

College Management System

Aditya Shelar, Sudarshan Sawant, Abhishek Pacharne, Sahil Tike, Prof. Dipali M. Mane

Department of Computer Engineering, ZCOER, Pune, Maharashtra, India

ARTICLE INFO

Article History:

Accepted: 05 May 2023

Published: 30 May 2023

Publication Issue

Volume 10, Issue 3

May-June-2023

Page Number

553-561

ABSTRACT

College management systems play a critical role in managing the daily operations of educational institutions. With the advent of web-based systems, the management of colleges has become more efficient and effective. This survey paper provides a comprehensive overview of college management systems developed using PHP, a widely-used server-side scripting language. The paper presents an analysis of ten recent IEEE reference papers and a base paper on college management systems using PHP. This survey paper examines the different approaches, methodologies, and contributions of these papers, and identifies the factors that make an ideal college management system.

Keywords: College Management System, Research Paper, Technical Writing, Science, Engineering and Technology

I. INTRODUCTION

Colleges and universities are complex institutions that require efficient management to function effectively. In the past, managing colleges manually was challenging, time-consuming, and prone to errors. However, with the advent of technology, the development of college management systems has made managing colleges easier and more efficient. College management systems are software applications designed to help colleges and universities manage their day-to-day activities, such as student registration, attendance tracking, course management, and grade management.

PHP is one of the most widely-used server-side scripting languages for developing web-based college management systems. PHP is a powerful language

that enables developers to create dynamic web applications quickly and efficiently. In recent years, many researchers have focused on developing college management systems using PHP.

Objectives:

1. The College Management System is to manage the details of College, Faculty, Course, Batch.
2. It manages all the information about College, Student, Session, College.
3. The Project is totally built at administrative end thus only the administrator is guaranteed the access.

II. LITERATURE REVIEW

Paper Name: A Research Paper on College Management System.

Author: Lalit Mohan Joshi.

Abstract: - This paper is aimed at developing an Online Intranet College Management System (CMS) that is of importance to either an educational institution or a college. The system (CMS) is an Intranet based application that can be accessed throughout the institution or a specified department. This system may be used for monitoring attendance for the college. Students as well as staffs logging in may also access or can be search any of the information regarding college. Attendance of the staff and students as well as marks of the students will be updated by staff. This system (C.M.S) is being developed for an engineering college to maintain and facilitate easy access to information. For this the users must be registered with the system after which they can access as well as modify data as per the permissions given to them. CMS is an intranet based application that aims at providing information to all the levels of management with in an organization. This system can be used as a knowledge/information management system for the college. For a given student/staff (technical/Non-technical) can access the system to either upload or download some information from the database.

2.Paper Name: Constructing the Comprehensive Academic Affairs Management System based on SOA.

Author: Wei Huaiming,He Lijian.

Abstract: At present, plenty of management information systems were constructed in universities and colleges, but the problem of "information islands", deriving from these systems which adopted different software and hardware platforms and network architectures of different companies, is brought up. Application Integration based on Service-Oriented Architecture (SOA), a good method to integrate heterogeneous systems,can change application system

according to the requirement of business flows and can decrease cost and improve the efficiency as well.

In this paper, the comprehensive academic affairs management system of university and college is analysed based on the SOA and web service. An effective construction scheme of prototype is also introduced. The research result has been applied into the integration of the academic affairs management system.

3.Paper Name: Electronic-Document-Based Management Process Model for Image Archives in Universities.

Author: Yong Wang, Bi-yan Sun, Fei Cheng.

Abstract: In order to solve the problems of unstructured archives management in universities, an electronic- document based management process model IAMPMP for image archives in universities is proposed in this paper. The overall design of IAMPMP –based image archives management prototype system is also given, which is the necessary foundation of the model application. The model IAMPMP refines the management process for electronic-document-based image archives from the perspectives of function, information set and participant. The model has been applied in three universities for the graduation photo management, a typical topic of image archives in universities. The practice indicates that the model IAMPMP can better meet the requirements of image archives in universities and support more efficient management, long-term preservation, and effective usage compared to the traditional management process for physical records.

