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1. Introduction

This ambitious project will select and implement an Information Management System (IMS) for Ministry of Communication and Information Technology that allows for easy data entry, post the valuable information (captures) and manages, leverages, and distributes content in a collaborative fashion.

The system will minimize the need for web authors to have technical skills in web design or web publishing. In addition to a WCM system, the Ministry of Communication and Information Technology website will be redesigned to separate internal and external content for diverse audiences. Information Management supports the creation, storage and delivery of content published on a website. Implementing a WCM system will enable management business processes that will ensure that Information is timely, factual, consistent, and authorized by the appropriate persons. It will enable the delivery of appropriate Ministry of Communication and Information Technology messages to serve and deliver the citizens.

A portal has been implemented that now allows content that is internally focused to be housed in this area designed especially for departments and citizens. The new public site will allow an external focus on new applicants and prospective citizens.

Currently, there are Ministry of Communication and Information Technology public and department web pages that were part of the public site. The internally focused pages can now be housed separately, leaving advantage of maintaining a consistent style and using the public site to meet their goals, while public will have content geared to their needs and interests.

2. Problem Statement

An increasing number of organizations have web sites. The trend is to disseminate responsibility of managing Information for the web site to the people who generate it rather than webmaster. In this situation the web master can focus on larger system issues and avoid dealing with small updates or additions. At the same time, this scenario creates a situation in which people who are uncomfortable with working on web design are forced to complete tasks for a web site. In

addition, many organizations support multiple sites that have the same content. Thus, there is a need for a system that will manage and organize web site content.

In order to address these issues, we propose a solution with the following properties: allow users to interact with text for a web site, group text into different categories to deal with the quantity to text, allow style sheet and graphics files to be combined with the text files, allow for a verification section in which a admins in the organization to check additions and changes before they go live, and finally update content on all sites at once. The presentation of the files associated within our system is handled by modules outside of the system.

3. Objective of Study

- To manage and organize web site content of an organization.
- To provide the capability for multiple users with different permission levels to manage a website or a section of the content.
- To power websites that focus on content creation and sharing of an organization.
- To store all online content in one place and is available to anyone with access to the website, meaning the need to send multiple different files to different individuals is no longer necessary.
- To improve the way the studies were stored, generated, distributed and organized.
- To eliminate redundancy/inconsistency, and provide a simple way to manage the placement of studies.

4. Scope and Limitation

4.1 Scope

In this existing world when technology is at peak, we can’t see the presence of software for all the times. It is important that it will upgrade with time to fulfill the demands of the market. IMS that is fast, secure, and organized.

IMS allows users to interact with text for a web site, group text into different categories to deal with the quantity to text, allow style sheet and graphics files to be combined with the text files, allow for a verification section in which a admins in the organization to check additions and changes before they go live, and finally update content on all sites at once. The presentation of the files associated within our system is handled by modules outside of the system.

4.2 Limitation

IMS has its advantages, but unfortunately some factors limit the effectiveness of E-governance technology.

- Poses a larger Security Risk unless maintained and regularly updated. Though most IMSs release updates/fixes/patches regularly widely used content management systems generally invite more hackers than websites that don't use a content management system or hard coded websites.
- The needs to have qualified technicians maintain and upgrade software, means that maintenance of content management systems can get expensive.
- High maintenance and expansion costs

5. Methodology

5.1 Requirement Analysis

The system requirement is mainly divided into two parts i.e. software requirement and hardware requirement

Software requirements:

- Operating System: Since PHP is a platform independent any operating system can be used i.e., Windows, Linux etc.
- Server: XAMPP Server
- DBMS: MySQL.
- Another requirement: HTML, CSS, JavaScript.

Hardware requirements

- Minimum three computers for each Super Admin, Admin and End-users(citizens)
- New network connection installed (updated regularly)
- Wi-Fi enabled Personal Digital Assistance (PDA) or tablet.

5.1.1 Functional Requirement

This section discusses the system's needs in general. There will be a variety of functional modules that can be used in that system.

a. Home Page: This function is used to view the content for the end-users.
b. Registration: It is used for the admin to register themselves. To create and update content in the system a new user must first register in the system by providing essential information.
c. Login: The specific username and password to the super admin or admin and enter the system. After registering, the user must enter their username and password to enter the system.
d. Add, update and delete the post: The super admin has the authority to add, update and delete the post whereas the other admins have the authority to only add and edit the post.

e. Add, update and delete the category: The super admin has the authority to add, update and delete the category whereas the other admins have the authority to only add and edit the category.
f. Dashboard Page: for managing various stuffs
g. Post Page: for managing the various posts to be made.
h. Categories Page: for creating and arranging categories
i. Users Page: it also a page that contains list of all registrate users(can only be view by admin)

5.1.2 Non-functional Requirement

The non- functional requirements of our system are as follows:

i. Portability: System running on a platform can be easily converted to another.
ii. Reliability: The system behaves consistently in user-friendly manner.
iii. Availability: The system should be available at all times i.e. the user can access using web browser
iv. Maintainability: MYSQL database is used for maintaining the database and the application server takes care of the site.
v. Security: Secured access of confidential data (Customer's and Owner's details).
vi. Manage the information of customers and products.
vii. Shows the information and description of the contents.
viii. Efficiency: Improve the efficiency of managing the customers and products.
ix. It deals with monitoring the information and transaction of stocks.

5.2 Feasibility Study

Feasibility Study is a study to evaluate feasibility of proposed project or system. As name suggests, feasibility study is the feasibility analysis or it is a measure of the software product in terms of how much beneficial product development will be for the organization in a practical point of view. Feasibility study is carried out based on many purposes to analyze whether software product will be right in terms of development, implantation, contribution of project to the organization etc.

Three key considerations are involved in the feasibility study: Economic Feasibility, Operational Feasibility and Technical Feasibility.

5.2.1 Economic Feasibility

The proposed system is considered to be economically feasible because a single system is only needed for admin to upload the content to the site and end-user needs system to view the content. Thus, it reduces the manual work. A person from anywhere in the world could access the information easily that saves time instantaneously without much cost.

5.2.2 Technical Feasibility

The proposed system is considered technically feasible because it requires only the initial cost of purchasing a system. Typical considerations for technical feasibility include development risk, resources, availability, and technology. We chose a tool set platform that can be seamlessly integrated into other software platforms, and future support should be guaranteed.

5.2.3 Operational Feasibility

The proposed system is user friendly and easy to use. The site could be accessed by both the end-users and the admins.

5.2 System Design

The most creative and challenging phase of the system life cycle is system design. The term design describes a final system and the process by which it is developed. It refers to the technical specification that will be applied in implementing the candidate system. It also includes the construction of programs and program testing.

