ONLINE COLLEGE PORTAL

A

PROJECT REPORT

Submitted in partial fulfillment of the Requirement
For the award of Bachelor of Engineering Degree

PATEL COLLEGE OF SCIENCE & TECHNOLOGY, BHOPAL

Department of Computer Science & Engineering

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MAJOR PROJECT REPORT
Session-2019

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CERTIFICATE

This is to certify that the project entitled ***"ONLINE COLLEGE PORTAL"*** *has been submitted by student Abhineet Singh, Hemant Sah, Ritu Kumari of* ***8th*** *Semester in Department of* ***Computer Science & Engineering***, ***Patel College of Science Technology, Bhopal*** *is a bonafide presentation of their work done by them under my supervision and guidance. They have submitted this project report towards partial fulfillment for the award of degree of Bachelor of Engineering of the* ***Rajiv Gandhi Proudyogiki Vishwavidyalya, Bhopal*** *during the academic year-2019.*

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ACKNOWLEDGEMENT

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*We owe sincere thanks to **"Dr RAJNISH KARAN"** sir who helped us by providing all possible facilities during the course of this project arranging suitable time schedules while the whole project.*

*At the same time, we would like to thank **Prof. PARMALIK KUMAR (HOD, CSE Department)** sir and all other faculty members and all non-teaching staff in Information Technology Department for their valuable co-operation.*

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DECLARATION

*We **Abineet Singh, Hemant Sah, Ritu Kumari** Bachelor student of **Computer Science & Engg, Patel College of Science & Technology** , Bhopal hereby declare that the work presented in this Dissertation Major Project is outcome of our own work, is bonafide correct to the best of my knowledge and this work has been carried out taking care of Engineering Ethics.*

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1. PROJECT INTRODUCTION

1.1 ABSTRACT

Online College Portal (OCP) is designed to provide information about college program in Computer Science and Information Technology, M.E., ECE, EE, Pharmacy and other branches present in Patel College of Science and Technology (PGOI). The purpose of college Portal is to provide a platform for the student in college program to get together and share information. The content in college Portal can also be shared with people outside the college PGOI. The target user to use the portal is the events, notifications and bus route. The portal is convenient because it is always available anytime and can be access anywhere by anyone who needs the information. The study of the Online College Portal is concern with the portal usability where the portal tailored to fulfill the usability characteristics. The methodology that is applied to this project is the waterfall model which consists of planning phase, analysis phase, design phase, implementation phase and testing phase. The design of the portal is using the unified modeling language (UML). The implementation of this project is using the prototype approach where paper base storyboard is used to design the page layout. The portal is developed using open source application such Apache web server, MySQL database and PHP as the server side script. There are two types of tests that had been conducted which are functionality test and usability test. College Portal is expected to become a popular website among students and admin as a platform for them to provide and retrieve information regarding the PGOI activities. The prospective students are expected to use this portal to get information regarding PGOI programs. Online College Portal (OCP) provides a simple interface for maintenance of student–faculty information. It can be used by educational institutes or colleges to maintain the records of students easily. The creation and management of accurate, update.

Information regarding a student's career is critically important in the university as well as colleges. Student information system deals with all kind of student details, academic related reports, college details, course details, curriculum, batch details, placement details and other resource related details too. It tracks all the details of a student from the day one to the end of the course which can be used for all reporting progress in the course, completed semesters, upcoming semester year curriculum details, exam details, project or any other assignment details and all these will be available through an online interface embedded in the college's site. It will also have faculty details, batch execution details, students' details in all

aspects, the various academic notifications to the staff and students updated by the college administration. It also facilitates us explore all the activities taking place in the college, different reports and queries are generated based on vast options related to students, batch, course, faculty, exams, semesters, certification and even for the entire college.

1.2 INTRODUCTION

This chapter reviews on the description of the project and some related background information on the project. Besides that, this observes the problem statement of this project to give a clear insight of what is the scope and objectives of the project. This chapter will become the guideline to all the work that is to be carried out in the later stage.