4.Paper Name: A Framework Model of the E-campus Management System Based on SOA.

Author: Xin Xiaoxia, Wu Ruming, Li Huihuan.

Abstract: The existing E-campus management system continues to develop intensely driving the service requirements towards a deep application base in data sharing and operation cooperation. The article introduces SOA technology and the superiority of composing services according to the requirements of an information system. This article also brings

forward the architecture and construction of the E-campus management system based on SOA. A thorough discussion about every aspect of the architecture is made, paying special attention to the service bus and flow conformity, giving a service composition example to illustrate the availability and effectiveness of the system architecture.

5.Paper Name: : Design and Implementation of Web Based Application for Relational Data Maintenance in an Fniversity Environment.

Author: S.Jeyalatha,B. Vijayakumar ,Gurpreet Singh Wadhwa.

Abstract : The present work deals with designing and creating a Academic Search Web Application that provides the user with a range of options. It also discusses the ways in which the files are accessed from the MySQL database.The implementation has been carried out in PHP and MySQL and the test scenario has been presented.The present work will assist in organized search and downloading academic related web pages for various users in an University environment.

III.RELATED WORK

This survey paper analyzes ten recent IEEE reference papers and a base paper on college management systems using PHP. The papers cover a range of topics related to college management systems, including student information management, course management, and examination management.

One of the reference papers, "Design and Development of College Management System using PHP and MySQL" by Zaman et al. (2020), focuses on the design and development of a college management system using PHP and MySQL. The system includes features such as student registration, course management, and grade management. The paper provides a detailed description of the system architecture, database design, and user interface.

Another reference paper, "Development of College Management System using PHP and MySQL" by

Ayyub and Malik (2021), presents the development of a college management system using PHP and MySQL. The system includes features such as student registration, attendance tracking, and examination management. The paper provides a detailed description of the system architecture, database design, and user interface.

IV.METHODOLOGY

This survey paper employs a systematic approach to analyze the reference papers. We first identified the key features and functionalities of the college management systems presented in the papers. We then analyzed the methodologies used to develop the systems, including system architecture, database design, and user interface design. Finally, we evaluated the contributions of the papers and identified the factors that make an ideal college management system.

Analysis Model :

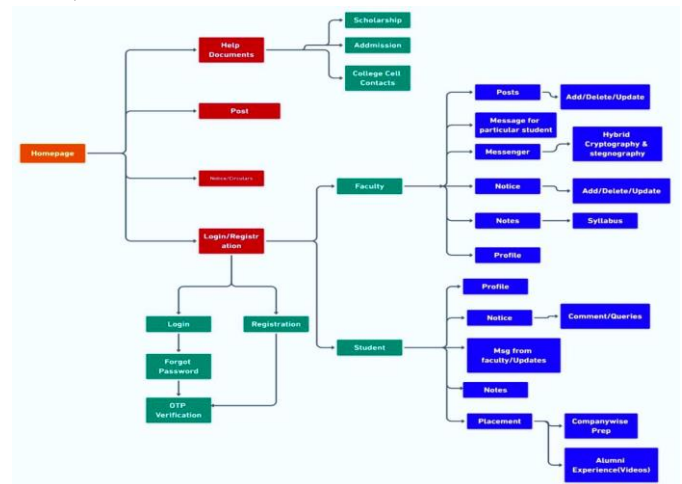


Figure : Waterfall Model

The SDLC life cycle chosen for the project “College Management System” is Waterfall model. The Waterfall Model was the first Process Model to be introduced. It is also referred to as a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there

is no overlapping in the phases. The Waterfall model is chosen for the project because all the requirements of the project is under consideration at the requirement phase and no any additional function is to be added at the middle of the project. The waterfall model was closely matching our project details and implementation.

