

LANKA EDUCATION AND RESEARCH NETWORK

**STRUCTURING ACADEMIC WEB SPACES,
FACULTY PROFILES & KNOWLEDGE PORTALS**

**ON LEARN FOSS FREE OPEN CLOUD
PLATFORM**

INTRODUCTION – FOSS TEAM



Senevi Herath,
Senior Network / System
Manager
senevih@learn.ac.lk



Deepthi Guneseekara,
Senior Network / System
Engineer
deepthi@learn.ac.lk



Nuwan Ishara,
Senior Network / System
Engineer
nuwan@learn.ac.lk



Gayan Bandara,
Network / System
Engineer
gayan@learn.ac.lk



Buddhika Sandaruwan,
Network / System
Engineer
buddhika@learn.ac.lk

LEARN SAAS (CLOUD SERVICES)

INTRODUCTION

- LEARN has implemented set of software in its private cloud
- These tools can be accessed via internet software as a service
- Following software are available to use (<https://learn.ac.lk/index.php/service/foss-services>)
 - ODRaas – Open Digital Repository (DSpace)
 - LEARN Event Management System (Indico)
 - LEARN virtual Class Room vCR (BigBlueButton)
 - LEARN Tube - LTube – (MediaCMS)
 - Moodle as a Service
 - WordPress as a Service
 - LIAF – LEARN Identity Access Federation
 - EduID
 - IaMlaas
 - EduRoam
 - EduVPN

SESSION OUTLINE

- WordPress
- Demonstration – simple web site building locally
- Q&A

CONTENT MANAGEMENT SYSTEMS (CMS)

software application or platform that allows users to create, edit, manage, and publish digital content without having to do coding

- Websites

KEY FEATURES OF CMS

- Content Creation: WYSIWYG
 - What You See Is What You Get
- Content Management
 - Tools to organise, edit, and schedule posts or pages
- Media Management
 - Upload and manage images, videos, and other media files
- User Roles and Permissions
 - Add more users as editors and managers

KEY FEATURES OF CMS CNT.

- Themes and Templates
 - Easy customising in the design and layout
- Plug-ins/Extensions
 - Easily add extra functionality
 - SEO Tools
 - E-commerce
 - Forms - Contact us, inquiry forms
- Version Control
 - Provides the applying updates and reverting
 - Note that :
 - Usually Without issues – 3.5.6 to 3.5.7 etc
 - May be minor issues – 3.5.6 to 4.0
 - Some plugins may not work or malfunction
 - Tracking content changes

POPULAR CMS



shopify



Joomla!®

Drupal



Magento

WEBSITE BUILDING : LEAST STEPS

- You need to do followings
 - Coding and customising
 - Testing & Troubleshooting
 - How things show in the site
 - A Domain Name
 - Hosting (Web / Local)
 - Publishing

LANKA EDUCATION AND RESEARCH NETWORK

**DIGITALIZING RESEARCH & EDUCATION CONTENT
ON LEARN FOSS FREE OPEN CLOUD PLATFORM**

WEB SITE BUILDING

WordPress

INTRODUCTION TO WORDPRESS

- WordPress is a free, open-source content management system (CMS). It helps you build websites without needing to write the code.
- Two versions :
 - WordPress.org – Self-hosted (you need your own hosting).
 - WordPress.com – Hosted by WordPress, limited control

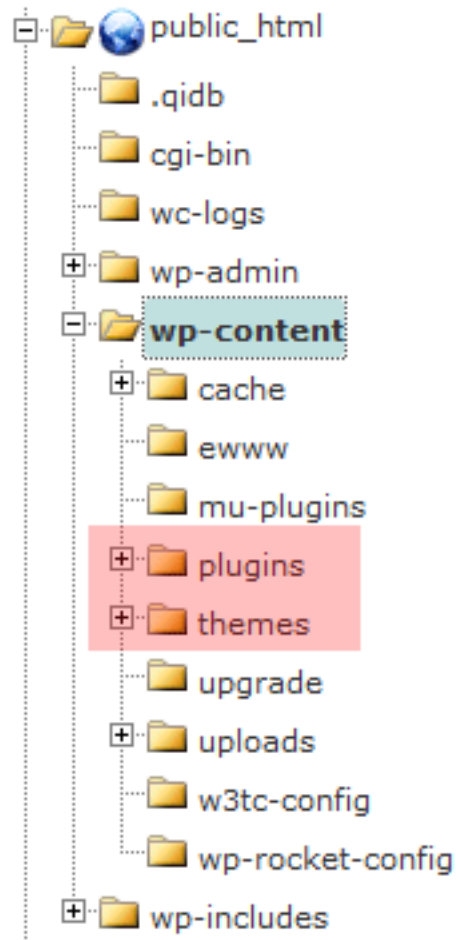
ARCHITECTURE OVERVIEW

- Architecture is designed to be flexible and extendable, allowing users to easily customize their websites through themes and plugins.
- Design method - MVC :
 - Model - View – Controller
- Built mainly using PHP, MySQL, HTML, CSS etc.

ARCHITECTURE OVERVIEW CNT.

- Main parts of the structure
 - Core: The core files contain the main WordPress application and its functionalities.
 - Themes: Themes control the visual appearance of the site. Each theme has its own folder with template files that dictate layout and design.
 - Plugins: Plugins are extensions that add functionality to WordPress. They can be installed and activated to enhance the site.
 - Database: WordPress uses a MySQL database to store content, settings, and user information.

WORDPRESS FILE STRUCTURE



WORDPRESS FILE STRUCTURE

/wordpress/

— wp-admin/	# Dashboard area for site management
— wp-content/	# Contains themes, plugins, and uploads
— themes/	# All themes installed
— plugins/	# All plugins installed
— uploads/	# Media files uploaded (images, videos, etc.)
— wp-includes/	# Core functional files
— index.php	# Main entry point for the site
— wp-config.php	# Configuration file with database settings
— .htaccess	# Server configuration file
— wp-load.php	# Loads the WordPress environment

WORDPRESS FILE STRUCTURE CNT.

- wp-admin/: Contains files necessary for the administration area of WordPress. This is where you manage your site.
- wp-content/: This directory is where user-supplied content is stored, including themes and plugins. It is the only directory that can be modified without affecting the core WordPress files.
 - languages/: All translations for your core WordPress system (even English translations)
 - plugins/: All installed plugins for your WordPress site, whether enabled or disabled.

WORDPRESS FILE STRUCTURE CNT.

- wp-includes/: Contains core WordPress files and libraries. These files are essential for the running of the WordPress application.
- index.php: The main entry file for the site. It routes all requests to the appropriate resources.
- wp-config.php: A crucial file that contains database connection details and other configuration settings.

MYSQL FOR WORDPRESS

- WordPress uses a MySQL database to store various types of data, which is crucial for its functionality.
- Let's see what data is stored in the database and how media files like images and PDFs are handled.

