Summer Fellowship Report

On

Title

Development of Basic Web page using Drupal

Submitted by

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Under the guidance of

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Acknowledgment

I want to sincerely thank everyone for helping and mentoring me during my internship. This project has been an incredibly rewarding educational experience, and I sincerely appreciate the support, guidance, and chances I was given.

I am deeply thankful to the **Web Development** team members — **Mr. Akshay Thakur, Mrs. Nikita Sabale** — for their continuous guidance, valuable feedback, and encouragement throughout the project.

I am deeply grateful to **Prof. Kannan M. Moudgalya**, Principal Investigator of the **FOSSEE Project**, IIT Bombay, for creating an incredible platform that empowers students like me to learn, explore, and contribute to open-source projects with real-world impact.

My sincere thanks to **Ms. Usha Viswanathan**, **Ms. Vineeta Parmar**, and the **FOSSEE team** for their encouragement, guidance, and for ensuring a truly rewarding internship journey.

I also wish to thank the **National Mission on Education through ICT (NMEICT)**, **Ministry of Education, Government of India**, for their support in making this initiative possible.

I am sincerely thankful to my **college**, the **Department of Computer Science**, and my **faculty members** for their unwavering encouragement and support, which have been instrumental in shaping my learning journey and helping me fully benefit from this internship experience.

Being a part of the **FOSSEE Summer Fellowship 2025** has been an enriching milestone in both my academic and professional development, and I am truly honoured to have contributed to this initiative.

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Chapter 1

Introduction

The purpose of this project, completed during my internship at **FOSSEE, IIT Bombay**, was to understand and demonstrate the foundational process of developing a functional web page using **Drupal**, a widely adopted open-source content management system. The project was designed to help me learn how Drupal structures websites, manages content, and enables developers to build scalable web pages through its modular architecture.

By creating a basic web page from the ground up, the aim was to gain practical exposure to essential Drupal concepts such as content types, blocks, themes, modules, and site configuration. This project also intended to develop my ability to work with CMS-based development workflows, follow standard web practices, and understand how open-source platforms can be leveraged to build dynamic and customizable websites.

Overall, the primary purpose of this project was to build a strong foundation in Drupal development while contributing to the open-source learning ecosystem promoted by the FOSSEE initiative at IIT Bombay.

1.2 FOSSEE Project

The FOSSEE (Free/Libre and Open Source Software for Education) project promotes the use of FLOSS tools in academia and research. It is part of the National Mission on Education through Information and Communication Technology (NMEICT), Ministry of Education (MoE), Government of India.

1.2.1 Projects and Activities

The FOSSEE Project supports the use of various FLOSS tools to enhance education and research. Key activities include:

- **Textbook Companion**: Porting solved examples from textbooks using FLOSS.
- **Lab Migration**: Facilitating the migration of proprietary labs to FLOSS alternatives.
- **Niche Software Activities**: Specialized activities to promote niche software tools.
- **Forums**: Providing a collaborative space for users
- **Workshops and Conferences**: Organizing events to train and inform users.

1.2.2 Fellowships

FOSSEE offers various internship and fellowship opportunities for students:

- Winter Internship
- Summer Fellowship
- Semester-Long Internship

Students from any degree and academic stage can apply for these internships. Selection is based on the completion of screening tasks involving programming, scientific computing, or data collection that benefit the FLOSS community. These tasks are designed to be completed within a week.
For more details, visit the official FOSSEE website