5.3.1 System Flowchart

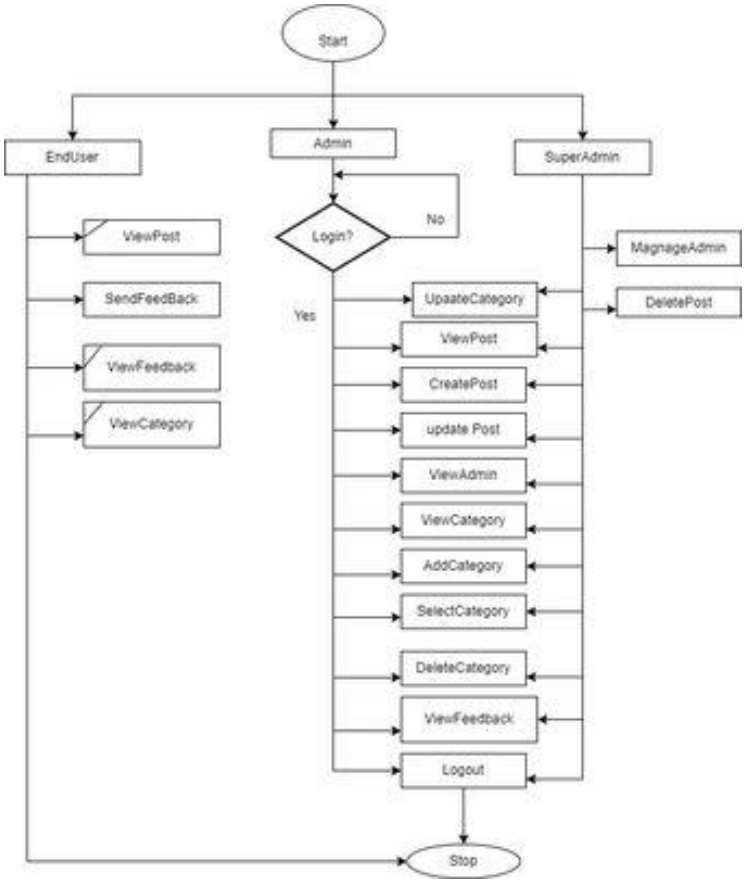

Figure 1: Flow Chart of Information Management System

5.3.2 System Architecture

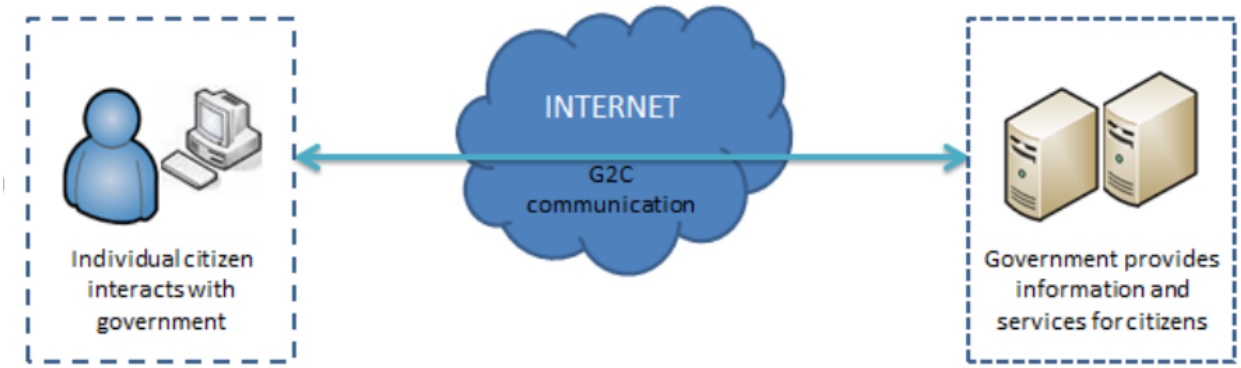

Figure 2: G2C Architecture of Information Management System

This Information Management System is based on the Government to Citizen architecture in which the interaction amidst the government and general public in this interaction procedure. The interface is setup between government and citizens, which enables the citizens to get the wide variety of content from that department of the government. The citizen has the freedom to share their views regarding the information they gain. Two-way communication allows citizens to instant message directly with public administrators

5.3.3 Use case diagram

The use of case diagram is developed during the requirement analysis phase that model static structure of system using class and object diagrams. Given shows the use case model of Information Management System, which diagrammatically shows relationship among three actors (Super admin, Admin and End-User) along with their goals.

This Use Case Diagram is a graphic depiction of the interactions among the elements of Information Management System. It represents the methodology used in system analysis to identify, clarify, and organize system requirements of Information Management System. The main actors of Information Management System in this Use Case Diagram are: Super Admin, Admin, and End User, who perform the different type of use cases such as Manage Content, Manage Page, Manage Content Category, Manage Comment, Manage Web Page, Manage Users and Full Content Management System Operations. Major elements of the UML use case diagram of I Management System are shown on the picture below.

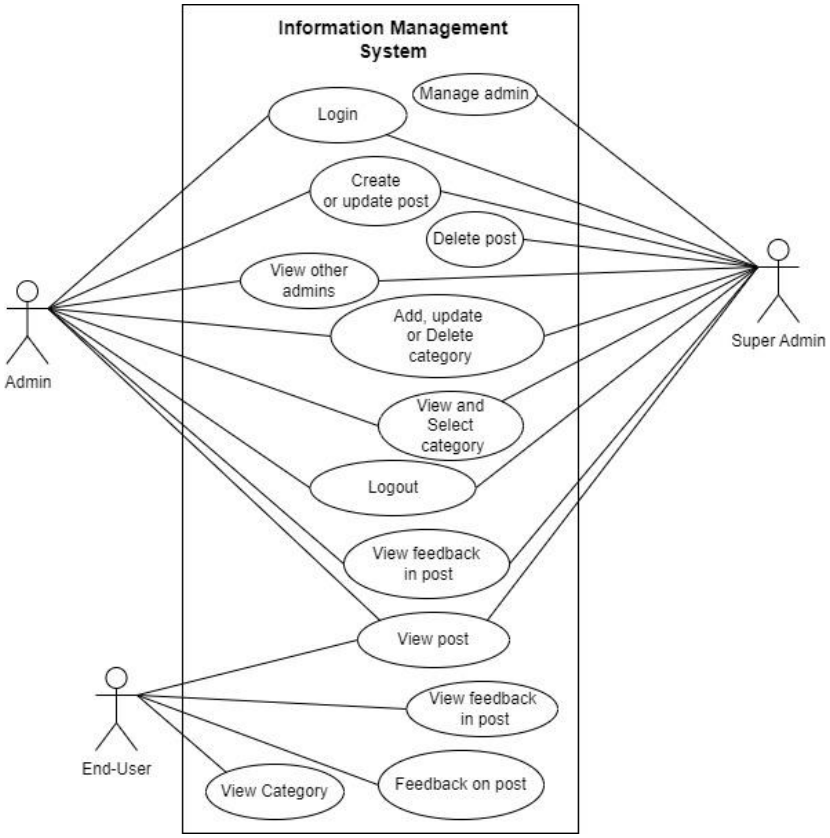

Figure 3: Use Case diagram of Information Management System

5.3.3 Class diagram

Following is the class diagram of "Information Management System". The UML Class diagram is a graphical notation used to construct and visualize object-oriented systems. Class diagrams are the main building blocks of every object-oriented method. Learn more details from this UML class diagram, or just try to make yours with ease. The attributed and functions of all the classes that are possible in this project are given below.

List of classes:

1. Admin
2. Post
3. Category
4. Comment

Information Management System Class Diagram describes the structure of a Information Management System classes, their attributes, operations (or methods), and the relationships among objects. The main classes of the Information Management System are Admin Class, Category Class, and Comment Class and Post Class. Classes of Content Management System Class Diagram:

- Admin Class: Manage all the operations of Content.
- Category Class: Manage all the operations of Category.
- Comment Class: Manage all the operations of Comments.
- Post Class: Manage all the operation of Post