The impact of computers on our lives today is probably much more than we are actually known to. Getting good information and transforming it quickly into products than consumers want to buy is the essential key to staying in business and this all is done nowadays using Computers and Application Software. Online College Portal defines as an application (more likely web-based), that provides capabilities for multiple users with different permission levels to manage (all or a section of) content, data or information of a website project, or internet /application. The software helps Managers to plan and control the organizational operations and to respond to changing market conditions. It provides a regular flow of information for managerial decision-making and control.

1.3 OBJECTIVE

The main objective of this system is to reduce the consumption of time of college students and make them updated. Separate divisions are providing to maintain the events of teachers, students, subjects. Our System also provides an easy way not only to automate all functionalities of a college, but also to provide full functional reports to top management of college with the finest of details about any aspect of college.

In other words, our OCP has, following objectives:

Simple database is maintained.

User interfaces are user friendly and attractive; it takes very less time for the operator to use the system.

2. SYSTEM ANALYSIS

2.1 LITERATURE SURVEY

Online College portal is designed to provide information about PGOI program. The information can also be shared with people outside the College thus; the people targeted to use the information are the holidays, regarding campus, insignia and other important events. The purpose of IS portal is to provide a platform for the people in PGOI program to get together and share information. The notifications are able to interact with the people by posting announcements and news. The portal will ease the admin to disseminate information to the people inside the college especially to the students. The portal also acts as a platform for the students. The portal can be use to find the route of bus. Students can join the student's events and programs. The prospective students that are curious to know about college program that offered by PGOI can use this portal to retrieve all the information that they required. This portal provides students to get the latest information and also for information sharing. The portal is very convenient because it is always available anytime and can be access anywhere by anyone who needs the information. This portal also will make the required information's flow more effectively to the right people.

2.2 EXISTING SYSTEM

The system in college nowadays like giving notices, event calendar, providing exam routine and providing notes/papers is done manually which consumes lots of time and man power. To update or add any information in the portal admin should have technical knowledge then he/she can update any events.

2.2.1 WORKING

The working in manual system in the colleges requires a lot of man power and time. Some time the teachers in the class have to make announcements and some provide Xerox which can't reach each student. All notices are dictated in class for every holiday, event, workshops and conference. All information

displayed on notice board, timetable of daily class routine is displayed on notice board.

2.2.2 DRAWBACKS OF THE MANUAL PROCESS

At the time of providing notes to Xerox center a lot of difficulties had to be faced by students like students had to stand in long queues for a lot of time that too during their college hours. No proper process records are maintained. Therefore, there are no full-proof records of data is maintained, so, however these mess in handling these data of each student manually.

2.3. PROPOSED SYSTEM

The website will provide a way for student online through website which is based on PHP programming. This will solve all drawbacks of manual process, increase the efficiency and speed up all works to be completed. At college managements side a person can view the details of students. Every admin will be provided with unique Login Id and password. Also all the data will be at least once validated from the college database. For this purpose, the college database is being retrieved directly. So this process also helps in maintaining integrity and consistency.

Today's education scenario is rapidly changing and demanding. The system demands greater levels of communication between college, student and faculty members to have optimum use of resources. Today's industry talent demands are soaring with more and more skills requirements in all fields. Colleges and institutions generating creative students' needs focused approach on such talents and industries so as avail best of benefits to their candidates passing out. Online College Portal is a system fulfilling these demands and enacting as a bridge of communication amongst students, faculties and colleges.

2.3.1 STUDENT INTERFACE

In the Student module they can view events, notification, finding bus route on daily basis, see the event can view and also there is an event calendars which shows upcoming exams, holidays, other curricular and co-curricular activities and other related issue.

2.3.2 ADMIN INTERFACE

Admin module is one on the main module needed in the system it has various module such as Event, Notification, Bus route this module is being used by

the students. The module includes “Permit Student, Teacher,” and “Holiday”, “Notice/Event” This all above mentioned modules in permit module the admin allows permission to student, parent, Faculty to successfully access the account, in holiday module all the upcoming holidays is been displayed and Notice and event module display’s the upcoming notices and information about buses.