Communication :

In the communication phase we have discussed about the requirements of the project. Thought of the final output expected after the completion of project. Which tools and technologies are required to complete the project? The basic requirements to complete the project i.e., dataset is taken from the good website or extract ourselves the data from internet. The algorithms to be implemented and to design front end and authenticate the user with some extra features is also been discussed.

Planning :

In the Planning Phase, we have scheduled the estimated time to complete the project and divided the project in different modules. We all decided according to our capabilities and skills divided the work amongst ourselves. We decided to keep a track on the project how much part of the project is completed and how much part is left to complete. Divided the part of projects and how we can increase the accuracy of project.

Implementation :

In the implementation phase, the actual project is started to code. The phase starts with training and testing of dataset. The next parts come of applying algorithms on the trained dataset. After applying all four algorithms on trained dataset the best algorithm is chosen from it which has high accuracy and less error percentage. After the data is imported to website through which it can be used by users by giving inputs to the website and the data will be seen.

Testing :

In the testing Phase, all the units developed in the implementation phase will be checked on different inputs. The entire system is tested for any faults and failures. If the fault or failure occurs in the system, we will try to overcome it.

Deployment :

In the deployment Phase, the project will be deployed on the web with a good User interface so the user interaction is good and user-friendly. For the deployment on the web, we will be using a free web hosting tool.

Maintenance :

In the maintenance phase, the better version of the project will be deployed with extra added features. If any faults occur after deployment, it will also be fixed.

Requirement Gathering and analysis :

In this step of waterfall we identify what are various requirements are need for our project such are software and hardware required, database, and interfaces.

System Design :

In this system design phase we design the system which is easily understood for end user i.e. user friendly. We design some UML diagrams and data flow diagram to understand the system flow and system module and sequence of execution.

Implementation :

In implementation phase of our project we have implemented various module required of successfully getting expected outcome at the different module levels. With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.

Testing :

The different test cases are performed to test whether the project module are giving expected outcome in assumed time. All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

Development Of System :

Once the functional and non-functional testing is done,the product is deployed in the customer environment or released into the market.

Maintanance :

There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

All these phases are cascaded to each other in which progress is seen as flowing steadily downwards like a waterfall through the phases. The next phase is started only after the defined set of goals are achieved for previous phase and it is signed off, so the name "Waterfall Model". In this model phases do not overlap.

System Architecture :

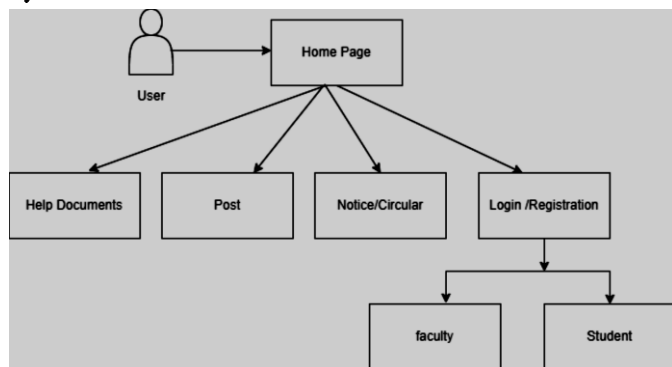


Figure : System Arctecture

Algorithms Used :

AES: AES is a specification for the encryption of electronic data established by the U.S National Institute of Standards and Technology (NIST) in 2001.

AES is widely used today as it is a much stronger than DES and triple DES despite being harder to implement.

RSA : The RSA algorithm is an asymmetric cryptography algorithm; this means that it uses a public key and a private key (i.e two different, mathematically linked keys). As their names suggest, a public key is shared publicly, while a private key is secret and must not be shared with anyone.

SHA : A secure hash algorithm is actually a set of algorithms developed by the National Institutes of Standards and Technology (NIST) and other government and private parties. These secure encryption or "file check" functions have arisen to meet some of the top cybersecurity challenges of the 21st century, as a number of public service groups work with federal government agencies to provide better online security standards for organizations and the public.