WORDPRESS DATABASE

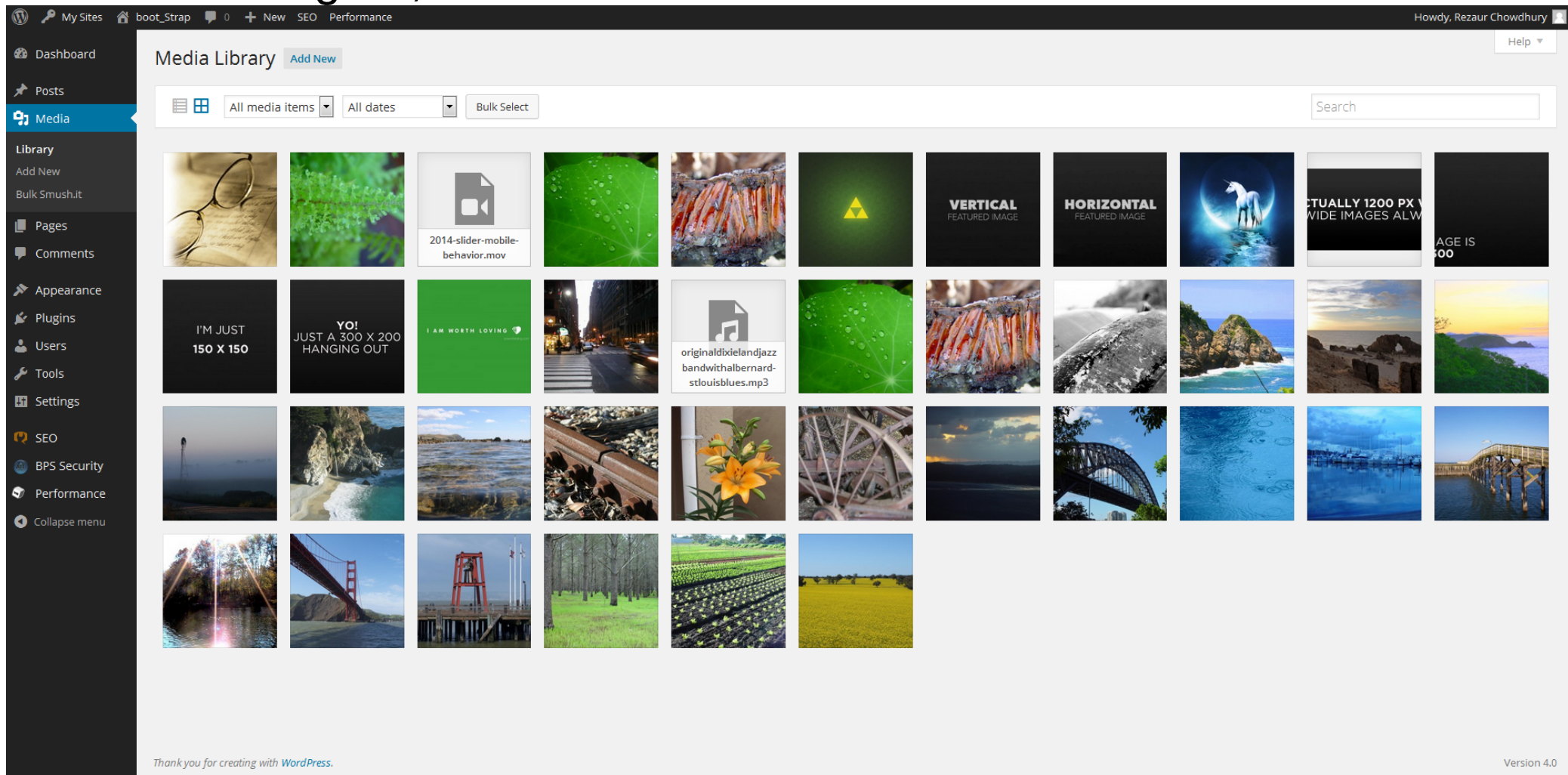
- Database in WP is structured into several tables, each serving a specific purpose. Here are the key tables and the data they store:
 - wp_posts
 - Stores all content types, including posts, pages, and custom post types.
 - wp_postmeta
 - Stores metadata for posts, such as custom fields.
 - wp_users
 - Contains information about registered users, including usernames, passwords (hashed), and roles

WORDPRESS DATABASE CNT.

- wp_usermeta
 - Stores meta-information about users, such as user preferences and capabilities.
- wp_terms:
 - Stores categories and tags (taxonomy) for organizing content
- wp_comments
 - Stores comments made on posts.
- wp_options
 - Contains various site-wide settings and options, such as site URL, admin email, and theme settings.

MEDIA STORAGE IN WORDPRESS

Let's see how WordPress handle the images, PDF files for the content



MEDIA STORAGE IN WORDPRESS

- Media Uploads:
 - When you upload a media file (image, PDF, etc.), WordPress stores the file on the server in the wp-content/uploads/ directory. The files are organized by year and month.
 - /wp-content/uploads/2025/05/image.jpg
- Database Entries:
 - each uploaded file generates a corresponding entry in the wp_posts table, where the post_type is set to attachment.
 - The metadata of the file (like the file URL, alt text, and caption) is stored in the wp_postmeta table.

MEDIA STORAGE IN WORDPRESS

- File References

- Actual file path and URL are referenced in the database, allowing WordPress to retrieve and display the media within post content or galleries.
- Database Entries:
 - Database Entry - An entry is created in the wp_posts table with
 - post_title: Name of the file
 - post_type: 'attachment'
 - guid: URL to the file.

WEBSITE BUILDING : TASKS IN WORKSHOP

- You need to do followings

WordPress

- Coding and customising
- Testing & Troubleshooting
- A Domain Name
 - <http://wordpress:8000/>
- Hosting (Web / Local)
 - Local Hosting with VirtualBox (v7.0) + OVA file

STRUCTURE OF A WORDPRESS PAGE

Like any other HTML file WordPress also contains,

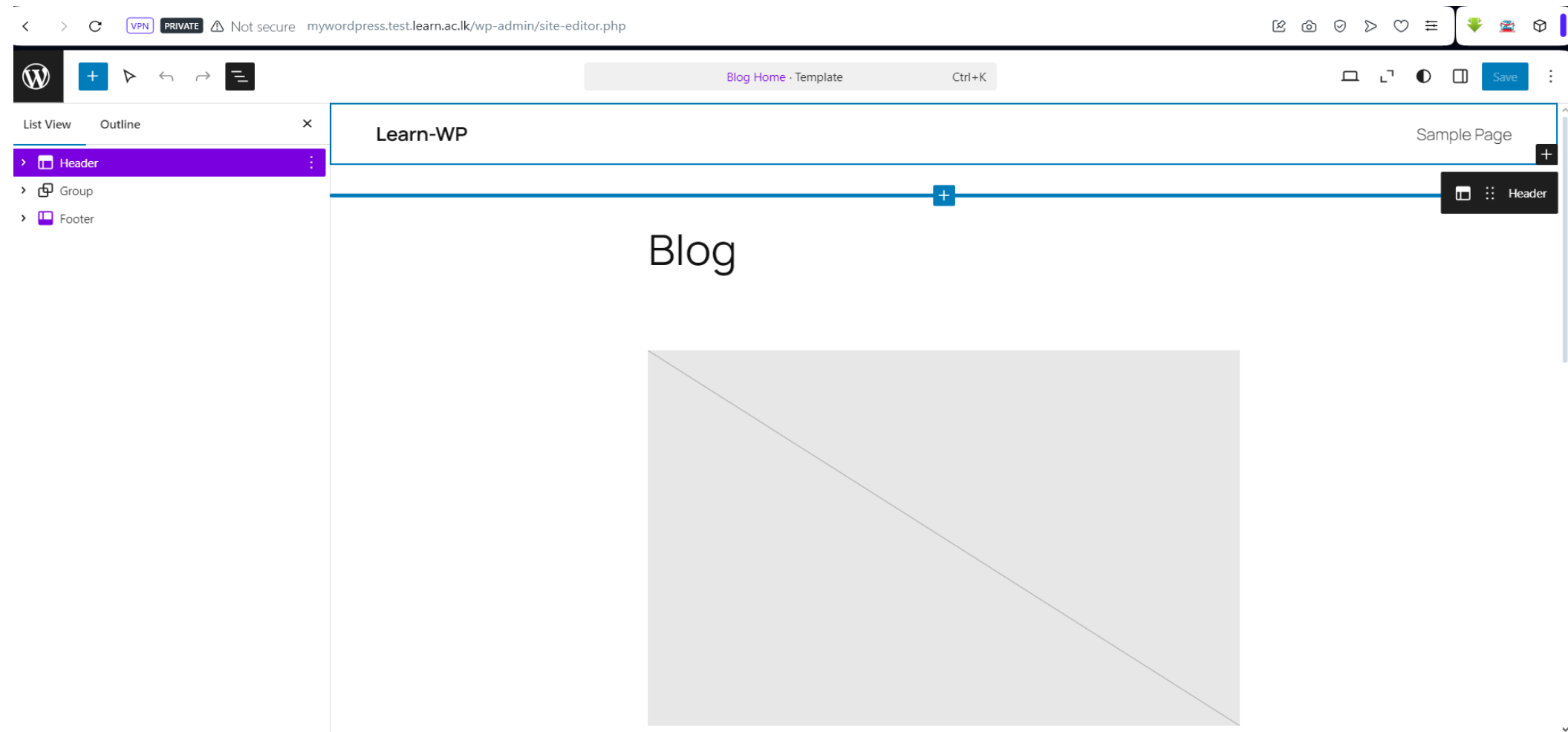
- Header, Body and Footer
- with much more features
 - which can be customized in multiple ways while keeping the responsive design.