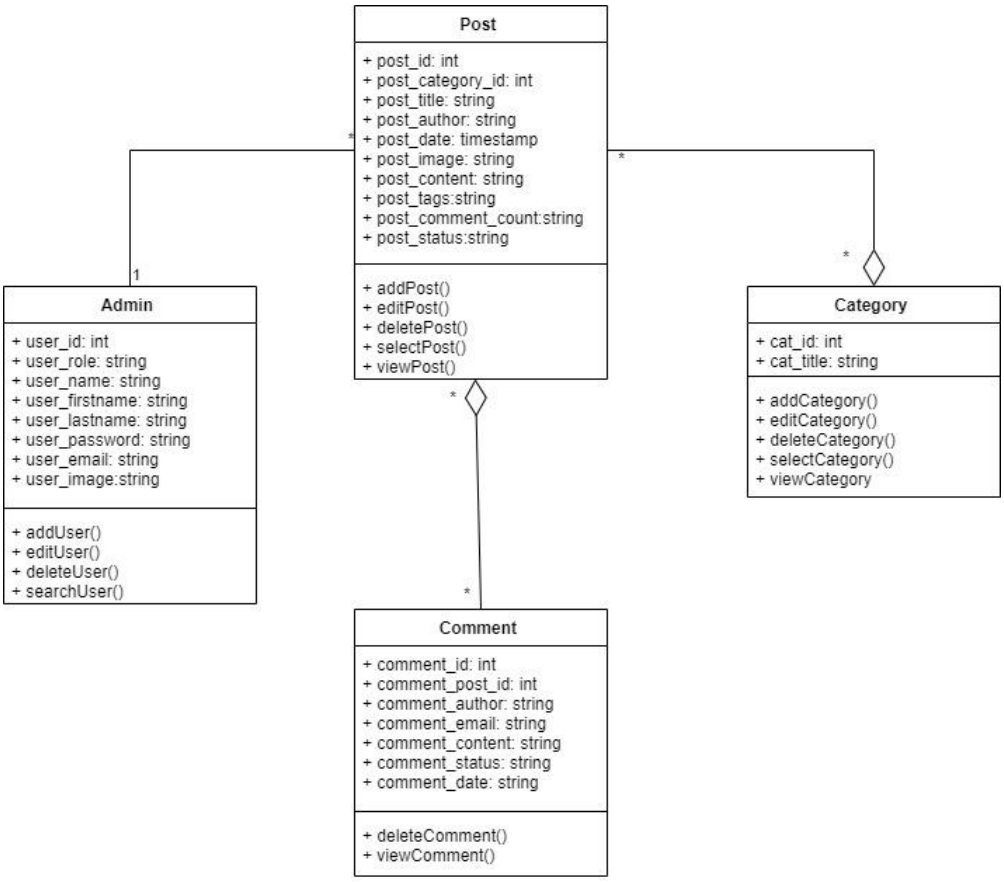

Figure 4: Class Diagram of Information Management System

5.3.3 Sequence Diagram

Sequence diagram consists of a group of objects that are represented by lifelines, and the messages that they exchange over time during the interaction. A sequence diagram shows the sequence of messages passed between objects. Sequence diagrams can also show the control structures between objects. The purpose of Sequence Diagram is:

a. To model high-level interaction among active objects within a system.
b. To model interaction among objects inside a collaboration realizing a use case.
c. It either model's generic interactions or some certain instances of interaction

This is the UML sequence diagram of Content Management System which shows the interaction between the objects of Category, Blogs, Comment, and Web Page. The instance of class objects involved in this UML Sequence Diagram of Content Management System is as follows:

- Login
- Content Management
- Category Management
- Comment Management

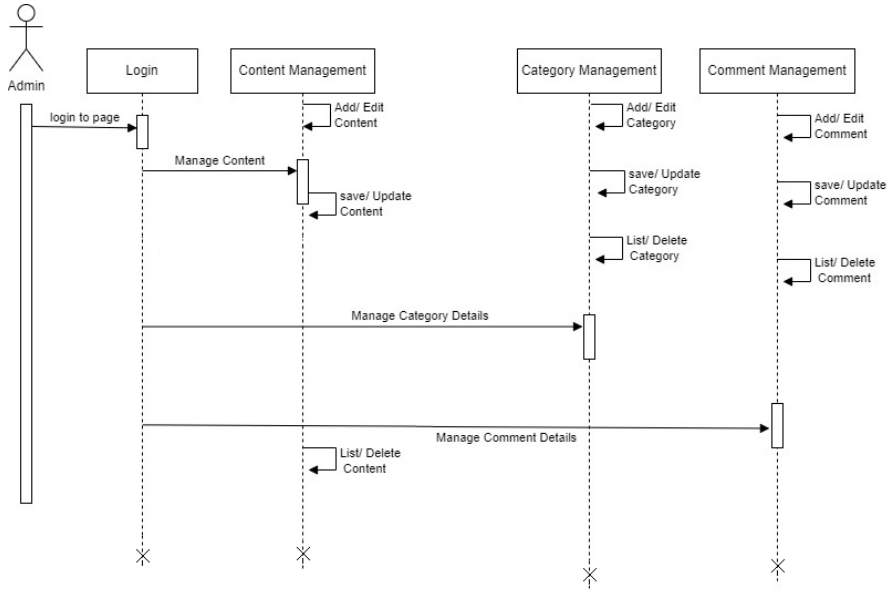

Figure 5: Sequence Diagram of Information management system

5.3.3 Entity- Relationship Diagram

An entity-relationship diagram (ERD) is a data modeling technique that graphically represents information entities and relationships among them.

This ER Diagram represents the model of IMS. It used structure data and to define the relationships between structured data groups of IMS functionalities. The main entities of IMS are Admin, User, Post, Category and Comment.

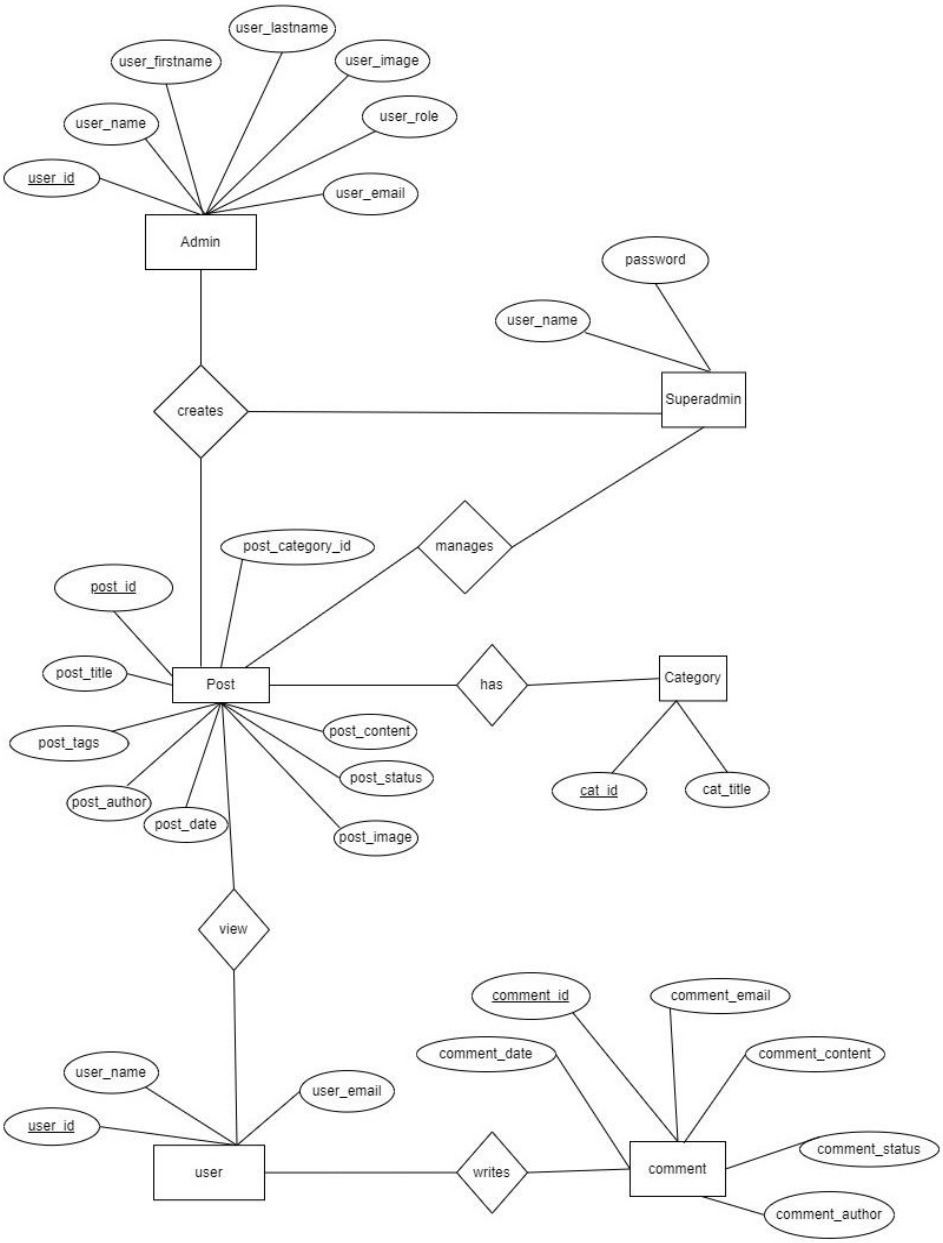

Figure 6: Entity-Relationship Diagram of Information Management System

5.4 System Development

Systems development is the process of defining, designing, testing, and implementing a new software application or program. It could include the internal development of customized systems, the creation of database systems, or the acquisition of third party developed software.