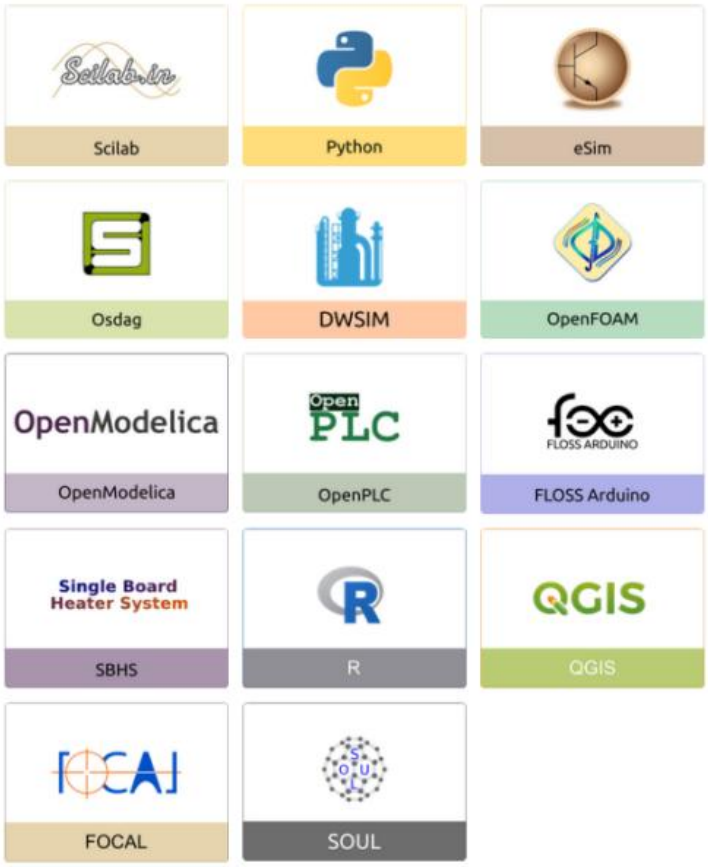


Figure 1.1: FOSSEE Projects and Activities

1.3 Drupal software

Drupal is a free, open-source content management system (CMS) with a large, supportive community. Drupal is a robust content management platform. Functionality is bundled in "modules" which you can use to alter and extend your out-of-the-box Drupal site. Themes control the look-and-feel, and like modules, are used to customize your Drupal site. Drupal helps you create dynamic, content-driven websites.

What is a content management system (CMS)?

A CMS (Content Management System) is software that helps you manage digital content. More specifically, a CMS like Drupal is a web application that allows one or more users to create, edit, publish, and control access to a website using a graphical user interface (GUI). Many modern content management systems use a database to store the content and a scripting language (in Drupal's case, PHP) to dynamically build the HTML needed to present the content to a web browser.

What is open source?

Open-source software (OSS) is software that has made the source code available with a license that allows anyone to inspect, modify, and distribute the software freely. Drupal is released under the GNU General Public License, version 2 or later. (You can read more about the Drupal license on Drupal.org's Licensing page). One of the side effects of this license for Drupal is that the software itself is free to download. There are no license fees, as are often found with proprietary software, e.g. Sitecore or SharePoint. Due to the large community of contributors who can easily extend the functionality of Drupal, there is also a huge free community library of extensions, called modules, and themes that can change how the website looks.

Chapter 2

2.1 Screening task

FOSSEE Custom Drupal 10 Theme

A custom responsive Drupal 10 theme created for the FOSSEE project task.

Theme Features

- Custom theme built from scratch for Drupal 10
- Responsive design for mobile, tablet, and desktop
- Six theme regions: Top Banner, Logo, Navigation, Left Sidebar, Content, and Footer
- Custom Twig templates
- Clean CSS with variables and responsive breakpoints
- Custom JavaScript functionality

Theme Structure

- fossee_theme.info.yml: Theme definition and region declaration
- fossee_theme.libraries.yml: CSS and JS asset management
- fossee_theme.theme: PHP functions for theme logic
- templates/: Twig template overrides
- css/: CSS stylesheets (styles.css and responsive.css)
- js/: JavaScript files (main.js)

Customization

Adding Custom Regions

If you need additional regions, modify the fossee_theme.info.yml file and add your region definitions.

Template Overrides

To override Drupal templates:

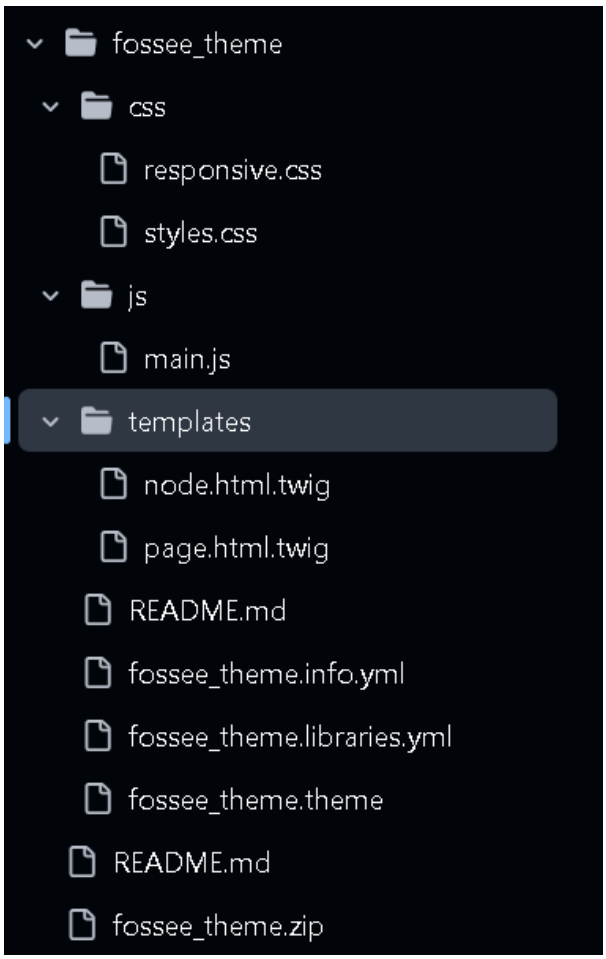
1. Identify the template you want to override
2. Copy it from Drupal core or contributed modules into your theme's templates directory
3. Modify as needed
4. Clear the cache to see changes: drush cache: rebuild