2.3.3 SYSTEM FLOW

The complete flow of the process is as follows. When Student uses this system for the very first time they do not need to registering, the verification is done for the admin user. Once verification is completed, admin can use the system. The validation of the information filled during the registration of account is done using the system and institute database, and only after that, the registration is been completed and the student/faculty account is not created. The admin (institute authority) controls complete work flow by giving the access permission to the student and the parent, updating institute database, & updating student details and reflecting the changes in the records of the student. As there is module of the student by various information and the permission of the parent account is given by the admin user.

2.3.4 VALIDATIONS

For each input submitted by user (student/faculty), validation is needed to be performed. No false format of details can be submitted in the input section of different students. Validations with respect to the rules instructed by college authority are done. The Login Id and password provide to users should not share to anybody. So, anytime permitted to access data change information.

2.4 PURPOSE

Efficiently manage information about college program. Effectively provide information about college program to anyone anytime and anywhere. Provide appropriate information for students. Act as a platform for admin to provide information to students. Act as a platform for PGOI students to get the latest

information. Be a medium to keep track of the college events. Act as a platform for students and admin. The aim is to design a college website which contains update information of the college that should improve efficiency of college record management.

3. ANALYSIS

The basic requirements for the design of the OCP are:

- Every admin has its own identity.
- Admin login facility
- Admin can update/delete/add new events easily by login into the portal
- It helps student to view notice regarding exams, PUT any other important information.
- Help in finding PGOI bus route online

3.1 FUNCTIONAL REQUIREMENTS

Online College Portal system aims to improve the efficiency of college information management, and the main function is managing and maintaining information. The administrator and students are two major functional requirements in the system. The Administrator will be given more powers (enable/disable/ update) than other users. It will be ensured that the information entered is of the correct format. For example, name cannot contain numbers. In case if incorrect form of information is added, the users will be asked to fill the information again. Students use the system to query, get information and enter their information only.

3.2 NON-FUNCTIONAL REQUIREMENTS

- **Performance Requirements:** The proposed system that we are going to develop will be used as the chief performance system for helping the organization in managing the whole database of the student studying in the organization and having message notifications. Therefore, it is expected that the database would perform functionally all the requirements that are specified.

- **Safety Requirements:** The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup.

- **Security Requirements:** We are going to develop a secured database. There are various categories of people namely Administrator, Student who will be viewing either all or some specific information. Depending upon the category of user the access rights are decided. It means if the user is an administrator then he can be able to modify the data, append etc. All other users only have the rights to retrieve the information from database.

- **Database Management System (DBMS)** : DBMS is a collection of programs that enables users to create and maintain a database. DBMS is a general – purpose software system that facilitates the process of defining, constructing, manipulating, and sharing database among various users and applications. Defining a database involves the specifying the data types, structures, and constraints of the data to be stored in the database. The database definition or descriptive information is also stored in the database in the form of dictionary; it is called Meta data constructing the database is the process of storing the data on the storage medium that is controlled by DBMS

4. SOFTWARE REQUIREMENTS SPECIFICATION

A **software requirements specification** (**SRS**) is a description of a software system to be developed. It is modeled after **business requirements specification**, also known as a stakeholder requirements specification. The software requirements specification lays out functional and non-functional requirements and it may include a set of use cases that describe user interactions that the software must provide to the user for perfect interaction.

Software requirements specification establishes the basis for an agreement between customers and contractors or suppliers on how the software product should function (in a market-driven project, these roles may be played by the marketing and development divisions). Software requirements specification is a rigorous assessment of requirements before the more specific system design stages, and its goal is to reduce later redesign. It should also provide a realistic basis for estimating product costs, risks, and schedules. Used appropriately, software requirements specifications can help prevent software project failure.

The software requirements specification document lists sufficient and necessary requirements for the project development. To derive the requirements, the developer needs to have clear and thorough understanding of the products under development. This is achieved through detailed and continuous communications with the project team and customer throughout the software development process.

