contains a basic website feedback contact form. When the user fills the form it is sent to the email address provided in the setup process of the website. The menu bar contains admin toolbar i.e. Manage, Shortcuts and admin.

## Manage

Most of the things are managed in the Manage tab.

The content of the page is added through the **Content** as shown in the figure. The content type can either be a basic page or an article. It also has the flexibility to add content of various languages. Comments can be added from here too.



How the page looks like or what things to include in the page is managed through **Structure** such as managing display for content and forms, display settings of comments etc.

**Structure** ☆

[Home](#) » [Administration](#)

---

➤ **Block layout**  
Configure what block content appears in your site's sidebars and other regions.

---

➤ **Comment types**  
Manage form and displays settings of comments.

---

➤ **Contact forms**  
Create and manage contact forms.

---

➤ **Content types**  
Create and manage fields, forms, and display settings for your content.

---

➤ **Display modes**  
Configure what displays are available for your content and forms.

---

➤ **Menus**  
Manage menus and menu links.

---

➤ **Taxonomy**  
Manage tagging, categorization, and classification of your content.

---

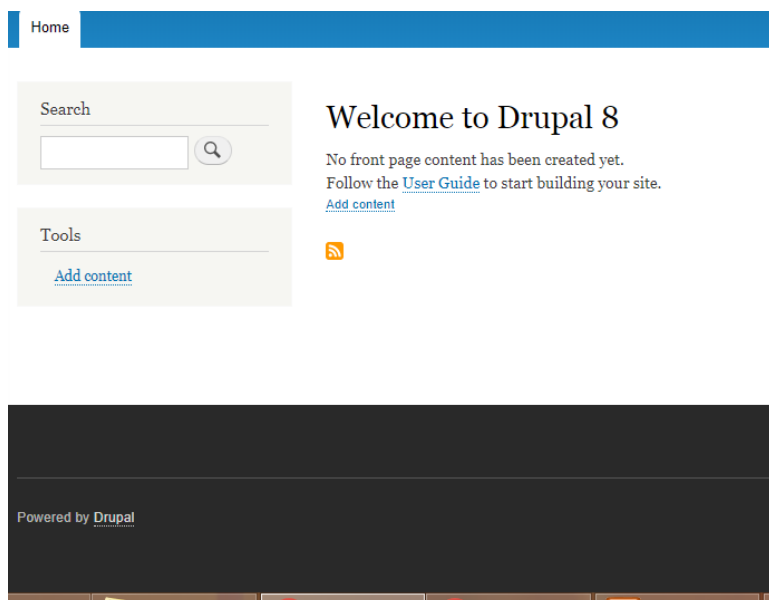
➤ **Views**

Below is the screenshot to manage the **footer section** of the page.

The screenshot shows the 'Edit menu Footer' interface in Drupal. At the top, there's a breadcrumb trail: Home » Administration » Structure » Menus. Below this is a '+ Add link' button. The 'Title' field is labeled with a red asterisk and contains the text 'Footer'. To the right of this field, it says 'Machine name: footer'. Below the title field is the 'Administrative summary' section, which contains the text 'Site information links'. At the bottom of the form is a large blue 'Save' button.

MENU LINK	ENABLED	OPERATIONS
Contact	<input checked="" type="checkbox"/>	Edit

The contact form can be disabled if we untick the enabled radio button. There is no contact form option in the menu after the change made.



Themes can be changed in the **Appearance**.

Go to [https://www.drupal.org/project/project\\_theme](https://www.drupal.org/project/project_theme)

Select a theme of your choice and copy link address or download it.

Go to appearance, click install new theme, paste the link address or choose folder. After installation head back to newly added themes.

Scroll down to uninstalled themes and click install and set as default. New themes will be installed.

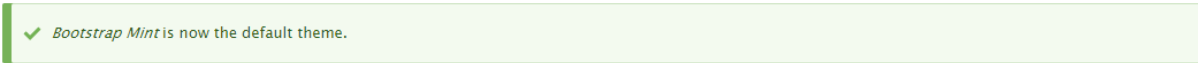
## Uninstalled themes



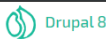
### Bootstrap Mint 8.x-5.0

Bootstrap Mint is a fully responsive [Drupal 8](#) theme built on Bootstrap 3 framework :  
Designed & developed by [Binu Varghese](#). For professional support and customisation, reach us @ [myndsets](#).