STRUCTURE OF A WORDPRESS PAGE : HEADER

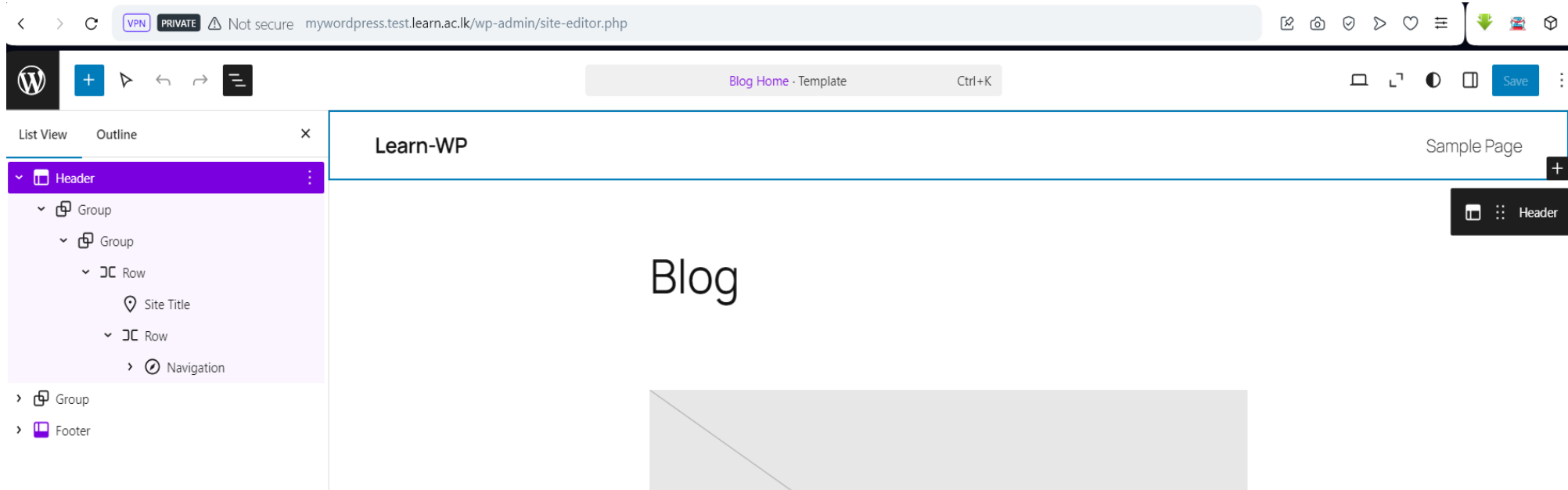
The header is the uppermost section of a WordPress page.
It typically includes:

- Site Title/Logo: This is usually the name of the website or a logo that represents the brand. Clicking on it often redirects users to the homepage.
- Navigation Menu: A menu that links to the main sections of the website, such as Home, About, Blog, and Contact.
- Search Bar: A feature that allows users to search for specific content within the website.

STRUCTURE OF A WORDPRESS PAGE : HEADER



STRUCTURE OF A WORDPRESS PAGE : HEADER

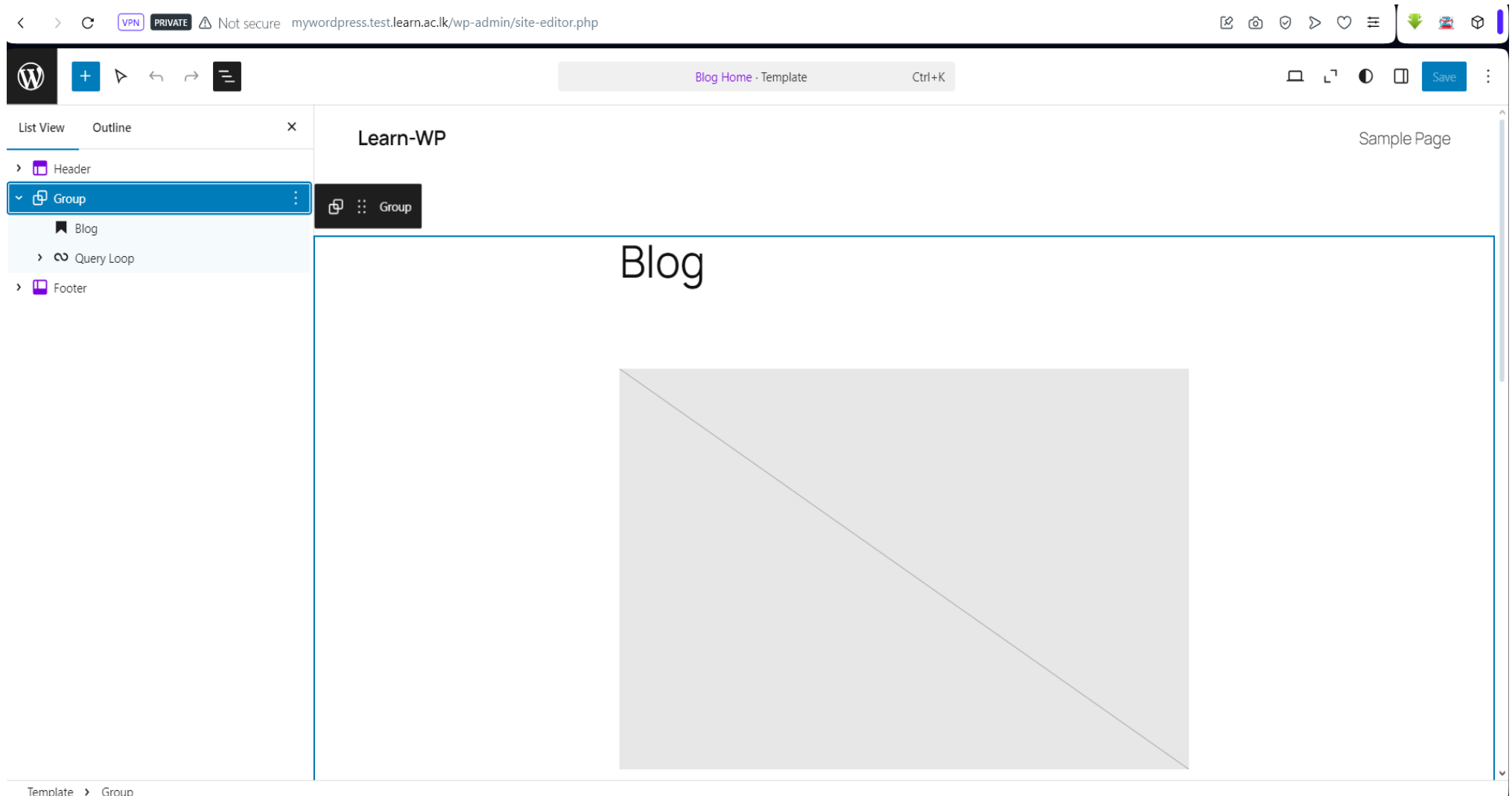


STRUCTURE OF A WORDPRESS PAGE : BODY (MAIN CONTENT)

The body is the main area where content is displayed. It can consist of:

- Post/Page Content: This includes text, images, videos, and other media relevant to the specific post or page.
- Sidebar: An optional area that may contain additional information or widgets such as recent posts, categories, and advertisements.
- Comments Section: If enabled, this allows users to leave comments on blog posts.