5.4.1 Module Description

Information Management System provides a user-friendly interface and performs necessary operations according to the user's request. In order to perform its functions our project is divided into the following modules that perform specific functions. The important modules in our project are:

- Admins registration and login
- Add category
- Update category
- Delete category
- Add post
- Update post
- Delete post
- View category
- View post
- Search post by title
- Give feedback
- View the feedback

5.4.2 Process Model used

In this project, we have used Broadcasting / Wider-Dissemination Model

Underlying Principle

The model is based on dissemination / broadcasting of useful governance information which is in the public domain into the wider public domain through the use of ICT and convergent media. The strength of the model rests upon the fact that a more informed citizenry is better able to judge the functioning of existing governance mechanisms and make an informed opinion about them. As a consequence, they become more empowered to exercise their Rights and Responsibilities

The widespread application of this model corrects "information failure situations" by providing people with the relevant information relating to the governance sphere to make an informed opinion and impact governance processes.

Further, the use of ICT opens up an alternative channel for people to access information as well as validates existing information from different sources.

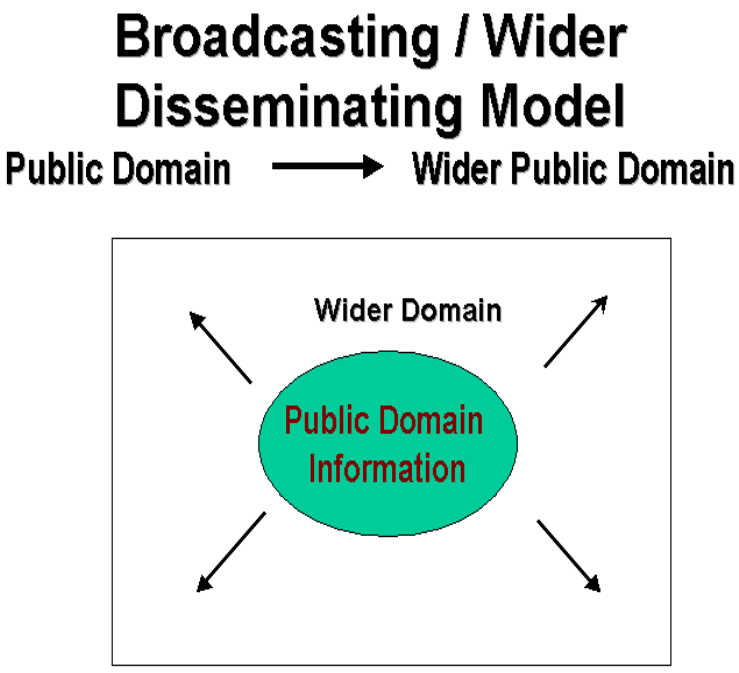

Figure 7: Broadcasting / Wider-Dissemination Model

Applications

This model could be applied in the following possible ways:

- Putting Governmental Laws and Legislations online.
- Making available the names, contact addresses emails, fax numbers of local / regional / national government officials online.
- Make available information pertaining to Governmental Plans, Budgets, Expenditures, and Performances online.
- Putting key Judicial decisions which are of value to general citizens and create a precedence for future actions online. viz. key Environmental Decisions, State vs. Citizen decisions etc.

5.4.3 Tools use

i. Design tools

The following analysis and design tools are used:

- Adobe Photoshop
- Draw.io

ii. Implementation tools

Different tools used in this project are as follows:

- HTML, CSS, Bootstrap for frontend
- PHP
- Visual Studio Code for coding
- Mysql for database
- GitHub for version control

iii. Documentation tools

- Microsoft Word 2013

5.5 System Testing

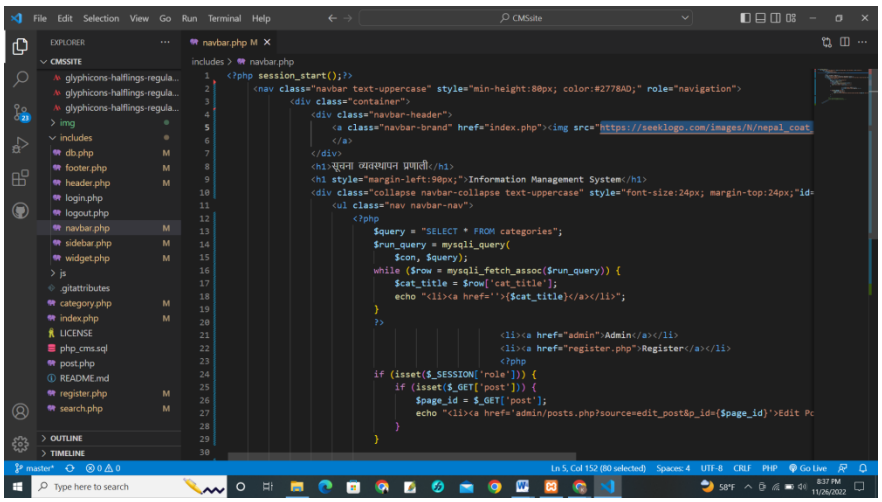

Figure 8: Unit testing of Information Management System

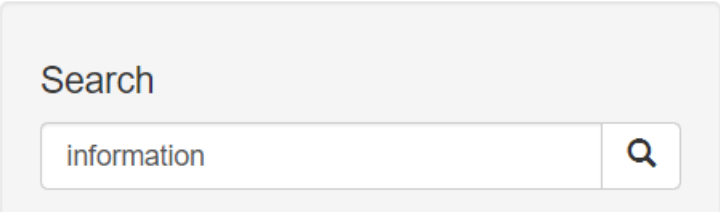

Figure 9: Blackbox testing searching a word

Figure 10: Blackbox testing result

6. Version Control

GitHub link: https://github.com/Praptituladhar/CMS_e-gov.git

7. Conclusion and Lesson Learned

Conclusion:

Information Management Systems organises all your content with a clear structure, so website visitors easily find what they are looking. Information Management Systems have many advantages over a "handmade" internet presence. As a rule, Information Management Systems are very easy to handle and usually require less development effort than self-programmed solutions. This helps webmasters without programming knowledge. The numerous pre-defined functions, such as catches, make it very easy to create websites, and customize them to suit the target group. Information Management Systems can contribute to the flexible management of online and offline platforms such as websites.