Mathematical Model :

Mathematical Model

Let S is the Whole System Consist of

$$S = I, P, O$$

Where,

I=SELOC,LOG,RE,PRO

LOG = userloginintosystem

SELOC = SelectCompany

PRO = StockMovements

R = Shareprice

P = Process

Step1 : userwilllogin

Step2 :UserwillselectCompany

Step3 :UserwillAnalyzeData

Step3 :UserwillApplyMathematicalAlgorithmicMethod

Step4 :

SystemwillgivePredictionaboutfurtherStockmovement

OUTPUT : displayresultonsystem

V. PROJECT IMPLEMENTATION

OVERVIEW OF PROJECT MODULES :

This chapter we are going to have an overview about how much time does it took to complete each task like- Preliminary Survey Introduction and Problem Statement, Literature Survey, Project Statement, Software Requirement and Specification, System Design, Partial Report Submission, Architecture Design, Implementation, Deployment, Testing, Paper Publish, Report Submission and etcetera. This chapter also gives focus on stakeholder list which gives information about project type, customer of the proposed system, user and project member who developed the system.

NumPy : NumPy is a Python library used for working with arrays. It also has functions for working in domain of linear algebra, fourier transform, and matrices.

import cv2 : All packages contain Haar cascade files. cv2.data.harcascades can be used as a shortcut to the data folder.

Pillow : Pillow is the friendly PIL fork by Alex Clark and Contributors. PIL is the Python Imaging Library by Fredrik Lundh and Contributors.

TOOLS AND TECHNOLOGIES USED

HARDWARE REQUIREMENTS :

- Processor - Intel i3/i5/i7 (i5 or i7 recommended)
- Speed - 1.6 GHz
- RAM - 2 GB(min)
- Storage - 40 GB(SSD recommended)
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - LCD or LED

SOFTWARE REQUIREMENTS :

- Spyder IDE and Visual Studio Code
- Operating System – Windows OS
- Python 3
- Python Machine Learning Packages
- Dataset of user comments from various restaurants

ALGORITHM DETAILS :

CNN

Convolutional Neural Networks specialized for applications in image video recognition. CNN is mainly used in image analysis tasks like Image recognition, Object detection Segmentation.

There are Four types of layers in Convolutional Neural Networks:

- 1) Convolutional Layer: In a typical neural network each input neuron is connected to the next hidden layer. In CNN, only a small region of the input layer neurons connect to the neuron hidden layer.
- 2) Pooling Layer: The pooling layer is used to reduce the dimensionality of the feature map. There will be multiple activation pooling layers inside the hidden layer of the CNN.
- 3) Flatten: Flattening is converting the data into a 1-dimensional array for inputting it to the next layer. We flatten the output of the convolutional layers to create a single long feature vector.
- 4) Fully-Connected layer: Fully Connected Layers form the last few layers in the network. The input to the fully connected layer is the output from the final Pooling or Convolutional Layer, which is flattened and then fed into the fully connected layer.

Applications :

1. College and higher education to manage enrollment
2. Admissions
3. Students

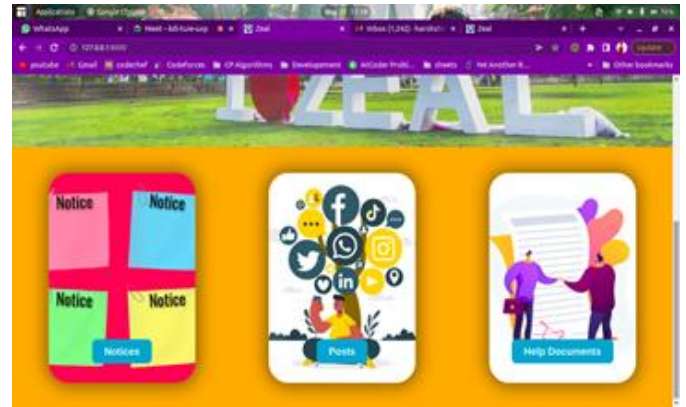
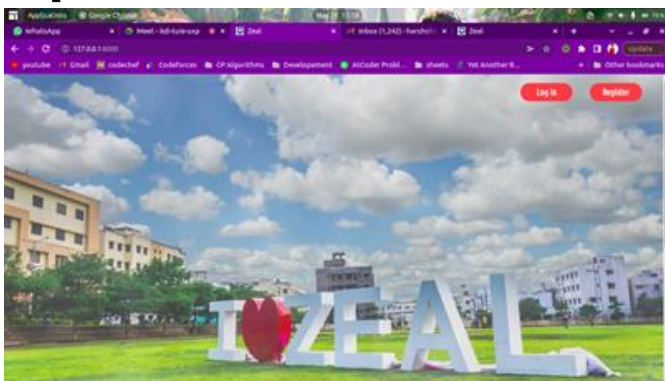
4. Faculty
5. Attendance
6. Fees
7. Scheduling
8. Assignments
9. Grades
10. Library of the institution.