Adding CSS and JS

1. Create your CSS or JS file in the respective directory

2. Add it to the appropriate library in fossee_theme.libraries.yml
3. Clear the cache

FILE Structure:



Chapter 3

3.1 Internship Task

Creating the basic theme structure and implementing responsiveness.
This includes setting up the following key regions: Top Logos (above the website), Logo area, Menu bar, Slider and Front section(Hero), Content section, and Footer.

You can refer to the "https://iitb-mapathon-2024.fossee.in/" website for your reference.

IITB Drupal Theme

A modern and responsive custom Drupal 10/11 theme designed for events like Mapathon, developed by the FOSSEE GIS team at IIT Bombay. It supports Layout Builder, offers flexible configuration, and features dynamic sections for banners, logos, social icons, and more.

Key Features

- Compatible with Drupal 10 & 11
- Based on the Classy base theme
- Layout Builder support for flexible content structure
- Customizable theme settings via the UI
- Dynamically configurable:
    - Top logos
    - Hero banner and overlay images
    - Action buttons ("Click Here", "Register")
    - Partner and Knowledge Partner logos

- Social media icons (Facebook, Instagram, Twitter/X, LinkedIn)
- Process flow image and modal popup

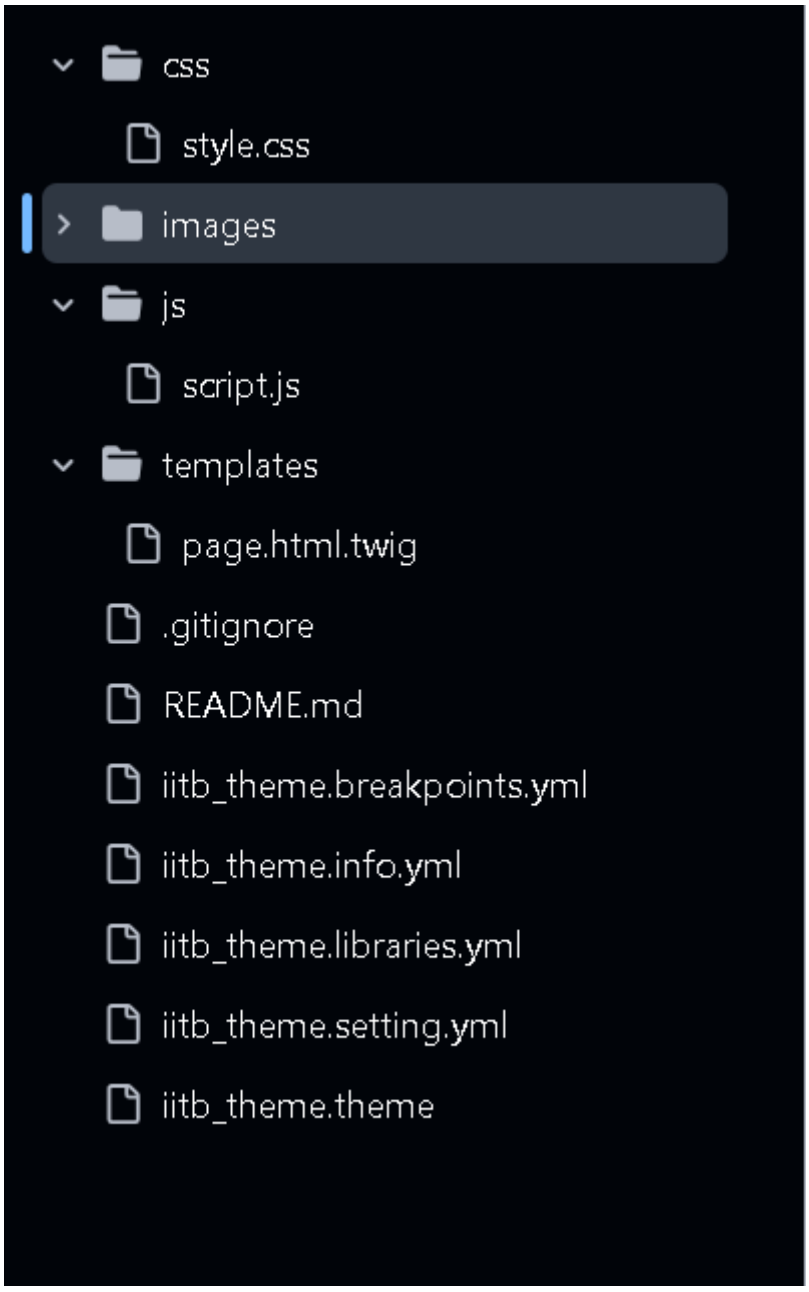
- Responsive and accessible design
- Popup modal for displaying maps or statistics