[Install](#) | [Install and set as default](#)




← → ↻ localhost/drupal8/ ☆ Incognito (2) ⋮

 [HOME](#)






Search

Enter search terms... 🔍

No front page content has been created yet.  
Follow the [User Guide](#) to start building your site.



[Log in](#)

⬆

Copyright © 2019. All rights reserved  
Theme for [Drupal 8](#)

User account settings, performance and uploaded file location, or basic site settings such as change site name, update email address etc. are modified in **Configuration**.

Hide descriptions

PEOPLE

Account settings

Configure default user account settings, including fields, registration requirements, and email messages.

CONTENT AUTHORIZING

Text formats and editors

Select and configure text editors, and how content is filtered when displayed.

DEVELOPMENT

Performance

Configure caching and bandwidth optimization.

Logging and errors

Configure the display of error messages and database logging.

Maintenance mode

Take the site offline for updates and other maintenance tasks.

SYSTEM

Basic site settings

Change site name, email address, slogan, default front page, and error pages.

Cron

Manage automatic site maintenance tasks.

USER INTERFACE

Shortcuts

Add and modify shortcut sets.

MEDIA

File system

Configure the location of uploaded files and how they are accessed.

Image styles

Configure styles that can be used for resizing or adjusting images on display.

Further, the users of the site are shown in **People tab** and **Reports tab**, where error logs, update status etc. are managed.

People

Reports

Available updates

Recent log messages

Field list

Status report

Top 'access denied' errors

Top 'page not found' errors

Top search phrases

Views plugins

8



## Shortcuts

Shortcuts can be added through edit shortcuts or by clicking the star sign next to a feature. Appearance is added to shortcuts in the screenshots below.

Back to site Manage

Add content

All content

Edit shortcuts

List links Edit set name

Home » Administration » Configuration » User interface » Shortcuts » Edit shortcut set

+ Add shortcut

NAME	OPERATIONS
+ Appearance	Edit
+ Add content	Edit
+ All content	Edit

Save

## Admin

The admin panel contains the option of view profile, log out and edit profile as shown in screenshot below.

View profile

Edit profile

Log out

Home

Home

Search

Tools

Add content

admin

View Shortcuts Edit

















































Member for 2 hours 58 minutes

## Explore Drupal as a Database Developer

MySQL database was set up for Drupal site during the configuration stage on the phpMyAdmin, a local database server, named as drupal8. This database contains a total of 72 tables with tables for the content, cache data and users' data etc. Some important tables are discussed below.

## Users

There are 6 tables that are specifically related to users' data as shown in screenshot below.

 <a href="#">uri_alias</a>		 <a href="#">Browse</a>	 <a href="#">Structure</a>	 <a href="#">Search</a>	 <a href="#">Insert</a>	 <a href="#">Empty</a>	 <a href="#">Drop</a>	0	InnoDB	utf8mb4_general_ci	48 KiB	-
 <a href="#">users</a>		 <a href="#">Browse</a>	 <a href="#">Structure</a>	 <a href="#">Search</a>	 <a href="#">Insert</a>	 <a href="#">Empty</a>	 <a href="#">Drop</a>	2	InnoDB	utf8mb4_general_ci	32 KiB	-
 <a href="#">users_data</a>		 <a href="#">Browse</a>	 <a href="#">Structure</a>	 <a href="#">Search</a>	 <a href="#">Insert</a>	 <a href="#">Empty</a>	 <a href="#">Drop</a>	0	InnoDB	utf8mb4_general_ci	48 KiB	-
 <a href="#">users_field_data</a>		 <a href="#">Browse</a>	 <a href="#">Structure</a>	 <a href="#">Search</a>	 <a href="#">Insert</a>	 <a href="#">Empty</a>	 <a href="#">Drop</a>	2	InnoDB	utf8mb4_general_ci	96 KiB	-
 <a href="#">user_roles</a>		 <a href="#">Browse</a>	 <a href="#">Structure</a>	 <a href="#">Search</a>	 <a href="#">Insert</a>	 <a href="#">Empty</a>	 <a href="#">Drop</a>	1	InnoDB	utf8mb4_general_ci	64 KiB	-
 <a href="#">user_user_picture</a>		 <a href="#">Browse</a>	 <a href="#">Structure</a>	 <a href="#">Search</a>	 <a href="#">Insert</a>	 <a href="#">Empty</a>	 <a href="#">Drop</a>	0	InnoDB	utf8mb4_general_ci	64 KiB	-

