



Industrial Internship Report on "Content Management System (CMS) for Blog"

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Executive Summary

This report provides details of the Industrial Internship provided by upskill Campus and The IoT Academy in collaboration with Industrial Partner UniConverge Technologies Pvt Ltd (UCT).

This internship was focused on a project/problem statement provided by UCT. We had to finish the project including the report in 6 weeks' time.

My project was *CMS for Blog with Premium Access Feature*, aimed to create a lightweight, PHP-based system that allows users to create, manage, and publish blog content stored in a JSON file instead of a database, making it highly adaptable for free web hosting environments.

This internship gave me a very good opportunity to get exposure to Industrial problems and design/implement solution for that. It was an overall great experience to have this internship.



TABLE OF CONTENTS

1	Preface	3
2	Introduction	4
2.1	About UniConverge Technologies Pvt Ltd.....	4
2.2	About upskill Campus.....	8
2.3	Objective	9
2.4	Reference	9
2.5	Glossary.....	10
3	Problem Statement	11
4	Existing and Proposed solution	12
5	Proposed Design/ Model.....	13
5.1	High Level Diagram	13
5.2	Low Level Diagram	13
5.3	Interfaces	13
6	Performance Test	14
6.1	Test Plan/ Test Cases.....	14
6.2	Test Procedure	14
6.3	Performance Outcome.....	14
7	My learnings.....	15
8	Future work scope.....	16



1 Preface

This six-week industrial internship provided by **Upskill Campus** and **The IoT Academy** in collaboration with **UniConverge Technologies Pvt. Ltd. (UCT)** has been an invaluable experience in shaping my technical and professional growth. Throughout this internship, I worked on a real-world project titled "**Content Management System (CMS) for Blog.**" The project focused on developing a lightweight PHP-based CMS that stores data in a JSON file, eliminating the need for a traditional database and enabling free hosting deployment.

The internship was structured to simulate an industrial work environment. Each week had clearly defined objectives—starting from project planning, design, and backend implementation to integrating advanced features such as editing/deletion of posts and premium access for monetized content.

This internship emphasized the **need for relevant industrial experience** in career development. Working on a live project improved my understanding of web application architecture, file handling, and data management while strengthening my problem-solving, debugging, and design-thinking abilities.



2 Introduction

2.1 About UniConverge Technologies Pvt Ltd

A company established in 2013 and working in Digital Transformation domain and providing Industrial solutions with prime focus on sustainability and RoI.

For developing its products and solutions it is leveraging various **Cutting Edge Technologies** e.g. Internet of Things (IoT), Cyber Security, Cloud computing (AWS, Azure), Machine Learning, Communication Technologies (4G/5G/LoRaWAN), Java Full Stack, Python, Front end etc.

IIOT Products
We offer product ranging from Remote IOs, Wireless IOs, LoRaWAN Sensor Nodes/ Gateways, Signal converter and IoT gateways

IIOT Solutions
We offer solutions like OEE, Predictive Maintenance, LoRaWAN based Remote Monitoring, IoT Platform, Business Intelligence...

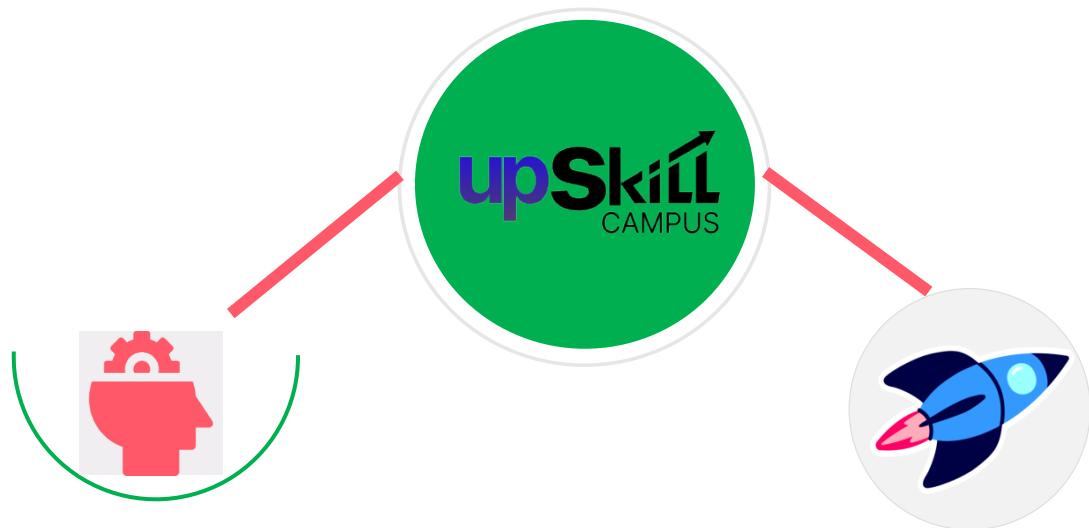
OEM Services
We offer solutions ranging from product design to final production we handle everything for you...