Theme Structure

```
iitb_theme/
├── css/
│   └── style.css
├── images/
│   └── *.png, *.gif
├── js/
│   └── script.js
├── templates/
│   └── page.html.twig
├── iitb_theme.info.yml
├── iitb_theme.libraries.yml
├── iitb_theme.theme
├── iitb_theme.settings.yml (optional)
├── screenshot.png (optional preview image)
```

Raw structure

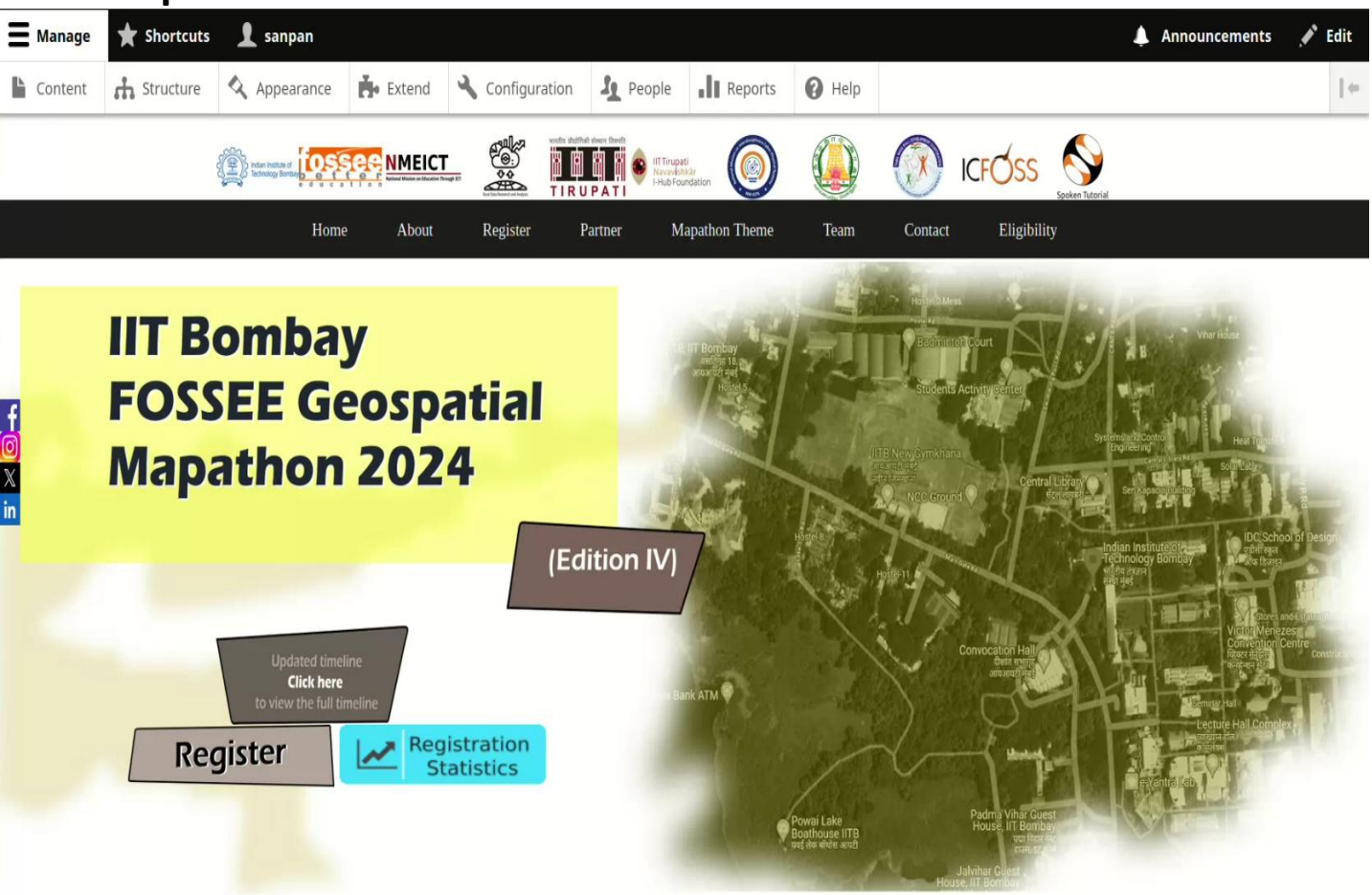
css	added image path and fixed navigation menu	3 months ago
images	fixed files and installable theme	3 months ago
js	added image path and fixed navigation menu	3 months ago
templates	updated html.twig	3 months ago
.gitignore	fixed files and installable theme	3 months ago
README.md	added image path and fixed navigation menu	3 months ago
iitb_theme.breakpoints.yml	fixed files and installable theme	3 months ago
iitb_theme.info.yml	Update: Mapathon theme tab default + modal script edits	3 months ago
iitb_theme.libraries.yml	fixed files and installable theme	3 months ago
iitb_theme.setting.yml	fixed the image uploading section	3 months ago
iitb_theme.theme	added image path and fixed navigation menu	3 months ago