The **users** table contains information such as uid, language code and uuid. The structure of the table and the table entries are shown below in the screenshots respectively.

Table structure

Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1	uid	int(10)	UNSIGNED	No	None			Change  Drop  More
<input type="checkbox"/>	2	uuid	varchar(128) ascii_general_ci		No	None			Change  Drop  More
<input type="checkbox"/>	3	langcode	varchar(12) ascii_general_ci		No	None			Change  Drop  More

+ Options

		uid	uuid	langcode
<input type="checkbox"/>	Edit  Copy  Delete	0	749c5d2c-0cbc-43b5-9596-7fb764c36395	en
<input type="checkbox"/>	Edit  Copy  Delete	1	723f6221-eac7-477a-b33a-c04c5afdcd27	en

The description of these users is given in the **table users\_field\_data**. We have only two users added right now. The first one is an anonymous user and the other is the admin who has the power and control.

+ Options		uid	langcode	preferred_langcode	preferred_admin_langcode	name	pass
<input type="checkbox"/>	<a href="#">Edit</a> <a href="#">Copy</a> <a href="#">Delete</a>	0	en	en	NULL		NULL
<input type="checkbox"/>	<a href="#">Edit</a> <a href="#">Copy</a> <a href="#">Delete</a>	1	en	en	NULL	admin	\$\$\$ErHsSos.amtj7EWcwsDA/TTee6HTzDimx.Go0i4EbD8bCubV

## Adding a new user

The new user can be added through the Drupal website. Go to the website and click people and then add user.

[Home](#) » [Administration](#) » [People](#)

This web page allows administrators to register new users. Users' email addresses and usernames must be unique.


**Email address**

A valid email address. All emails from the system will be sent to this address. The email address is not made public and will only be used if you w email.

**Username \***

Several special characters are allowed, including space, period (.), hyphen (-), apostrophe ('), underscore (\_), and the @ sign.

**Password \***



Password strength: Weak

**Confirm password \***

Passwords match: **yes**

Recommendations to make your password stronger:

- Make it at least 12 characters
- Add uppercase letters
- Add punctuation
- Make it different from your username

Provide a password for the new account in both fields.

**Status**

☐ Blocked

☒ Active

**Roles**

☒ Authenticated user

☐ Administrator

✓ Created a new user account for [user1](#). No email has been sent.

This web page allows administrators to register new users. Users' email addresses and usernames must be unique.