2.2 About upskill Campus (USC)

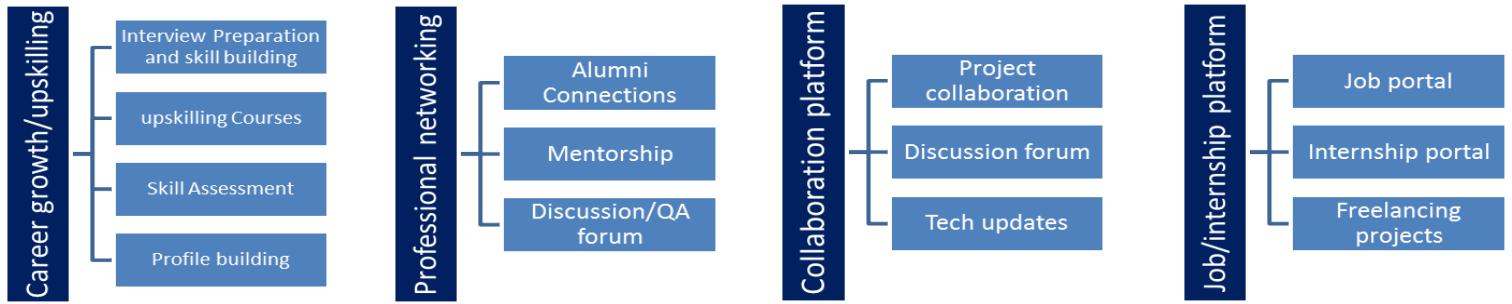
upskill Campus along with The IoT Academy and in association with Uniconverge technologies has facilitated the smooth execution of the complete internship process.

USC is a career development platform that delivers **personalized executive coaching** in a more affordable, scalable and measurable way.



Seeing need of upskilling in self paced manner along-with additional support services e.g. Internship, projects, interaction with Industry experts, Career growth Services

upSkill Campus aiming to upskill 1 million learners in next 5 year



2.3 The IoT Academy

The IoT academy is EdTech Division of UCT that is running long executive certification programs in collaboration with EICT Academy, IITK, IITR and IITG in multiple domains.

2.4 Objectives of this Internship program

The objective for this internship program was to

- ☛ get practical experience of working in the industry.
- ☛ to solve real world problems.
- ☛ to have improved job prospects.
- ☛ to have Improved understanding of our field and its applications.
- ☛ to have Personal growth like better communication and problem solving.



2.5 Reference

- [1] <https://www.upskillcampus.com/>
- [2] <https://www.uniconvergetech.in/>
- [3] W3Schools – PHP File Handling and JSON Tutorials
- [4] Mozilla Developer Network (MDN) – JavaScript Fetch API
- [5] InfinityFree Documentation – Free PHP Hosting Guide

2.6 Glossary

Term	Meaning
CMS	Content Management System – a platform to create and manage digital content.
JSON	JavaScript Object Notation – lightweight data format for storing and exchanging data.
PHP	A popular server-side scripting language used for web development.
Frontend	The visible part of the website that users interact with.
Backend	The server-side logic handling data, authentication, and storage.
Token	A unique code used to verify premium access or user authentication.



3 Problem Statement

Content Management Systems, such as WordPress , are robust but inherently **require a dedicated database and complex server environments**. This dependency makes them **heavy, resource-intensive, and unsuitable for basic or free hosting** platforms.

This creates a significant barrier to entry for individual bloggers, students, and developers seeking a lightweight, easily deployable, and cost-effective solution for basic blog content management.

The problem this project addresses is: How can a simplified, highly adaptable CMS be designed and implemented to provide core content management functionality while achieving data persistence without relying on a traditional SQL database, thereby making it viable for deployment on free web hosting environments?