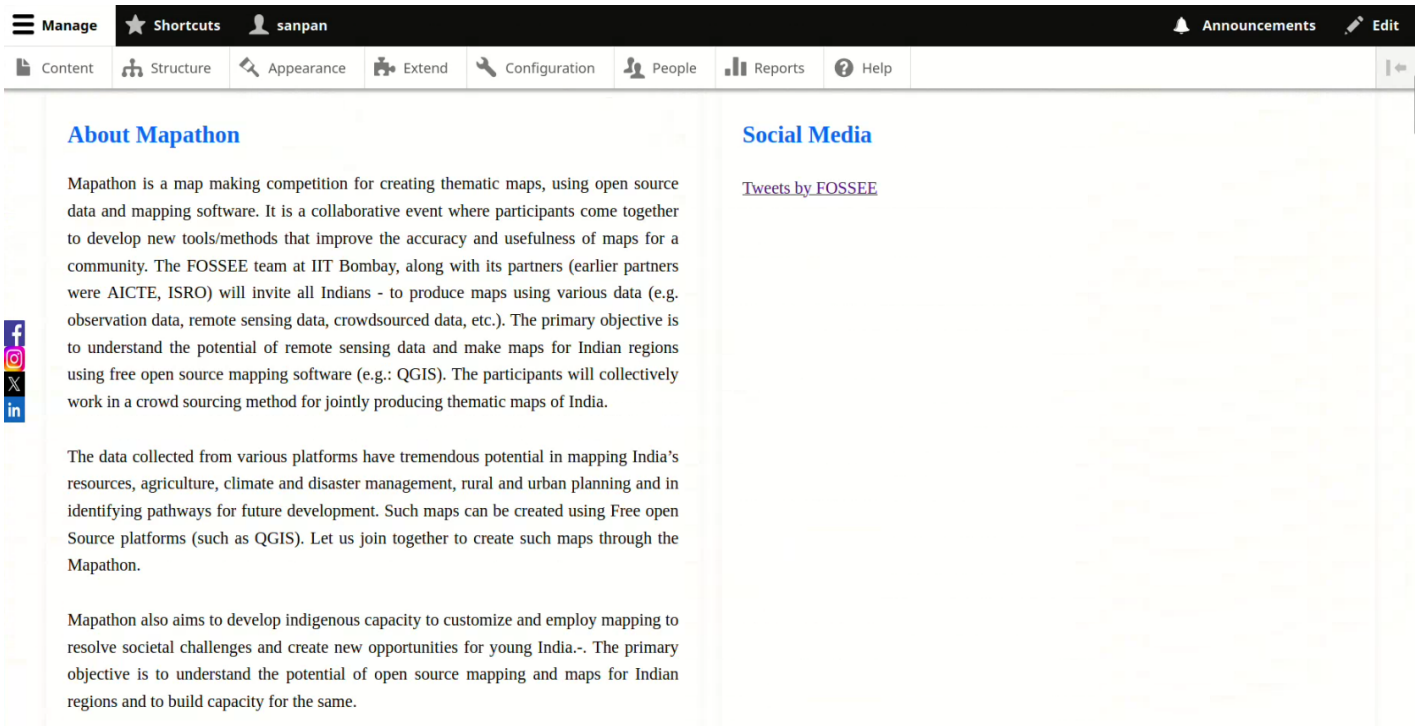

css
style.css
images
js
script.js
templates
page.html.twig
.gitignore
README.md
iitb_theme.breakpoints.yml
iitb_theme.info.yml
iitb_theme.libraries.yml
iitb_theme.setting.yml
iitb_theme.theme