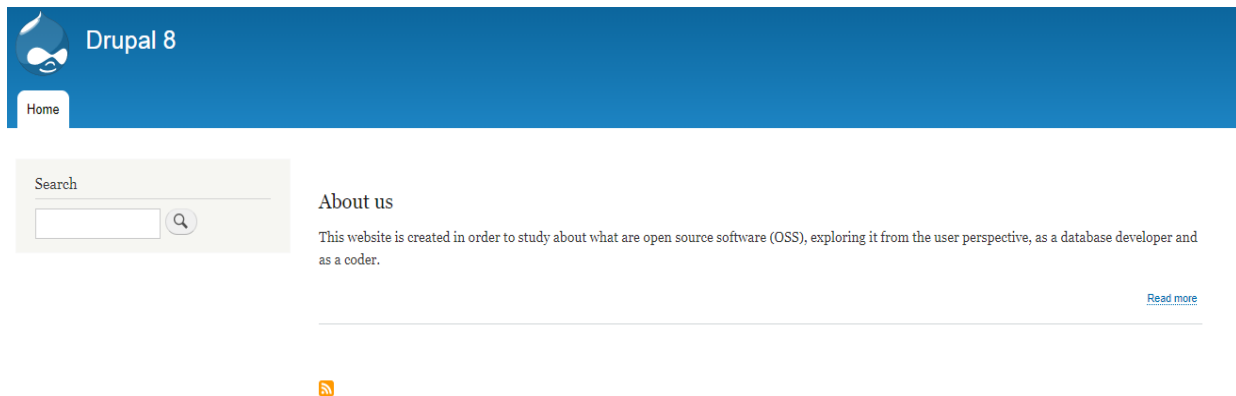
## Changes in database

+ options			uid	langcode	preferred_langcode	preferred_admin_langcode	name	pass
<input type="checkbox"/>	 Edit	 Copy	 Delete	0	en	en	NULL	NULL
<input type="checkbox"/>	 Edit	 Copy	 Delete	1	en	en	NULL	admin \$S\$ERhSos.amtj7EWCwsDA/TTee6HTzDimx.Go0i4EbD8bCubV...
<input type="checkbox"/>	 Edit	 Copy	 Delete	4	en	en	en	user1 \$S\$EAFkZ.w.xUbfaVGyJc3fwZMUXqilgFOGwlg1j8zkKaFhjzY...

## Adding content in website to explore content tables in database

Whenever we add content to the website, the information regarding the content is stored in tables such as node, node\_field\_data, node\_revision etc. These tables are empty when there is no content on the website.

In order to explore such tables let us create a basic page. Go to content then click add content button, click basic page and add content.



The **node** table contains information such as node id, version id, type of the content as shown in screenshot below.

Options			nid	vid	type	uuid	langcode
					The ID of the target entity.		
<input type="checkbox"/>	<a href="#">Edit</a> <a href="#">Copy</a> <a href="#">Delete</a>		1	1	page	49c219db-ff19-454f-8933-591570e85cfe	en

↑ ☐ Check all With selected: [Edit](#) [Copy](#) [Delete](#) [Export](#)

The content of the table is in **node\_revision** table.

Options		bundle	deleted	entity_id	revision_id	langcode	delta	body_value	body_summary	body_format
		The field instance bundle to which this row belongs...	A boolean indicating whether this data item has been deleted.	The entity id this data is attached to	The entity revision id this data is attached to	The language code for this data item.	The sequence number for this data item, used for multiple revisions.			
<input type="checkbox"/>	<a href="#">Edit</a> <a href="#">Copy</a> <a href="#">Delete</a>	page	0	1	1	en	0	<p>This website is created in order to study about...		basic_html

Further information such as title of the webpage, status etc. is in **node\_field\_data** table.

Options		nid	vid	type	langcode	status	uid	title	created	changed	promote	sticky	default_langcode	revision_translat
				The ID of the target entity.			The ID of the target entity.							
<input type="checkbox"/>	<a href="#">Edit</a> <a href="#">Copy</a> <a href="#">Delete</a>	1	1	page	en	1	1	About us	1567929361	1567929513	1	0	1	

↑ ☐ Check all With selected: [Edit](#) [Copy](#) [Delete](#) [Export](#)

## Exploring Drupal as a Coder

Drupal is an open source software built on php. Drupal 7 (older version) is built on custom php, the newer version, drupal 8, is built on Symfony (a framework used in Drupal to reduce code duplication across various php project. Further languages include HTML/HTML5, CSS, CSS3, Javascript/Jquery, MySQL for databases, Twig ( a php template engine), concepts of OOP and MVC (model view controller) etc.

Below is the screenshot of the drupal index page i.e. index.php. It serves all page requests on a Drupal installation. Symfony is used to handle with the php requests while the DrupalKernel class is the core of drupal itself.

```
1  <?php
2
3  /**
4   * @file
5   * The PHP page that serves all page requests on a Drupal installation.
6   *
7   * All Drupal code is released under the GNU General Public License.
8   * See COPYRIGHT.txt and LICENSE.txt files in the "core" directory.
9   */
10
11  use Drupal\Core\DrupalKernel;
12  use Symfony\Component\HttpFoundation\Request;
13
14  $autoloader = require_once 'autoload.php';
15
16  $kernel = new DrupalKernel('prod', $autoloader);
17
18  $request = Request::createFromGlobals();
19  $response = $kernel->handle($request);
20  $response->send();
21
22  $kernel->terminate($request, $response);
23
```