STRUCTURE OF A WORDPRESS PAGE : BODY (MAIN CONTENT)



STRUCTURE OF A WORDPRESS PAGE : FOOTER

The footer is located at the bottom of the page and usually contains:

- Copyright Information: Text that indicates the ownership of the website content.
- Footer Menu: A secondary navigation that might include links to the privacy policy, terms of service, and contact information.
- Widgets: Additional features like social media feeds, recent posts, or subscription forms.

STRUCTURE OF A WORDPRESS PAGE : FOOTER

The screenshot displays the WordPress site editor interface. The top navigation bar includes the WordPress logo, a plus icon, and navigation arrows. The main content area shows a search result: "Sorry, but nothing was found. Please try a search with different keywords." Below this, a pagination bar displays "12345...7" and a "Next Page" link. The left sidebar contains a "List View" and an "Outline" panel. The "Outline" panel shows the site structure, with the "Footer" section selected and highlighted in purple. The "Footer" section is expanded, showing a "Group" containing a "Site Logo", a "Row", a "Spacer", and another "Row". The main content area shows the footer layout, which includes a "Learn-WP" logo, a "Write site tagline..." placeholder, and a list of links: "Blog", "Events", "About", "Shop", "FAQs", "Patterns", "Authors", and "Themes". The footer also includes the text "Twenty Twenty-Five" and "Designed with WordPress".

BACKUP AND RESTORE

- This is important for the site availability and reliability.
- It is important to make a site backup before making any changes or updating the web site.
- If anything goes wrong you can restore the backup, it will revert the changes.
- There are few way of doing backup and restore, the easiest way is to use a plugin.
- In this workshop we are using the plugin :
UpdraftPlus
- We will provide more instruction in the lab work.

BACKUP AND RESTORE



The image shows the UpdraftPlus plugin interface. At the top, there's a header with the UpdraftPlus logo and a large yellow arrow pointing right. Below the arrow, there's a row of icons representing various storage and migration options: Google Drive, FTP, Dropbox, Amazon S3, and a download icon. Below these icons, there's a black banner with the text "UpdraftPlus: WP Backup & Migration Plugin".

UpdraftPlus: WP Backup & Migration Plugin

Description FAQ Changelog Screenshots Reviews

[The UpdraftPlus Backup & Migration Plugin](#) is trusted by the WordPress community to backup, restore and migrate their WordPress websites. UpdraftPlus is actively installed on more than 3 million websites around the world.

Backup with UpdraftPlus

UpdraftPlus is the world's highest ranking and most popular scheduled backup and migration plugin. Backup to your preferred storage location and restore in just three clicks.

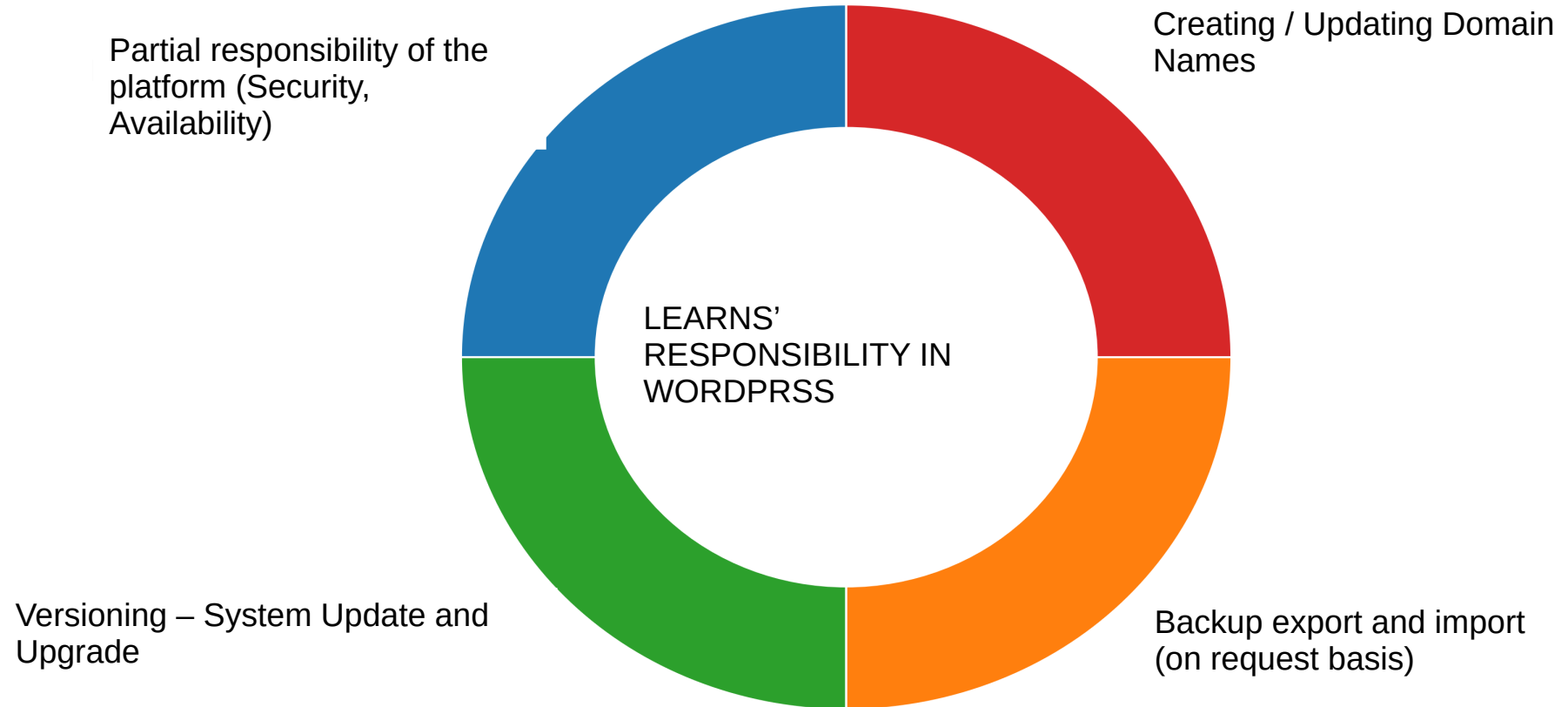
Backup to Dropbox, Google Drive, Amazon S3 (or compatible), Rackspace Cloud, FTP, DreamObjects, Openstack Swift or email.

The paid version also allows you to backup to Microsoft OneDrive.