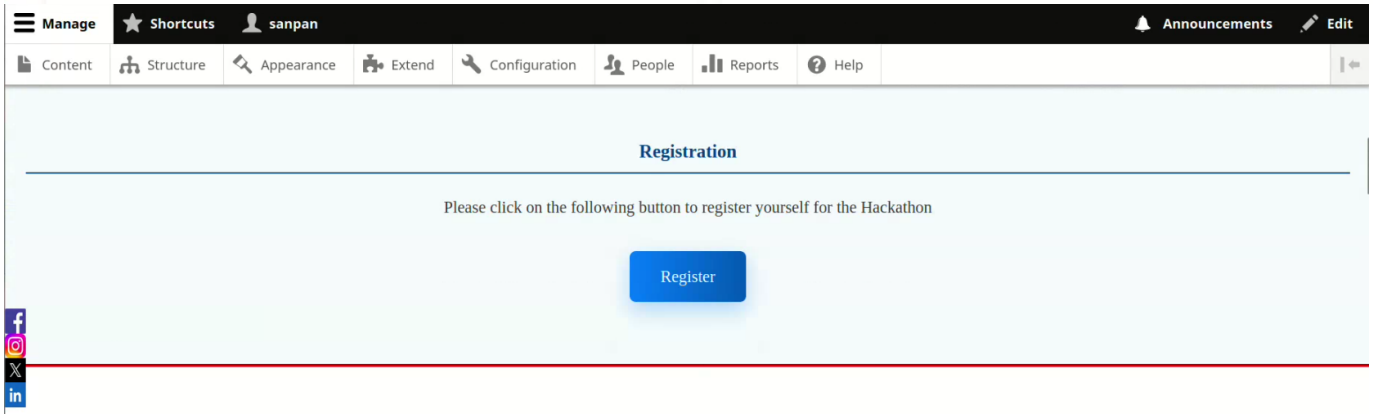
Github Repository link: [IITB_DrupalTheme]

[Download zip file]

Drupal website view:

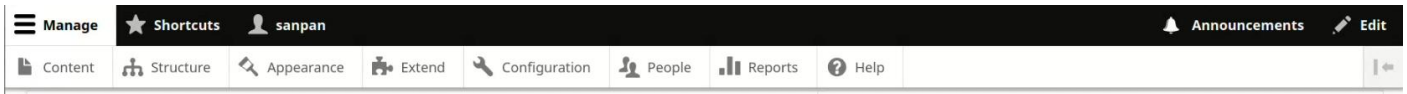




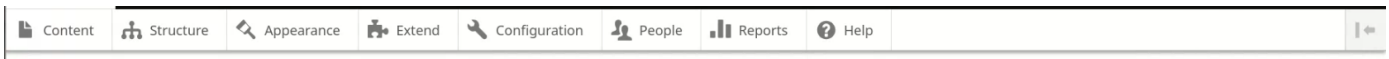


Important Dates

Registration start date	Feb 15, 2025
Registration end date	June 25, 2025
Orientation	June 10, 2025



Registration start date	Feb 15, 2025
Registration end date	June 25, 2025
Orientation	June 10, 2025
Doubt clearing session 01	June 25, 2025
Doubt clearing session 02	June 30, 2025
Submission start date	June 01, 2025
Submission end date	June 30, 2024
Mapathon Evaluation	July 01 to July 03, 2025
01 minute (recording) presentation submission by winners	July 05, 2025 (by Champions/ Winners)
Declaration of Results*	TBD



FOSSEE GIS Mandates

The following are the mandates of the IIT Bombay FOSSEE GIS team. It is requested that the applicant(s) before or during the time of registration go through all the mandates laid out by the IIT Bombay FOSSEE GIS team, and adhere to it. If any violation/ breach of any mandate is found at any phase of the Mapathon, the concerned team(s) shall be disqualified without any further notice. It is also to be noted that at all times, the decision of the IIT Bombay FOSSEE GIS team shall be final and non-appealable.

- **Indian Citizen** Only
- Must be a bonafide student/alumni of UGC/AICTE/AIU recognized University/ College/ Research Organization in India
- Use only **Free/Libre Open Source Software**
- Use only **Open Source Hardware**
- Align with any **SDG. Work on real-life data sets.**
- Adhere to the **Indian National Geospatial Policy**
- Use Indian Satellite data, and shape file only from the **Survey of India** portal
- Inclined towards ***Gati Shakti*** *(recommended)*

The decision of the IIT Bombay FOSSEE GIS team will be final in all circumstances and non-appealable. By registering and participating in the Mapathon, the participant(s)/ team(s) will be bound to the mandates and shall be expected to abide by them.