Screenshot of a CSS file, used for styling.

```
body{color:#333;background:#fff;font:normal 81.3%/1.538em "Lucida Grande","Lucida Sans Unicode","DejaVu Sans","Lucida Sans",sans-serif;}a,.li
.leader{margin-top:20px;margin-top:1.538rem;}.leader-double{margin-top:40px;margin-top:3.076rem;}.leader-triple{margin-top:60px;margin-top:4.
@media print{*{color:#000 !important;background-color:transparent !important;box-shadow:none !important;text-shadow:none !important;}body{pad
.page-content{margin-bottom:80px;}.layout-icon_region{fill:#f5f5f2;stroke:#666;}
.progress_track{border-color:#b3b3b3;border-radius:10em;background-color:#f2f2f2;background-image:-webkit-linear-gradient(#e7e7df,#f0f0f0);b
.action-links{margin:1em 0;padding:0;list-style:none;}[dir="rtl"] .action-links{margin-right:0;}.action-links li{display:inline-block;margin:
.breadcrumb{padding-bottom:0.5em;}.breadcrumb ol{margin:0;padding:0;}[dir="rtl"] .breadcrumb ol{margin-right:0;}.breadcrumb li{display:inline
.button,.image-button{margin-right:1em;margin-left:1em;}.button:first-child,.image-button:first-child{margin-right:0;margin-left:0;}
.collapse-processed > summary{padding-right:0.5em;padding-left:0.5em;}.collapse-processed > summary:before{float:left;width:1em;height:1em;co
.container-inline label:after,.container-inline .label:after{content:";".form-type-radios .container-inline label:after,.form-type-checkbox
.exposed-filters .filters{float:left;margin-right:1em;}[dir="rtl"] .exposed-filters .filters{float:right;margin-right:0;margin-left:1em;}.exp
.field_label{font-weight:bold;}.field--label-inline .field_label,.field--label-inline .field_items{float:left;}.field--label-inline .field
form .field-multiple-table{margin:0;}.form .field-multiple-table .field-multiple-drag{width:30px;padding-right:0;}[dir="rtl"] form .field-mult
.icon-help{padding:1px 0 1px 20px;background:url(/drupal8/core/misc/help.png) 0 50% no-repeat;}[dir="rtl"] .icon-help{padding:1px 20px 1px 0;
.form--inline .form-item{float:left;margin-right:0.5em;}[dir="rtl"] .form--inline .form-item{float:right;margin-right:0;margin-left:0.5em;}[d
.item-list .title{font-weight:bold;}.item-list ul{margin:0 0 0.75em 0;padding:0;}.item-list li{margin:0 0 0.25em 1.5em;padding:0;}[dir="rtl"]
button.link{margin:0;padding:0;cursor:pointer;border:0;background:transparent;font-size:1em;}label button.link{font-weight:bold;}
ul.inline,ul.links.inline{display:inline;padding-left:0;}[dir="rtl"] ul.inline,[dir="rtl"] ul.links.inline{padding-right:0;padding-left:15px;}
ul.menu{margin-left:1em;padding:0;list-style:none outside;text-align:left;}[dir="rtl"] ul.menu{margin-right:1em;margin-left:0;text-align:rig
.more-link{display:block;text-align:right;}[dir="rtl"] .more-link{text-align:left;}
```

## Add new online module to Drupal

Modules or plugins add extra features to the website. Here, we are going to install an online module **Colorbox** and some other modules related to it. Colorbox is a light-weight customizable lightbox plugin for jQuery. This module allows for integration of Colorbox into Drupal. Images, iframed or inline content etc. can be displayed in an overlay above the current page.