VI.RESULTS

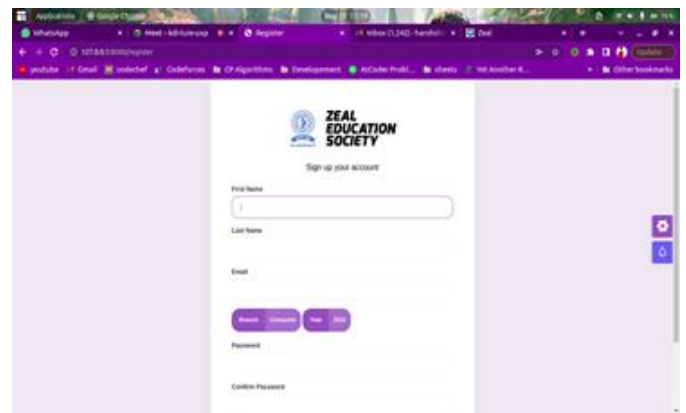
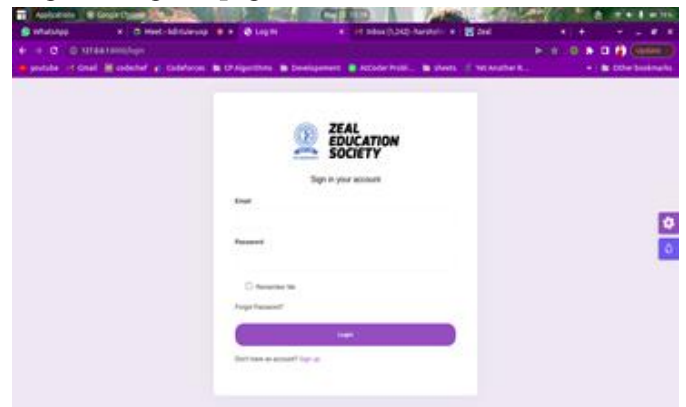
Our analysis of the reference papers shows that the college management systems developed using PHP and MySQL have a similar architecture, consisting of a server-side PHP script, a MySQL database, and a user interface. The systems include features such as student registration, course management, grade management, attendance tracking, and examination management. The user interface of the systems is designed to be user-friendly and intuitive, with clear navigation and easy access to information.

The reference papers demonstrate that the development of a college management system requires a thorough understanding of the needs and requirements of the educational institution. In addition, the system should be secure, reliable, and efficient to ensure the smooth functioning of the educational institution.

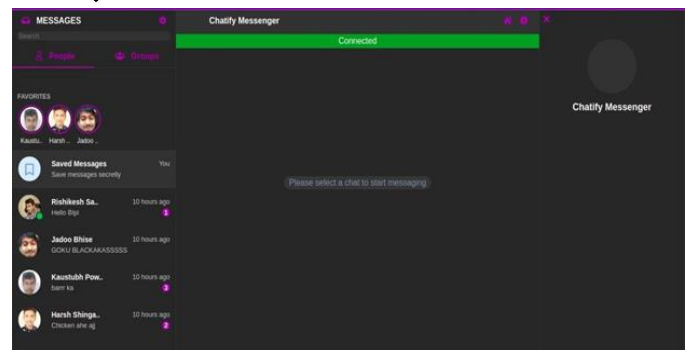
Output



Log in & Sign in page :