Partners and Organisers

Knowledge Partners

Mapathon Themes

Themes | **Problem Statement**

- Agriculture
- Drones
- Case Study with Policy impacts
- Forestry
- Remote Sensing
- Geology
- Groundwater
- Transport
- Internet based Case Study
- Media GIS Case Study
- Agriculture
- * 24
- Hydrology
- Civil Engineering
- Oceanography
- Gaming
- Landscaping
- GIS in Medical Sciences
- City Planning
- Glacier
- Smart city
- Smart village

Content | Structure | Appearance | Extend | Configuration | People | Reports | Help

Mapathon Process Flow

Registration
Mandatory

Confirmation
List of eligible participant/teams shall get a link from the IIT Bombay FOSSEE GIS team to upload submissions

Submission
Participants upload their map data using the provided link

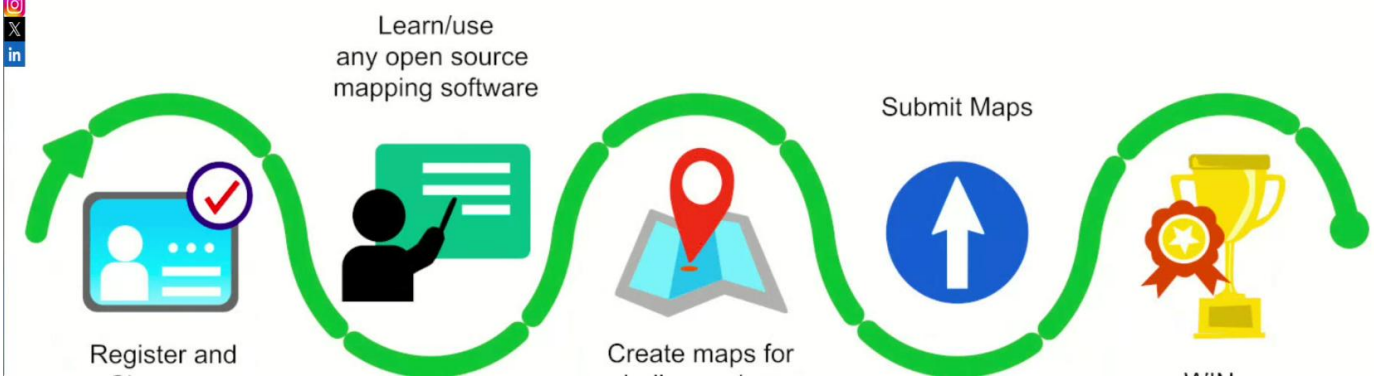
Content | Structure | Appearance | Extend | Configuration | People | Reports | Help

Declaration of Results

Top scorers and qualifying submissions are announced

List of Candidates Eligible for Internship

(Only for top 50 individuals)



Content | Structure | Appearance | Extend | Configuration | People | Reports | Help

- The IIT Bombay-FOSSEE-Mapathon is open **'ONLY FOR INDIAN NATIONALS'**.
- Students, Scholars, Faculty who are currently pursuing their studies/working in UGC/AICTE/AIU/Union or State Government approved Universities/Colleges/Institutions/Organisations are eligible to apply.
- The participating team(s) can be a mix of any field of study in Science or Engineering with adequate knowledge on creating maps/GIS, Remote Sensing, Environment, Geography, Geology, Policy, Statistics, Policy, Medicine, Management, Urban Planning, Rural Development or any related domain.
- Graduates holding a degree in any of the related domains (as mentioned above) are eligible to participate.
- Professionals working in the GIS industry are also eligible to participate.
- Indian students pursuing their education abroad are allowed to participate as well. In this case, they shall be eligible only for the award of 'e-certificate'.

Note: All the participants of the "IIT Bombay-FOSSEE-Mapathon" are expected to mandatorily adhere to the mandates of the IIT Bombay FOSSEE GIS team. The decision made by the IIT Bombay FOSSEE GIS team shall be final and non-appealable at all circumstances.

Team size and composition

Participation in the fourth edition of the IIT Bombay FOSSEE Geospatial Mapathon 2024 can be done on (i) an individual basis (single member) or (ii) a team (minimum 02 to maximum 04 members + 01 mentors). Ideally, a team should have people with basic mapping expertise.

The team can have a mentor (e.g. faculty, teacher, etc.), however, the exercise should be done by the team. Mentors can mentor multiple teams.

Each participant/mentor will be issued only one certificate.

Data and Helpful Resources

The maps can be created at National/State/District level boundaries using any 'open source' data.

For boundary data/materials, you may visit the Survey of India portal.

Note: The user is liable for the correct use of Indian national boundaries, if represented in the maps.

Mapathon Organizing team

Contact Us

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Senior Project Research Scientist

National Mission on Education through ICT

Ministry of Education, Government of India

Indian Institute of Technology Bombay

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General Inquiries: gis@fossee.in