Main Components

1. Most traditional Content Management Systems are resource-heavy and require dedicated databases. This makes them unsuitable for students, small creators, or startups who want to host their projects for free. Free hosting platforms usually have limited server resources and do not support complex database-driven systems, creating a gap for lightweight, database-free CMS solutions.
2. To overcome these limitations, this project focuses on building a completely free and lightweight CMS using PHP and JSON. Instead of relying on any paid hosting or database service, all post data is stored directly in a JSON file, which ensures fast, secure, and portable data handling. The CMS is hosted on free platforms like InfinityFree, paired with a free custom domain, making it a cost-free and accessible solution for learners and independent developers.
3. To make the system more flexible, the CMS also supports embedding PDFs and videos directly from free cloud storage services such as Google Drive, MEGA—removing the need for expensive dedicated storage or bandwidth-heavy servers.



4 Existing and Proposed solution

Existing Systems

Traditional CMS platforms like **WordPress** or **Drupal** are robust but inherently require a database and complex server environments. This dependency makes them heavy, resource-intensive, and often **unsuitable for basic or free hosting** environments.

Proposed Solution

The proposed solution is a simplified, lightweight, **PHP-based CMS** that achieves persistence and content management functionality by:

1. Storing and retrieving all post data from a single **posts-data.js (JSON)** file on the server's file system.
2. Adding a **Premium Post Feature** with server-side logic to conditionally lock content, enabling a clear path for monetization.

4.1 Code submission (Github link)

<https://github.com/Raw-Ashish/upskillcampus>

4.2 Report submission (Github link) :

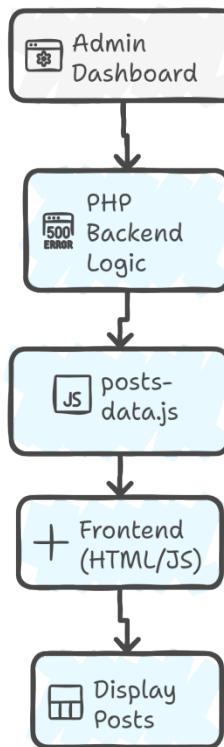
https://github.com/Raw-Ashish/upskillcampus/blob/main/CMS_ASHISH_USC_UCT.pdf