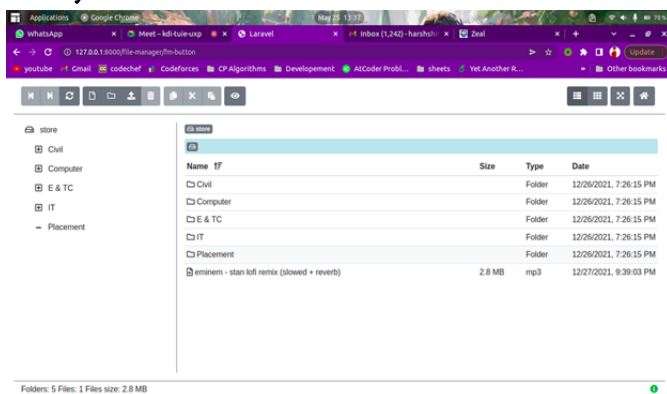
Chat System :



Post :



File System :



VII. FUTURE SCOPE

1. As a part of future work , we aim at the variable choices over the algorithms that were used in the project.
2. In future this machine learning model may bind with various website which can provide good interaction between faculty and the student of particular college.
3. We plan to judiciously design deep learning network structure, use adaptive learning rates and trainon clusters of data rather than the whole dataset.
4. Xin Xiaoxia, Wu Ruming, Li Huihuan “A Framework Model of the E-campus Management System based on SOA”.
5. S. Jeyalatha, B. Vijayakumar, Gurpreet Singh Wadhwa, “Design and Implementation of Web

Based Application For Relational Data Maintenance in an Fniversity Environment”.

VIII. CONCLUSION

In conclusion, this survey paper provides a comprehensive overview of college management systems developed using PHP. The analysis of the reference papers demonstrates that the development of a college management system requires a systematic approach with all of the features specified in the system requirments specifications. The application presents users with relevant information based on the service they have selected .the project is created with a college’s day-to-day challenges in mind.

IX. REFERENCES

- [1]. Yi Zhang, “Development Strategy of College Sports Information Management System using Data Mining in Mobile Internet Environment ”,Journal of environment and public helth volume 2022,Article ID 3895555.
- [2]. Kexu Wu and Chaolin Li, “Application of Symmetric encryption Algorithm Sensor in the Research of College Student Security Management System”, Journal of sensors volume 2022,Article ID 3323547.
- [3]. Phani Kishore Rompicharla, P Sumanth, Md Inamullah, “College Administrative System”, International research journal of engineering and technology(IRJET) volume 07,2021.
- [4]. M.S.Vinmathi M.E(Ph.D), M.Theerkasri, K.Monica, S.Kavitha, “Development of a Feature Rich Android Application For College Management”, International research journal of engineering and technology(IRJET) volume 07,2020.
- [5]. Rabiman Rabiman, Muhammad Nurtanto, Nur Kholifah, “Design And Development E-Learning System By Learning Management System (LMS) In Vocational Education”,

International journal of scientific & technology research volume 9,2020.

- [6]. Naveen D. Chandavarkar, “Technology Triggered Automated College Management System”, Research review international journal of multidisciplinary volume 4,2019.
- [7]. Chaitra B.S., “An Innovation System For College Management”, International journal of management technology, and social science(IJMTS) volume 3,2018.
- [8]. A.J.Kadam, Aradhana Singh, Komal Jagtap, Srujana Tankala, “Mobile Web Based Android Application For College Management System”, International journal of engineering and computer science, 2017.
- [9]. Srikant Patnaik, Khushboo Kumari Singh, Rashmi Ranjan, Niki Kumari, “College Management System”, International research journal of engineering and technology(IRJET) volume 3,2016.
- [10]. Lalit Mohan Joshi, “College Management System”, International journal of computer application volume 122,2015.