The required modules links are as follows:

<https://www.drupal.org/project/colorbox>

[https://www.drupal.org/project/colorbox\\_load](https://www.drupal.org/project/colorbox_load)

[https://www.drupal.org/project/ng\\_lightbox](https://www.drupal.org/project/ng_lightbox)

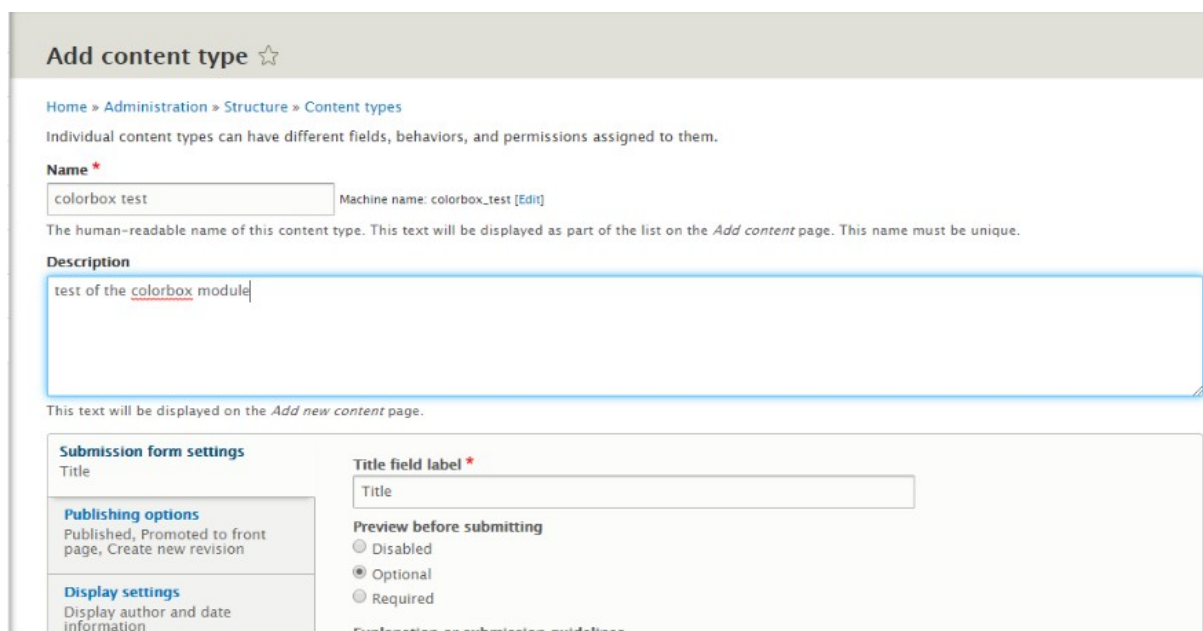
<https://www.drupal.org/project/imce> (**imce** is installed here to easily upload image and link files)

In addition to this, <https://github.com/jackmoore/colorbox/archive/1.x.zip> library also needs to be downloaded to make the module work.

In the drupal website, new modules can be installed through **extend** (in Manage tab), then install new module, provide the download link address or upload the downloaded module. After the installation of all the modules, enable them.



Go to Structure and then add a new content type as shown in screenshot below. Click save and manage fields.



**Add content type** ☆

Home » Administration » Structure » Content types

Individual content types can have different fields, behaviors, and permissions assigned to them.

**Name \***

colorbox test Machine name: colorbox\_test [Edit]

The human-readable name of this content type. This text will be displayed as part of the list on the *Add content* page. This name must be unique.

**Description**

test of the colorbox module

This text will be displayed on the *Add new content* page.

**Submission form settings**

Title

**Publishing options**

Published, Promoted to front page, Create new revision

**Display settings**

Display author and date information

**Title field label \***

Title

**Preview before submitting**

☐ Disabled

☒ Optional

☐ Required

**Explanation or submission guidelines**

✓ The content type *colorbox test* has been added.

[+ Add field](#)

LABEL	MACHINE NAME	FIELD TYPE	OPERATIONS
Body	body	Text (formatted, long, with summary)	<a href="#">Edit</a> ▼

Click add field and choose the existing field as Image. Click save and continue.

## Add field ☆

[Home](#) » [Administration](#) » [Structure](#) » [Content types](#) » [colorbox test](#) » [Manage fields](#)

**Add a new field** **Re-use an existing field**

- Select a field type - or Image: field\_image ▼

**Label \***

Image

[Save and continue](#)

✓ Saved *Image* configuration.