5 Proposed Design/ Model

5.1 High Level Diagram

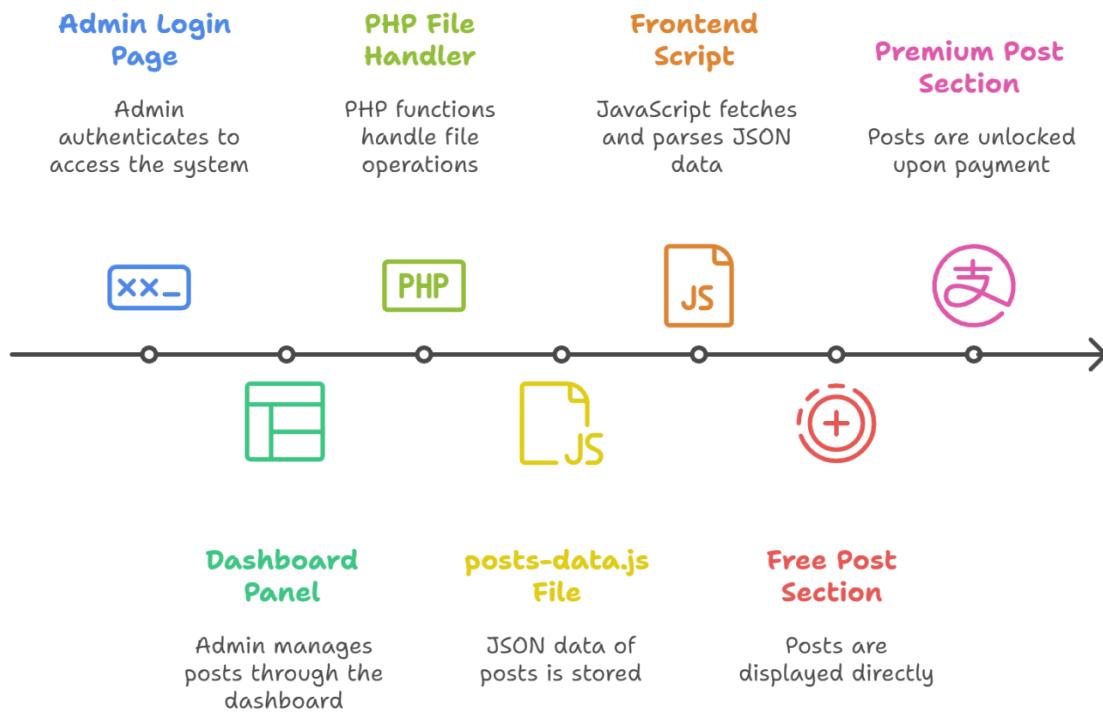
Data Flow in a Web Application





5.2 Low Level Diagram

Post Management System Workflow



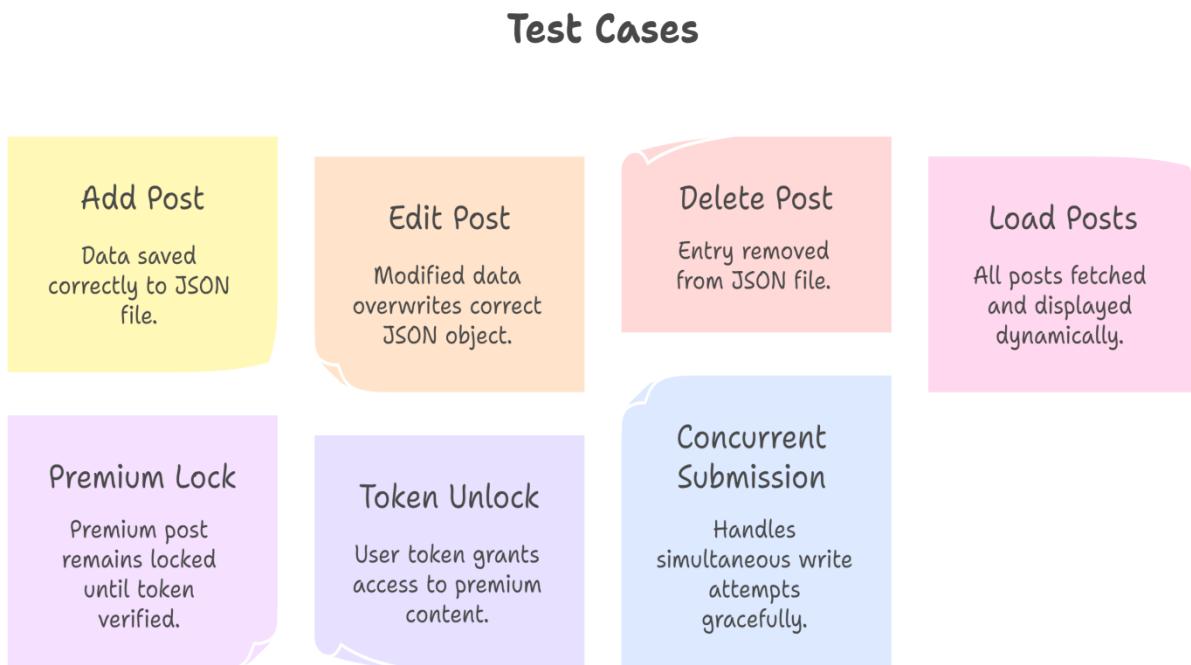


6 Performance Test

Performance testing was conducted to evaluate the efficiency, stability, and responsiveness of the developed **Content Management System (CMS)** under real hosting conditions.

The goal of the performance test was to validate the core assumption: that JSON-based storage is a viable alternative for a lightweight CMS under the constraints of a free hosting environment, demonstrating industrial relevance through constraint management.

6.1 Test Plan/ Test Cases





6.2 Test Procedure

Environment Setup: The CMS was hosted on **InfinityFree**, a free PHP hosting server with limited memory and execution time. Testing was done using both desktop and mobile browsers.

Functional Testing: Each CMS operation—Add, Edit, Delete, View, and Premium Unlock—was executed repeatedly to ensure consistent behavior and response.

Performance Testing:

- JSON file read/write operations were timed using PHP's microtime() function.
- Load testing was performed by simulating multiple posts (50+) and concurrent admin access.
- Page rendering times were observed manually via browser developer tools (Network tab).