Lesson learned:

- Programming: IMS Project helped me to improve my confidence level in PHP Programming. Though we have made many mistakes during the initial phase we have learnt how to use user controls, master pages, data grid, data set and other data base functionalities.
- Team Work: Since IMS Project is done as a group project, we have learnt how to work as a team during the Software Life Cycle Process. We have also learned how to face tense situations and meet the deadlines. This would add as a good experience for us for my future job prospective.
- UML and Software Lifecycle: As IT student though we have good knowledge in UML and Software Life Cycle we never had any good practical experience regarding them. Through this project we have learnt how to develop a project following the various stages in Software Life Cycle.
- Documentation: We always had a feeling that we are not good at documentation. But through this project and suggestions from the committee members we believe that we have improved our Documentation skills

8. Reference

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- https://www.cddc.vt.edu/digitalgov/gov-broadcast-models.html
- https://www.freeprojectz.com/uml-diagram/content-management-system-uml-diagram?fbclid=IwAR2IVPAWxCSkyMWQwGp_J2CUWvNqDsD_0i8vfG2ASO5fV80D4I9spo7DWNw
- E-governance: Concept and Case Studies by C.S.R. PRABHU

9. Appendix

Figure 11: Homepage of Information Management System

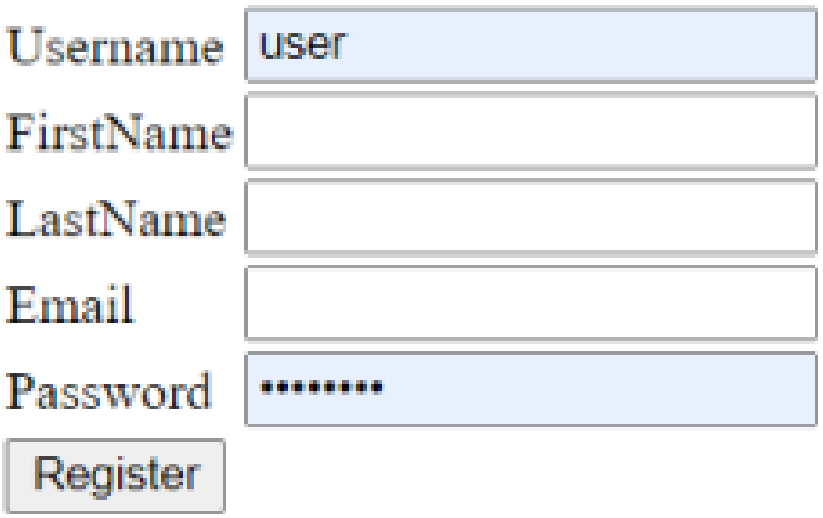

Figure 12: Registration page of Information Management System

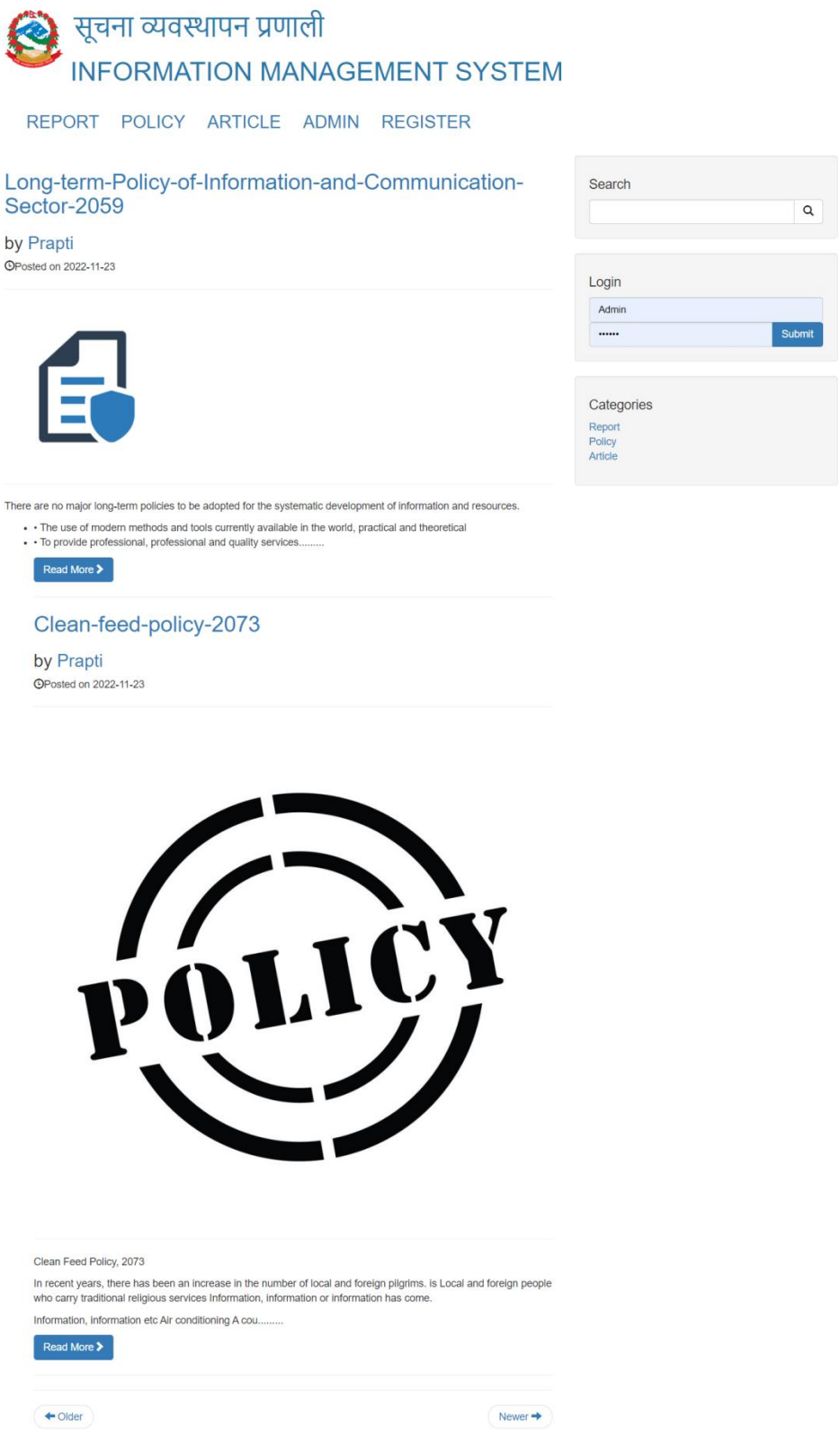

Figure 13: Policy page of Information Management System

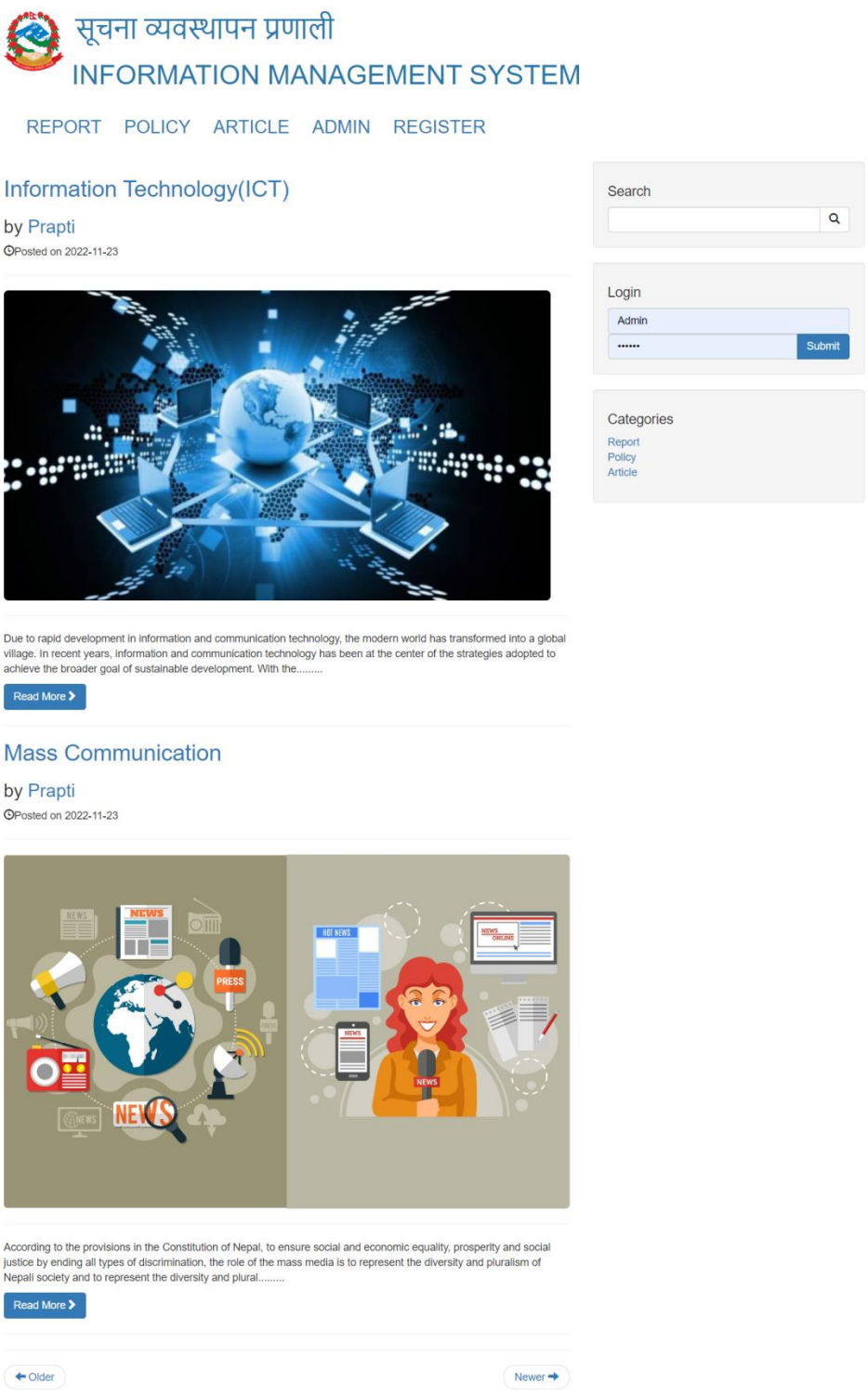

Figure 14: Article Page of Information Management System

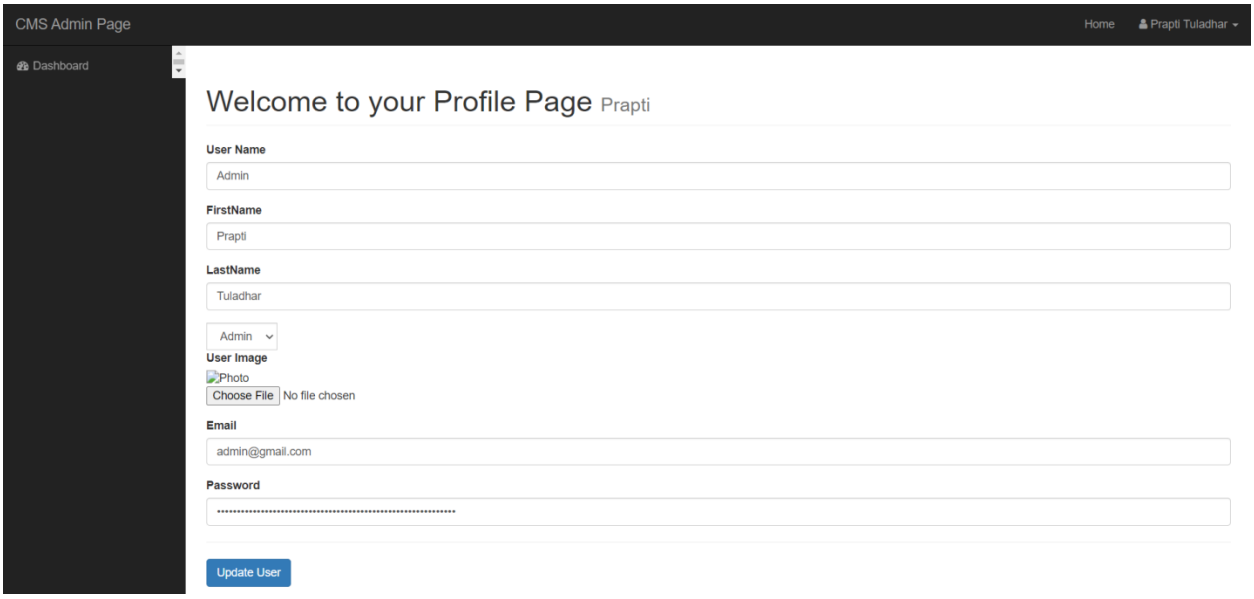

Figure 15: Profile page of Information Management System

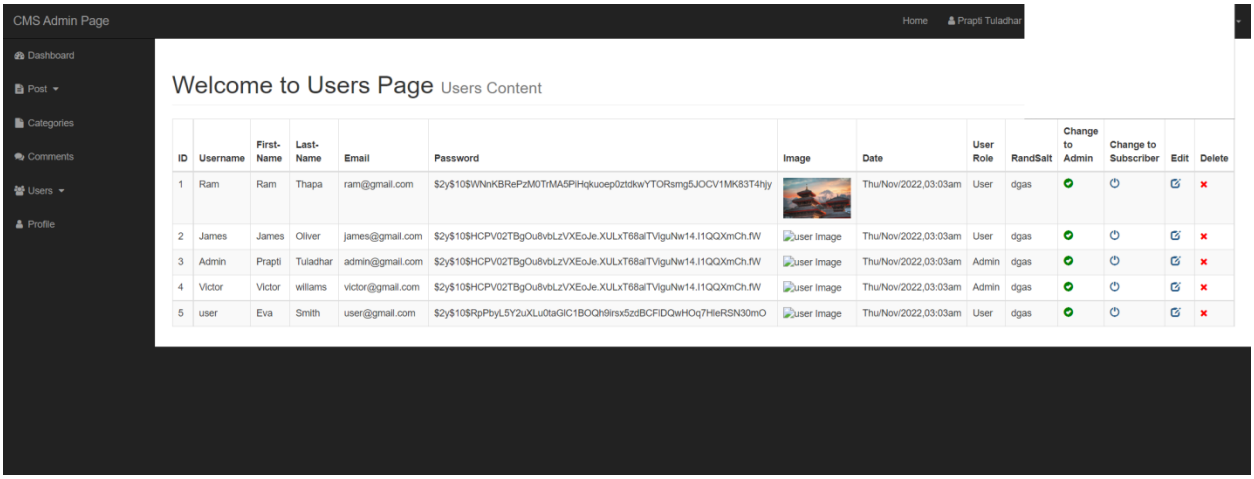

Figure 16: Comment page of Information Management System