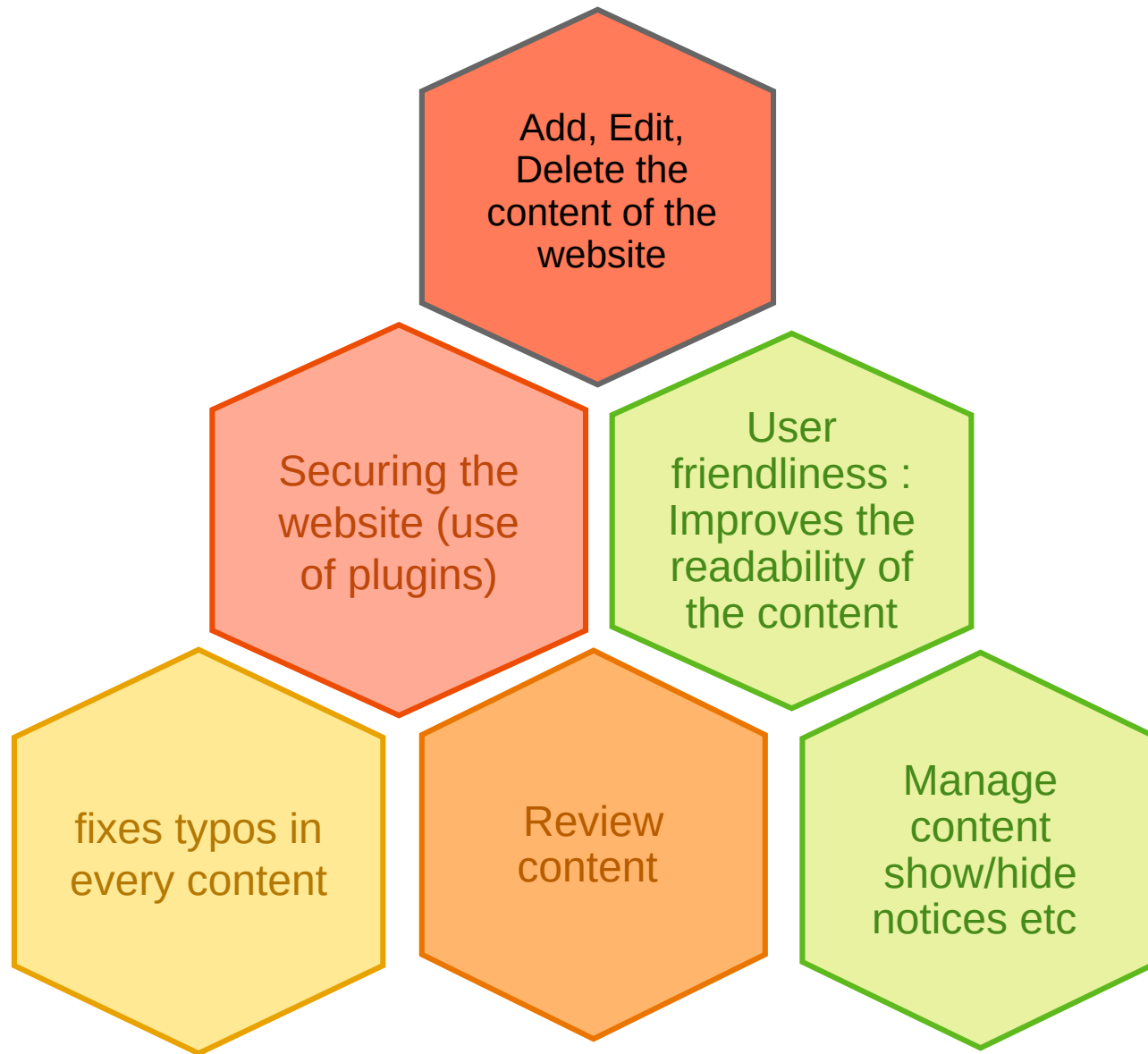
Version: 1.25.6
Author: [David Anderson / Team Updraft](#)
Last Updated: 2 weeks ago
Requires WordPress Version: 3.2 or higher
Compatible up to: 6.8.1
Active Installations: 3+ Million
[WordPress.org Plugin Page »](#)
[Plugin Homepage »](#)

AVERAGE RATING
★★★★★
(based on 8,034 ratings)

LEARNS' RESPONSIBILITIES IN WORDPRESS



RESPONSIBILITIES OF WEBSITE CREATORS IN WP



PROVISIONING WP as a SERVICE

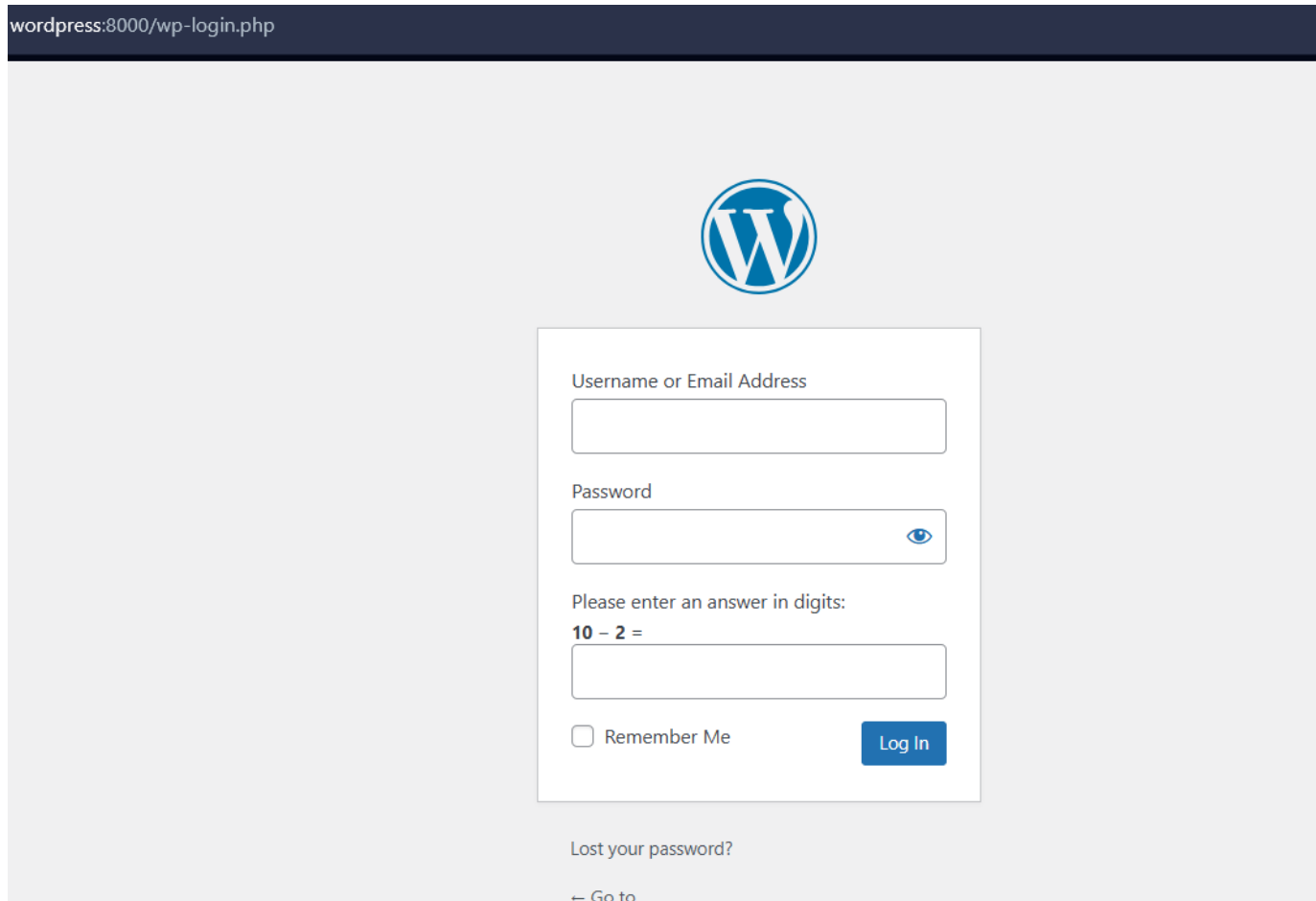
- Service is provided on a best-effort basis by the LEARN Engineering team without a Service Level Agreement (SLA).
- LEARN is only providing the Hosting infrastructure.
- Website Design, Development, Testing & Troubleshoot and maintenance should be done by the department/faculty.
- This can only be provisioned **one instance per a department or faculty**.
- Prior communication required items
 - Themes
 - Plugins ☐
 - Pro/Premium version of plugins : purchase them and handover to us.
- Send the Request through Head of the department / Dean of the Faculty
 - A domain name can be allocated under your institute (subjected to availability)
 - Create the website and export it as a backup, then send it to us, we will host it.