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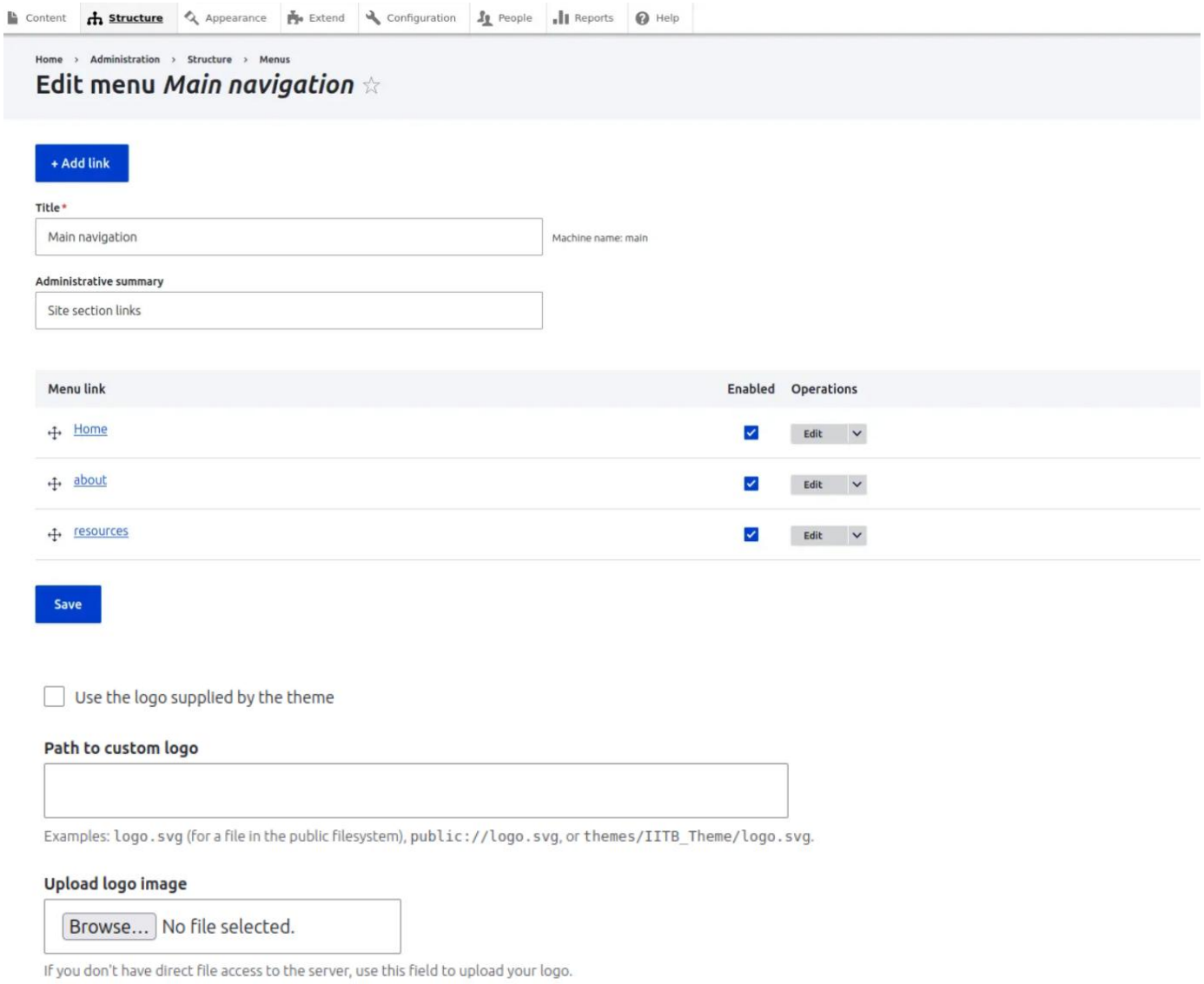
Content
Structure
Appearance
Extend
Configuration
People
Reports
Help
Home › Administration › Structure › Menus
Edit menu Main navigation
+ Add link
Title *
Main navigation
Machine name: main
Administrative summary
Site section links
Menu link
Enabled
Operations
Home
about
resources
Edit
Save
Use the logo supplied by the theme
Path to custom logo
Examples: logo.svg (for a file in the public filesystem), public://logo.svg, or themes/IITB_Theme/logo.svg.
Upload logo image
Browse...
No file selected.
If you don't have direct file access to the server, use this field to upload your logo.

Conclusion:

The **FOSSEE Custom Drupal 10 Theme** project successfully demonstrates the development of a fully responsive, modular, and customizable theme built from scratch for Drupal 10. Through this project, I gained practical experience in structuring a Drupal theme, defining custom regions, integrating CSS and JavaScript assets, and utilizing Twig templates for flexible content presentation.

The theme adheres to modern web design standards, ensuring compatibility across devices and screen sizes while maintaining clean and organized code. Its modular architecture allows for easy extension, making it suitable for diverse Drupal-based web applications.
Overall, this project enhanced my understanding of Drupal's theming system, responsive design principles, and front-end optimization within a CMS environment. It provided valuable hands-on experience that aligns with the FOSSEE initiative's goal of promoting open-source development and technical self-reliance.

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