[+ Add field](#)

LABEL	MACHINE NAME	FIELD TYPE	OPERATIONS
Body	body	Text (formatted, long, with summary)	<a href="#">Edit</a> ▼
Image	field_image	Image	<a href="#">Edit</a> ▼

Go to manage display and change the format of image to Colorbox and click save.

FIELD	LABEL	FORMAT
✚ Links		
✚ Body	- Hidden - ▼	Default ▼
✚ Image	- Hidden - ▼	Image ▼
		Colorbox
		Image
		URL to image
<b>Disabled</b>		
No field is hidden.		

✚ Image	- Hidden - ▼	Colorbox ▼	Content image style: Thumbnail (100×100) Colorbox image style: Original image Colorbox gallery type: Per post gallery Colorbox caption: Automatic
---------	--------------	------------	--

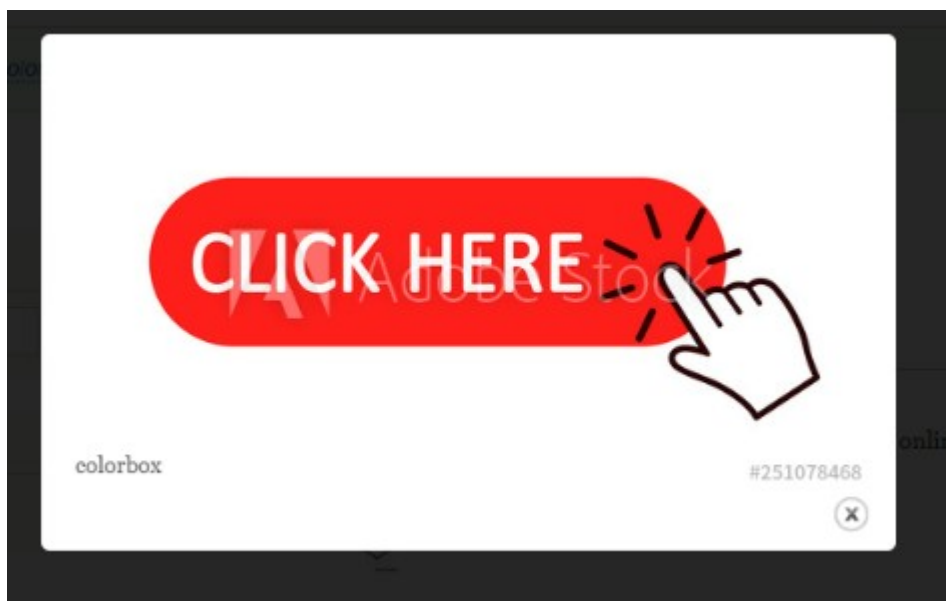
Now, add the content of type colorbox test. Enter content and choose image file and save it.

## colorbox

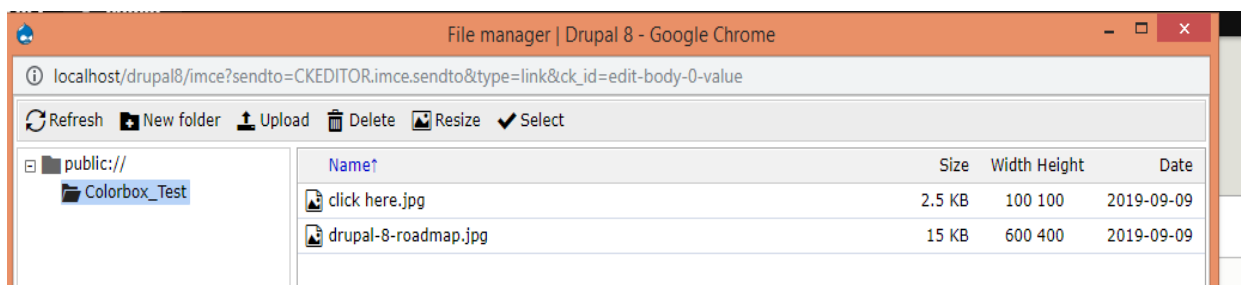
[View](#)[Edit](#)[Delete](#)[Revisions](#)

Submitted by [admin](#) on Mon, 09/09/2019 - 12:36

This is the sample text to check the colorbox module installed online.