PROVISIONING WITH STARTUP SITE.

- As a Starting point, We can provide a Skeleton/startup website
- Plugins used for this:
 - Basic theme : Astra Free version
 - All-In-One Security (AIOS) – Login security features keep bots at bay.
 - All-in-One WP Migration and Backup - Export or import your database, media, plugins, and themes with just a few clicks
 - Campus Directory - information repository for academic people.
 - Carousel Slider Block - A responsive carousel slider
 - Smart Slider 3 - all-in-one responsive slider solution
 - Super Simple Map Embeds - embed Google Maps in WordPress
 - WP News and Scrolling Widgets - WP News and Scrolling Widgets

PROVISIONING WITH STARTUP SITE cont.

- Enhanced security for login for the Admin backend : All-In-One Security (AIOS)



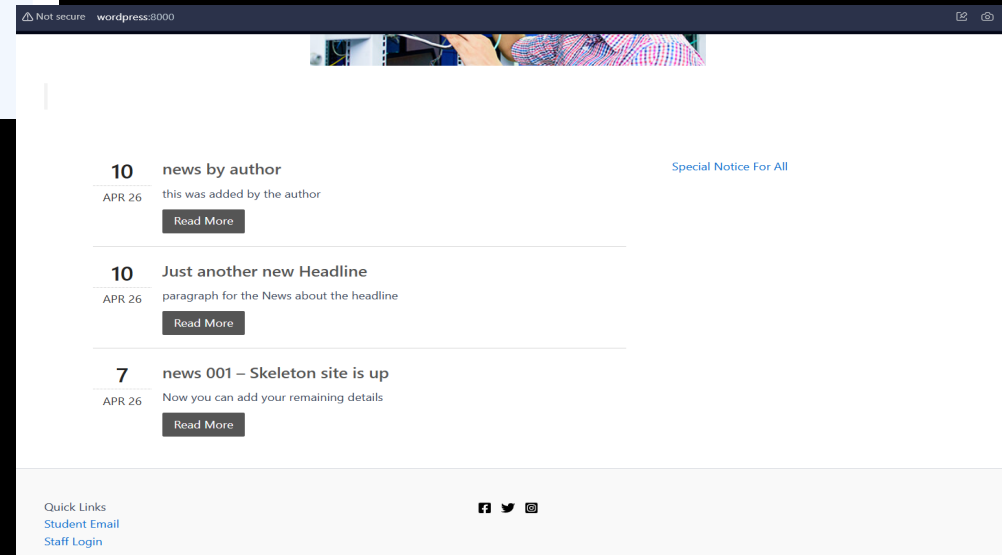
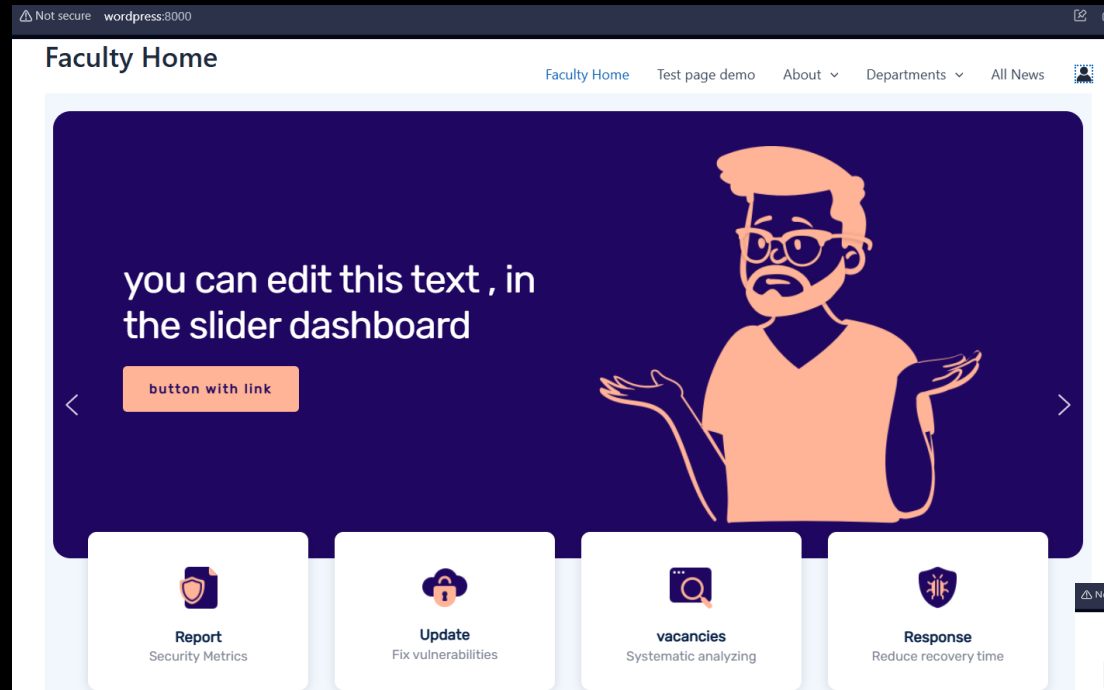
The screenshot shows the WordPress login page at the URL `wordpress:8000/wp-login.php`. The page features the WordPress logo at the top center. Below the logo is a white login box containing the following elements:

- A text input field labeled "Username or Email Address".
- A text input field labeled "Password" with a toggle icon (an eye) to its right.
- A security challenge section titled "Please enter an answer in digits:" followed by the equation $10 - 2 =$ and a corresponding text input field.
- A checkbox labeled "Remember Me".
- A blue "Log In" button.

Below the login box, there is a link "Lost your password?" and a link "← Go to" at the bottom.