6.3 Performance Outcome

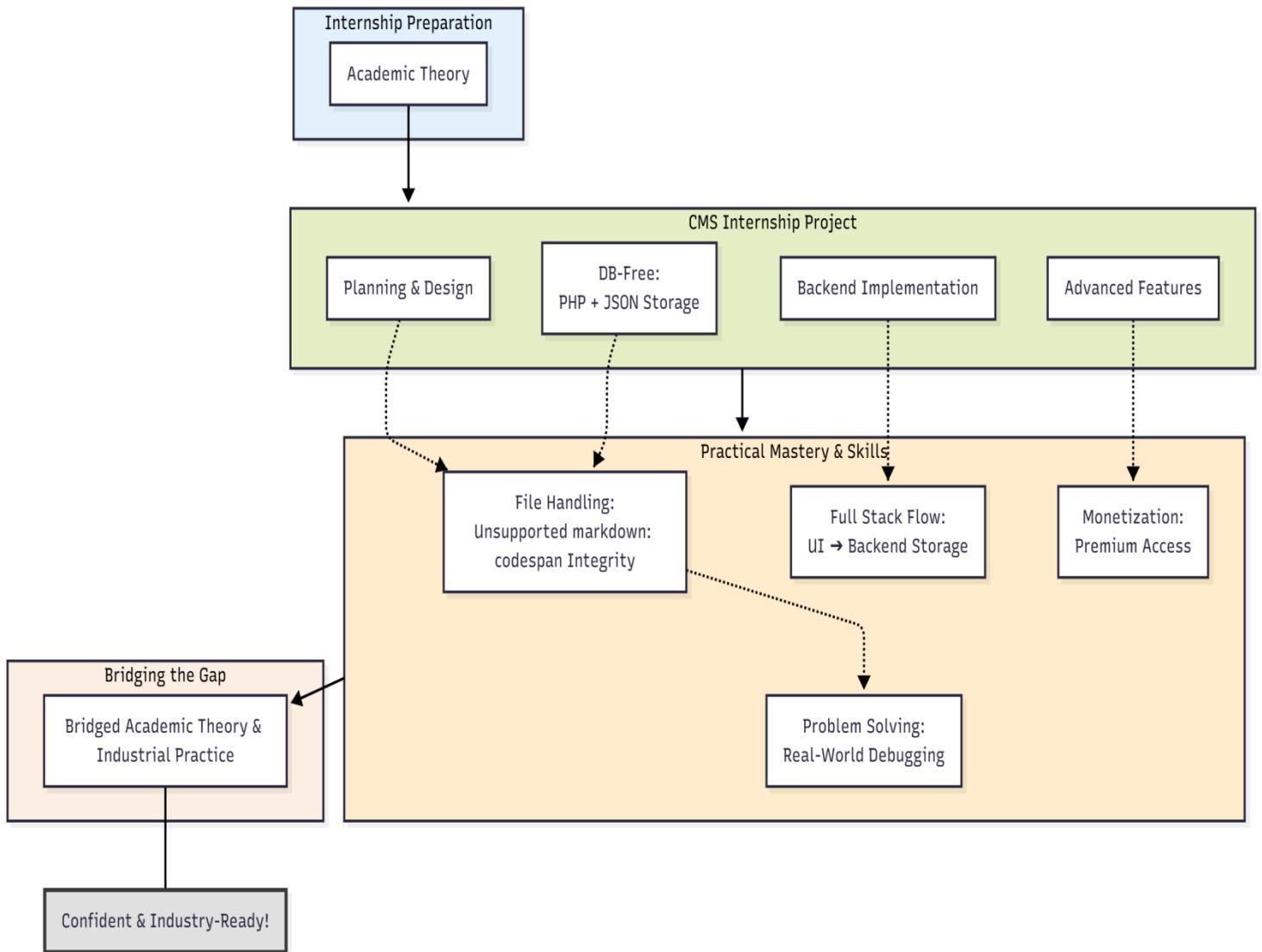
The testing phase demonstrated that the CMS is **stable, responsive, and reliable** for small- to medium-scale usage. JSON-based storage performed well under moderate load, and premium content handling worked smoothly without delay.

Parameter	Observation	Result
1 Average JSON write speed	0.6 – 0.8 seconds	Acceptable
2 Average JSON read speed	0.4 – 0.7 seconds	Efficient
3 Page load time (20 posts)	2.2 seconds	Satisfactory
4 Premium content unlock delay	<1 second	Excellent
5 Concurrent write handling	No data loss	Stable
6 System uptime (test duration)	100%	Reliable



7 My learnings

My Learnings from CMS Internship (PHP/JSON)





8 Future work scope