When we click on the image, the overlay that is shown is the same photo. In order to display the different image, set the text format as full html and add the image through the imce folder (the image chosen will be the original/main image, inline with the text). Now, select on the added image and add the new image through the same process. click the source and add class “colorbox” to it.






Title \*

colorbox

Body (Edit summary)

**B** *I* ~~S~~  $x^2$   $x_2$  *I* Format ▾

Source

  
This is the sample text to check the colorbox module installed online.

Text format Full HTML ▾ [About text formats ?](#)

Image



 [click here.jpg](#) (30.71 KB)

Remove

# colorbox

View

Edit

Delete

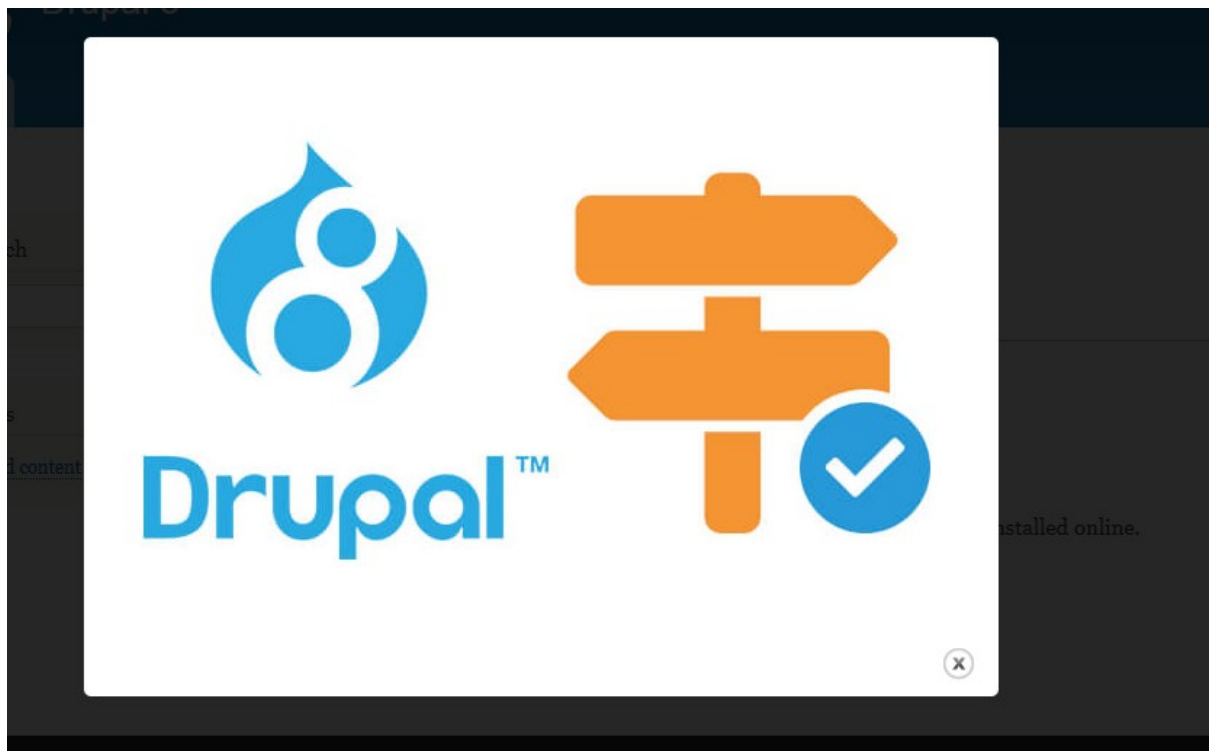
Revisions

Submitted by [admin](#) on Mon, 09/09/2019 - 12:36



This is the sample text to check the colorbox module installed online.





## Drupal Website Front-End

The front end of the drupal website is shown in screenshot below. Any user can login through the login feature. It also has search bar to search articles, pages etc. The right side contains two contents added during the exploration process. The footer contains contact to provide feedback.