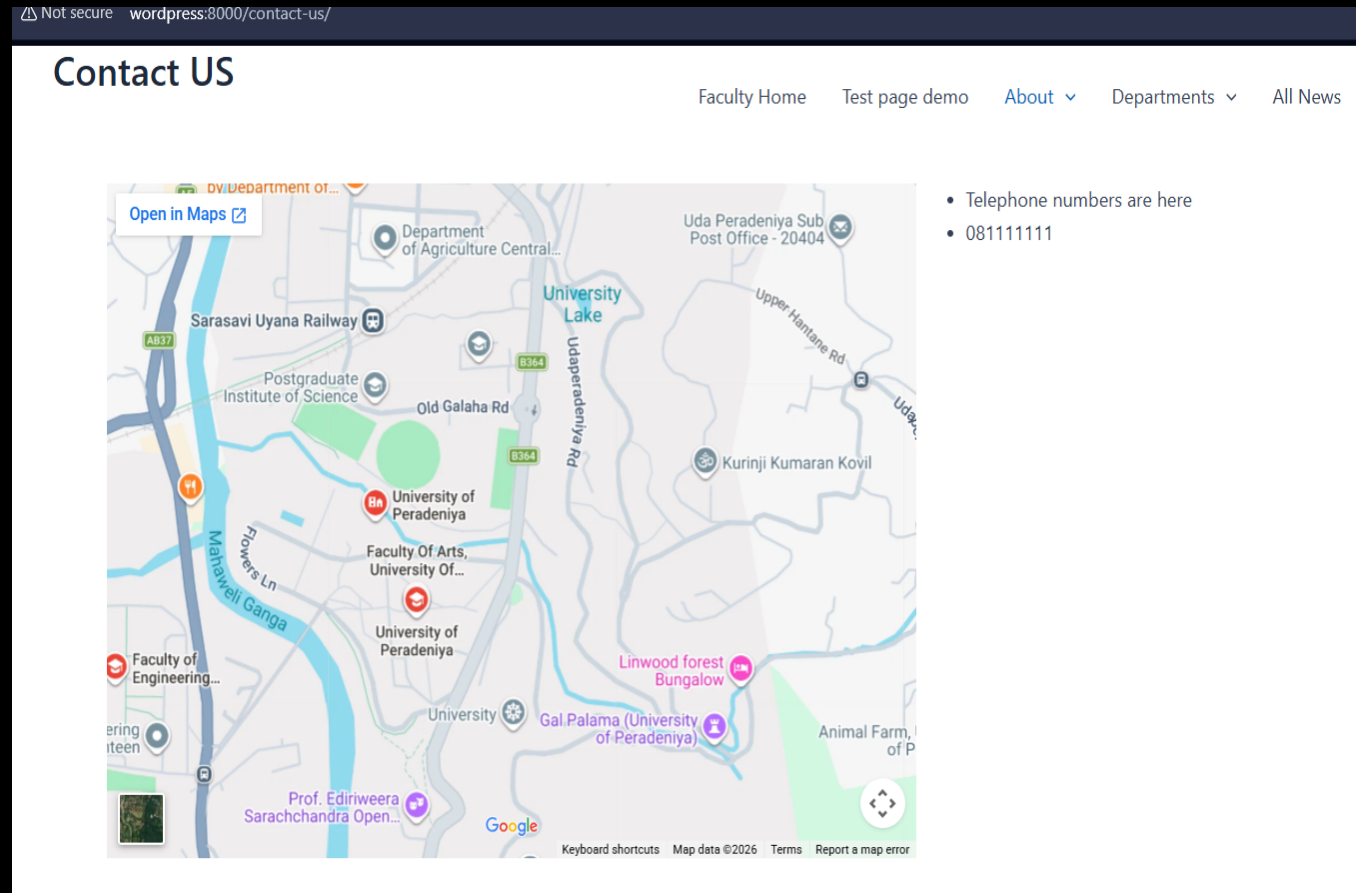
PROVISIONING WITH STARTUP SITE cont.

→ Skeleton home page



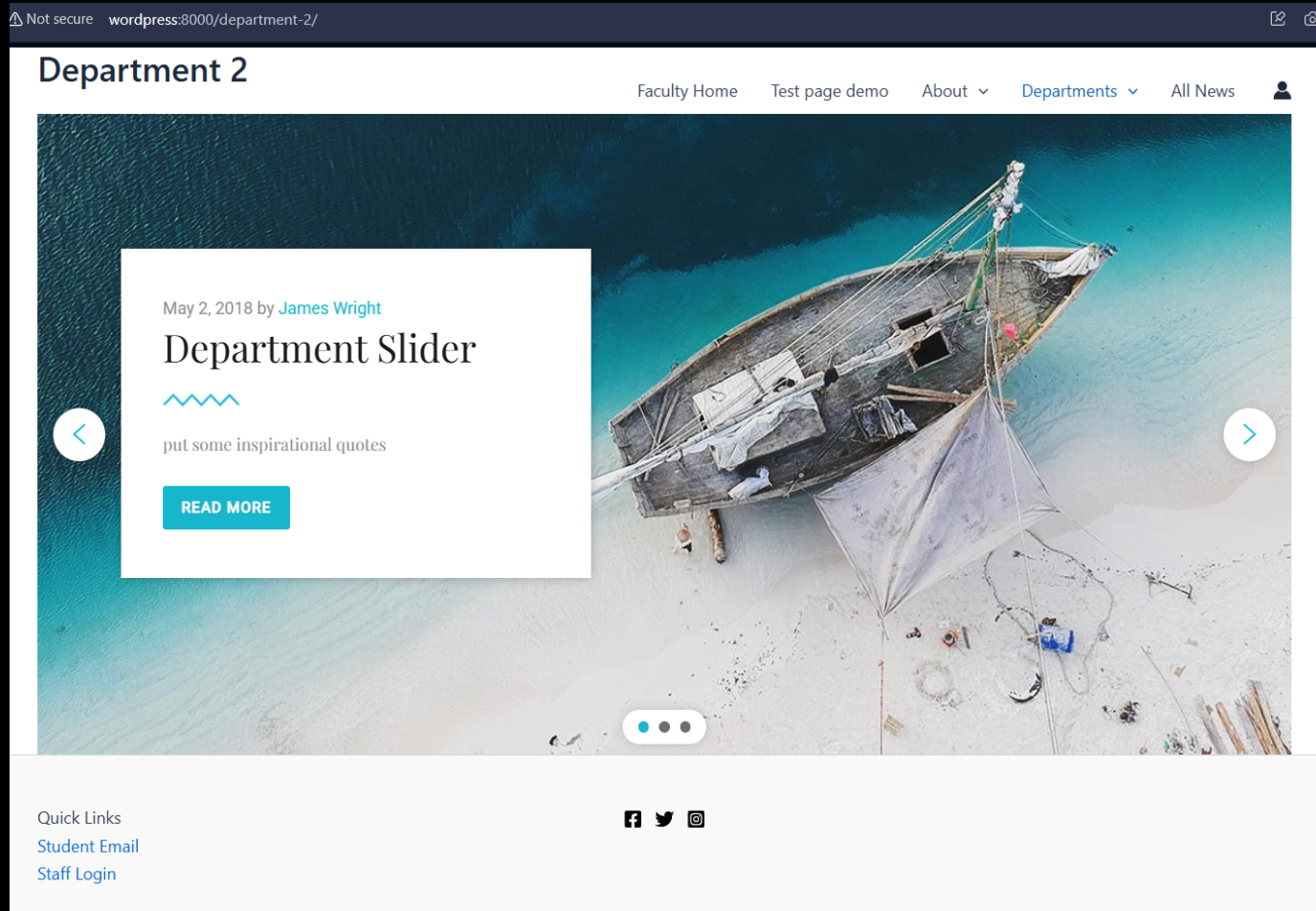
PROVISIONING WITH STARTUP SITE cont.