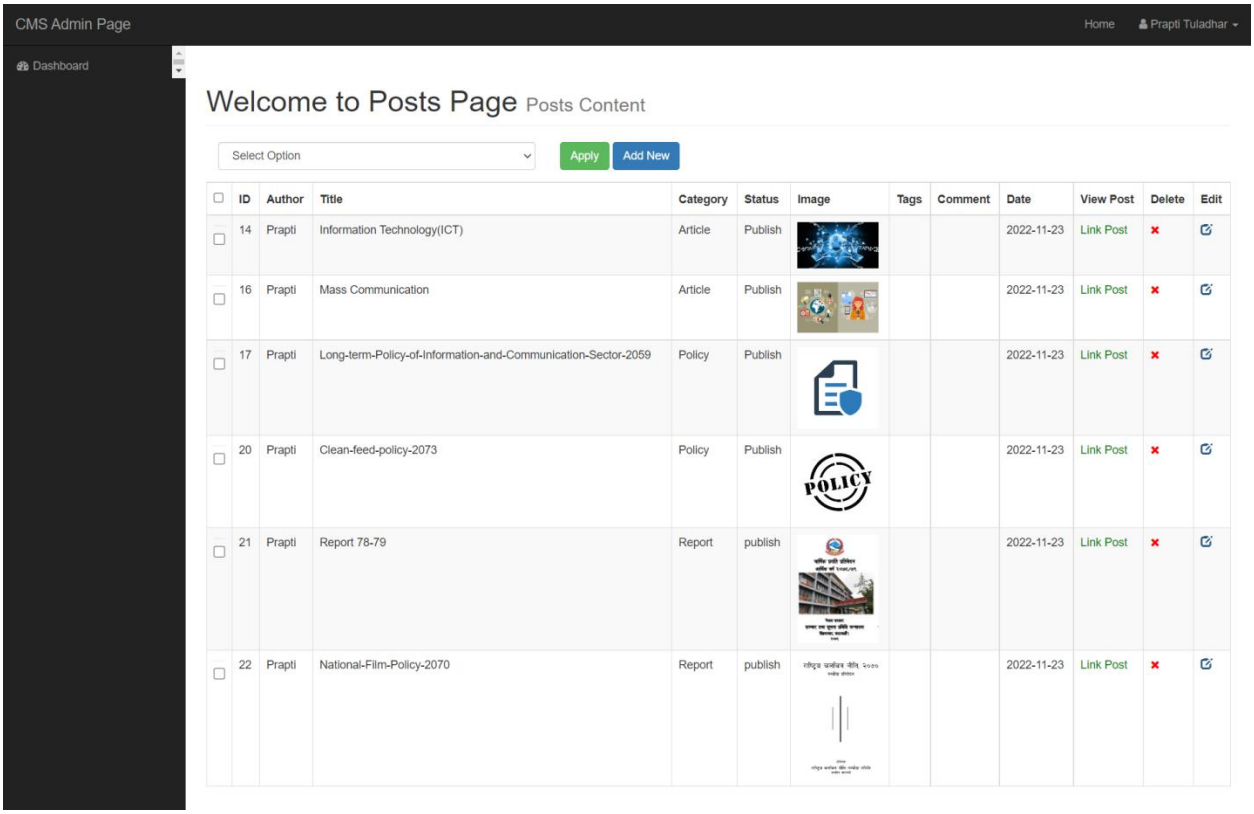

Figure 17: Post page of Information Management System

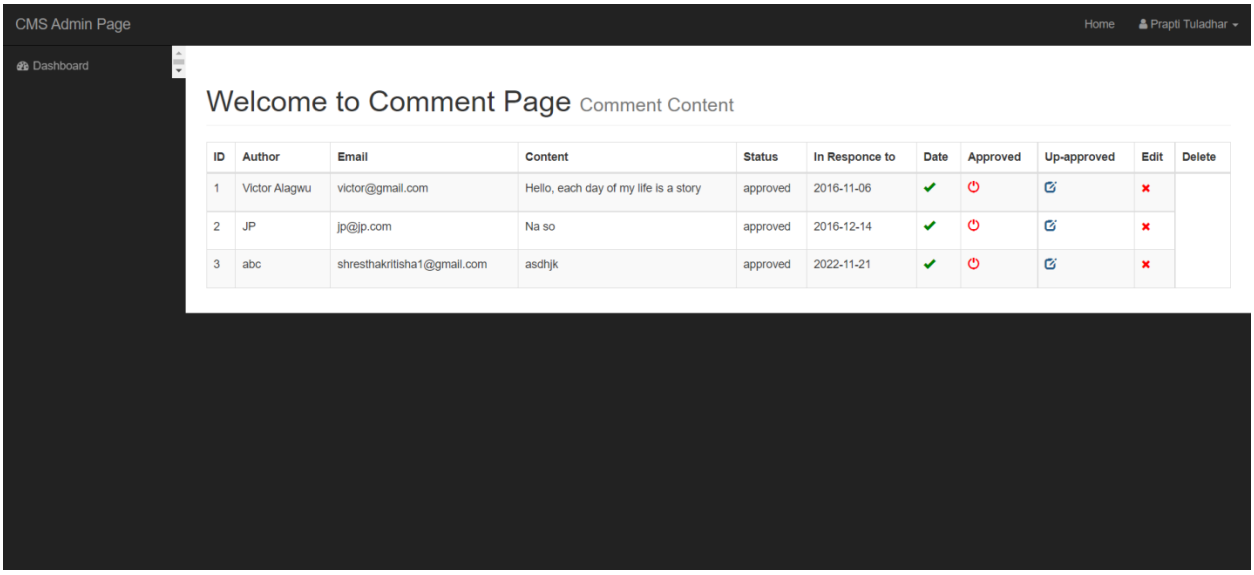

Figure 18: Comment page of Information Management System

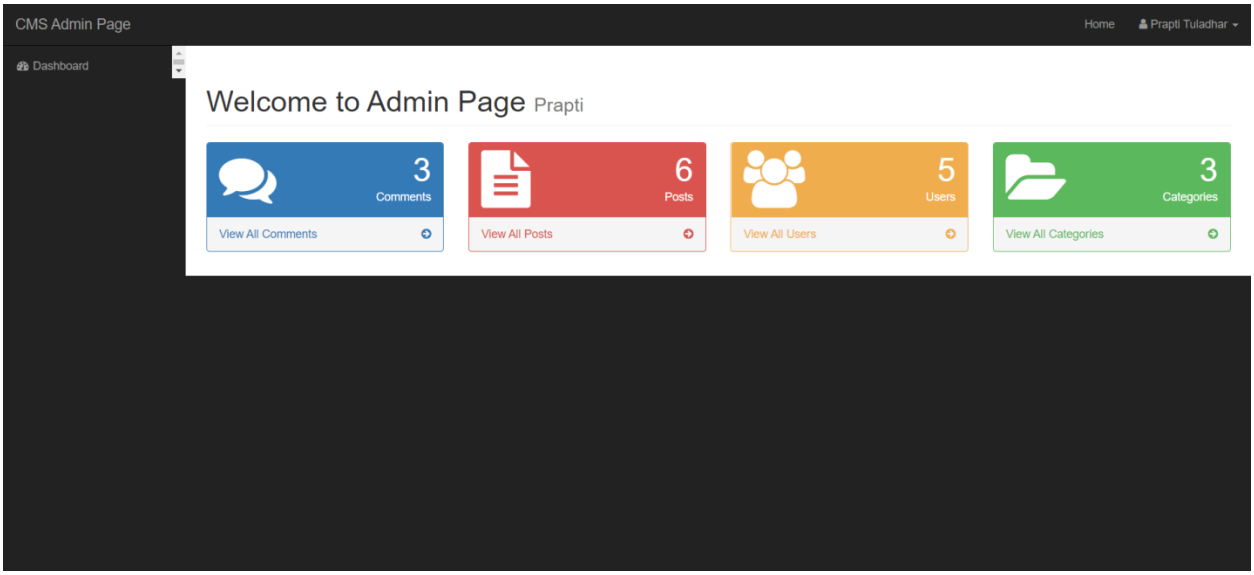

Figure 19: Admin Page of Information Management System

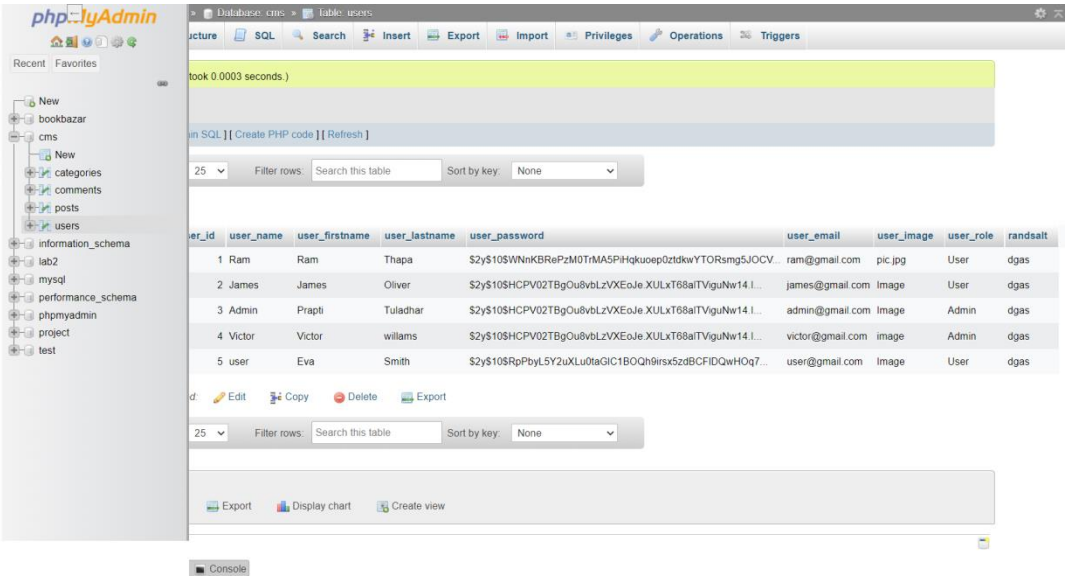

Figure 20: Database Structure of User

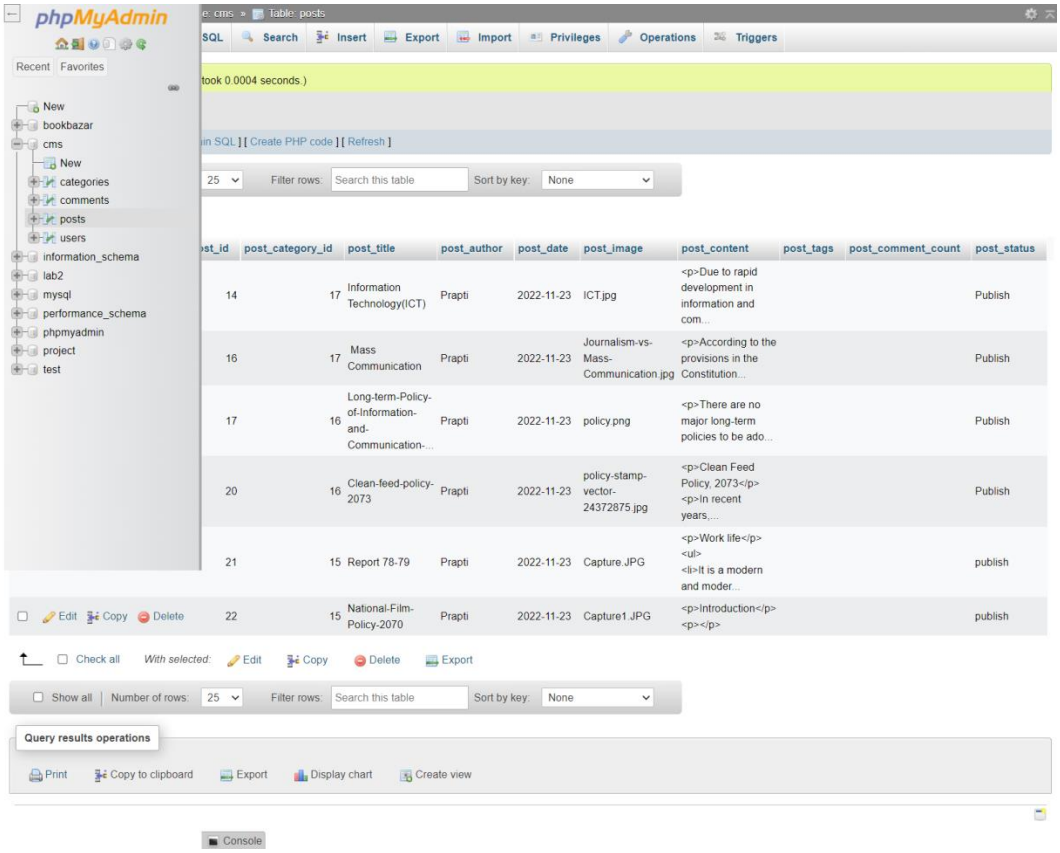

Figure 21: Database Structure of Post

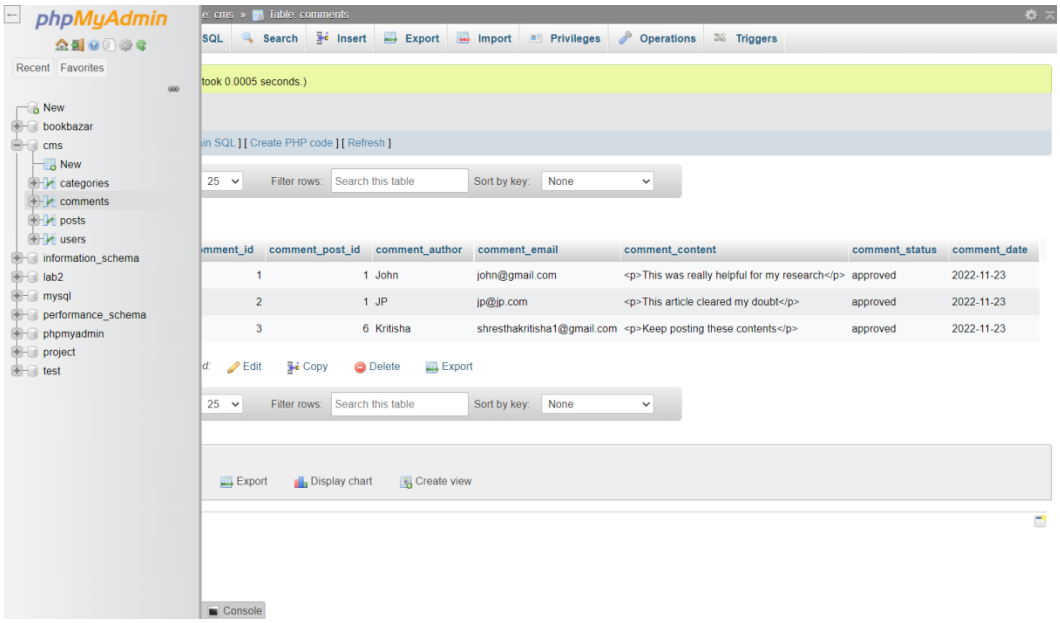

Figure 22: Database Structure of Comment

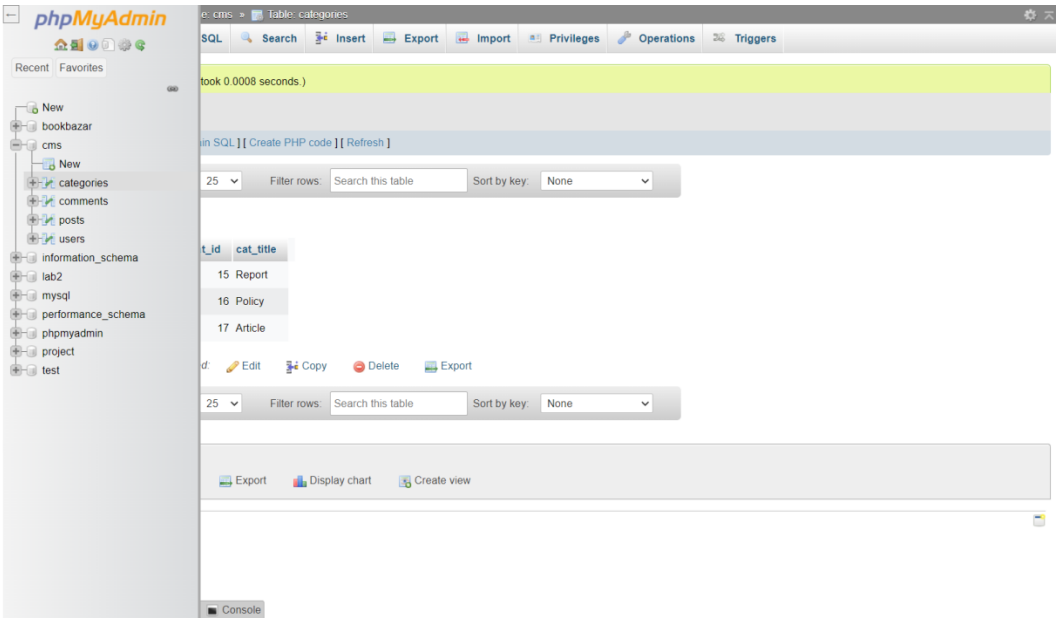

Figure 23: Database Structure of Categories