→ Skeleton contact-us page with the Google map



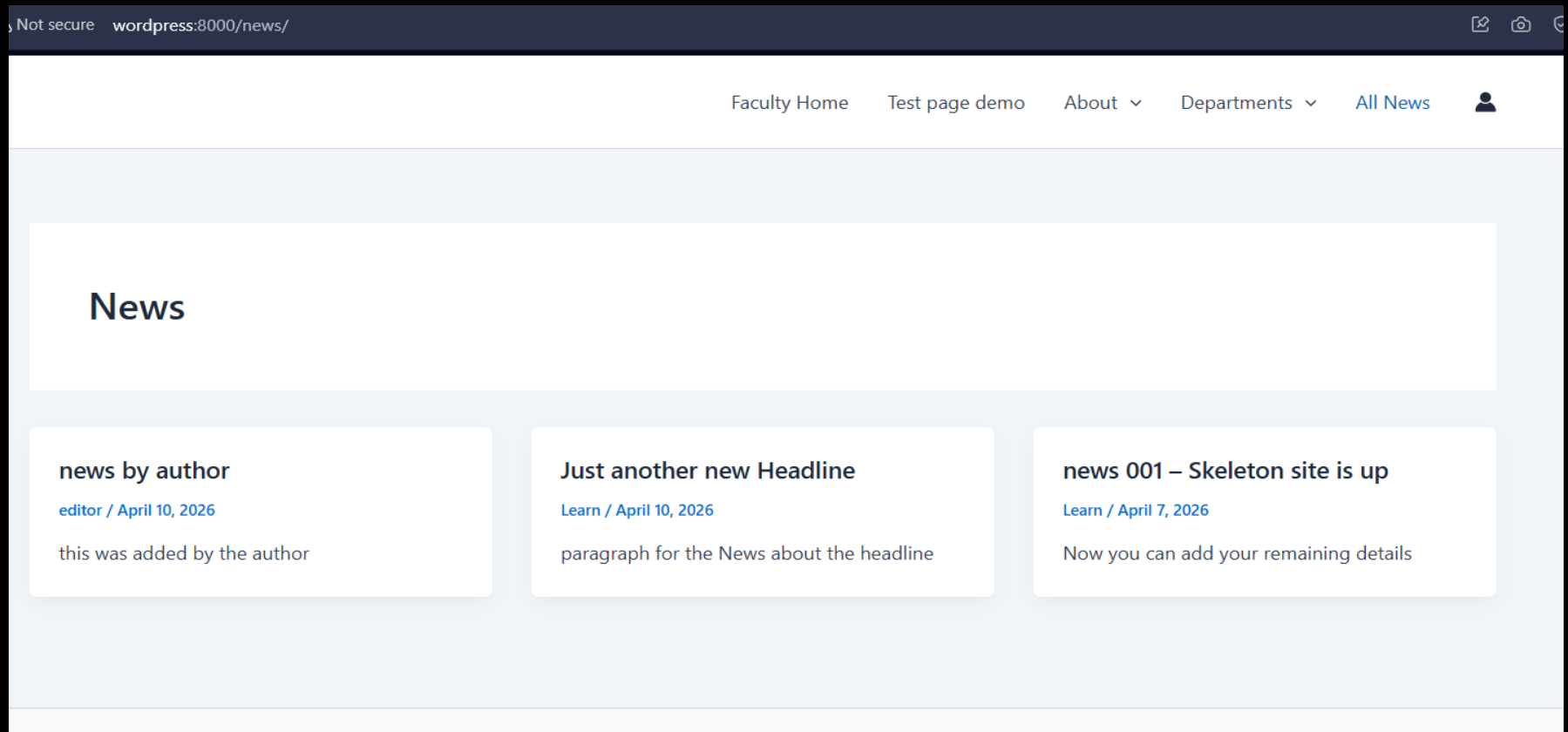
PROVISIONING WITH STARTUP SITE cont.

→ Skeleton Department page with the image slider template



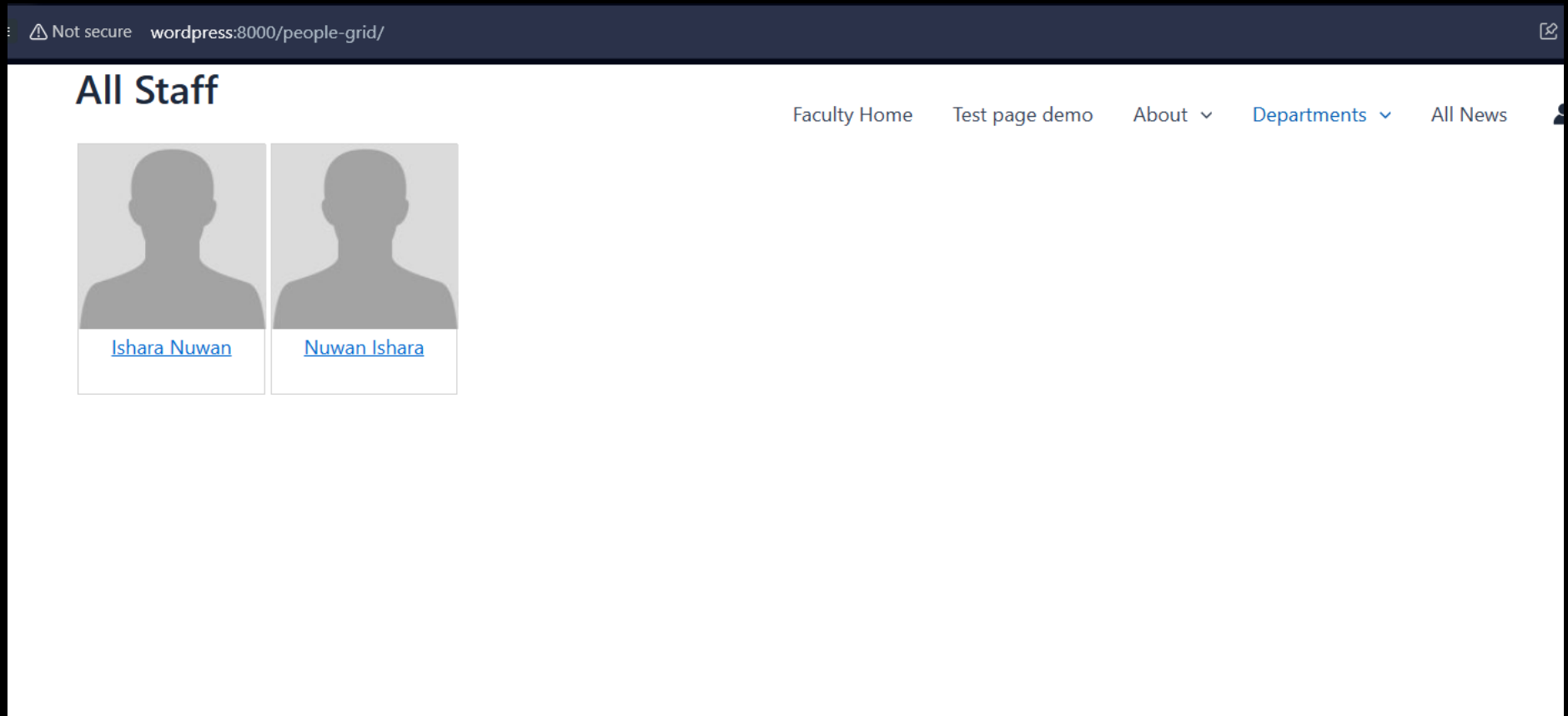
PROVISIONING WITH STARTUP SITE cont.

→ Skeleton News page : news are from backend, you can have an editor role here.



PROVISIONING WITH STARTUP SITE cont.

→ Skeleton Campus directory : profiles are from backend, you can have an editor role here.



PROVISIONING WP as a SERVICE CONT.

→ Premium Plugins

→ Forms & Data Collection

→ Gravity Forms (Elite): securely build student applications, research surveys, and faculty feedback forms.

→ WPForms (Pro/Elite): for handling high-volume form entry

→ Campus Events & Academic Calendars

→ The Events Calendar Pro: event management on institutional sites.

→ Performance, Security, & Infrastructure



→ WP Rocket: optimization tool for heavy content

→ BlogVault or UpdraftPlus (Premium) : automated, off-site cloud backups.

PROVISIONING WP as a SERVICE CONT.

- **Premium Themes**

- EduMag

- magazine styled educational purpose responsive WordPress theme.

- WPLMS

- LMS for WordPress.

- Main Theme site → <https://wordpress.com/themes>

- Alternative Official Secondary Markets → <https://themeforest.net/category/wordpress>



LANKA EDUCATION AND RESEARCH NETWORK

DEMO

LANKA EDUCATION AND RESEARCH NETWORK

Q/A

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THANK YOU



National Research & Education Network of Sri Lanka