4.1. SPECIFICATION PRINCIPLES

Web sites depend on the fact that the user has a browser such as Mozilla, Opera, or Chrome but carry out most functionality on a server. The browser speaks HTTP and will render HTML's code sent to it. Several additions to the basic protocol allow for instance cookies to be used for persistent communication, digital certificates to be used for authentication and java script to give some necessary client-side functionality. Web sites typically provide access to a variety of permanently on-line data linked using HTML references. CGI, the Common Gateway Interface, provides a mechanism to invoke a script or executable program running on a Web server. User input can be provided from a form, radio button or active map. Use of server-side AJAX, JSP or PHP languages can also enable dynamic pages of information. Plug-in technology helps to render pages in special ways such as to show PDF documents, display images.

4.2 FEASIBILITY STUDY

The purpose of online college portal is to establish the feasibility of the project. The analysis will be conducted in the second phase. The analysis will be emphasized on the website usability. The analysis also will be done to four similar websites available in the Internet. The four websites will be compared to identify their strengths and weaknesses. Feasibility is important because to make sure this project is usable and fulfill the current needs. The results and findings will become the guideline during the product development.

4.3 SYSTEM REQUIREMENTS

Hardware Requirements:

- Pentium IV or higher, (PIV-300GHz recommended)
- 256 MB RAM
- 1 GB hard free drive space

Software Requirements

- **PhP (Back end)**

PHP: Hypertext Preprocessor (or simply **PHP**) is a general-purpose programming language originally designed for web development. It was originally created by Rasmus Lerdorf in 1994; the PHP reference implementation is now produced by The PHP Group. PHP originally stood for *Personal Home Page*, but it now stands for the recursive initialize *PHP: Hypertext Preprocessor*.

PHP code may be executed with a command line interface (CLI), embedded into HTML code, or it can be used in combination with various web template systems, web content management systems, and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in a web server or as a Common Gateway Interface (CGI)

executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with

the generated web page. PHP can be used for many programming tasks outside of the web context, such as standalone graphical applications and robotic drone control.

The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge.

The PHP language evolved without a written formal specification or standard until 2014, with the original implementation acting as the *de facto* standard which other implementations aimed to follow. Since 2014, work has gone on to create a formal PHP specification

- **HTML (Front End)**
  HTML is a hypertext mark-up language which is in reality a backbone of any website. Every website can't be structured without the knowledge of html. If we make our web page only with the help of html, then we can't add many of the effective features in a web page, for making a web page more effective we use various platforms such as CSS. So here we are using this language to make our web pages more effective as well as efficient. And to make our web pages dynamic we are using Java script.

- **Bootstrap (Responsive website)**

- **JavaScript**
  JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. It is complimentary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.

- **MS Word 97 or later**

Web Browser

- Opera
- Internet Explorer
- Mozilla Firefox
- Google chrome

MySQL Server (Database)

SQL stands for Structured Query Language. SQL lets us access and manipulate databases. SQL is an ANSI (American National Standards Institute) standard. SQL can execute queries against a database, retrieve data from a database, insert records in a database, update records in a database, delete records from a database, create new databases, create new tables in a database , create stored procedures in a database, create views in a database, set permissions on tables.

MySQL is an Oracle-backed open source relational database management system (RDBMS) based on Structured Query Language (SQL). MySQL runs on virtually all platforms, including Linux, UNIX and Windows. Although it can be used in a wide range of applications, MySQL is most often associated with web applications and online publishing.

MySQL is an important component of an open source enterprise stack called LAMP. LAMP is a web development platform that uses Linux as the operating system, Apache as the web server, MySQL as the relational database management system and PHP as the object-oriented scripting language. (Sometimes Perl or Python is used instead of PHP.)

Originally conceived by the Swedish company MySQL AB, MySQL was acquired by Sun Microsystems in 2008 and then by Oracle when it bought Sun in 2010. Developers can use MySQL under the GNU General Public License (GPL), but enterprises must obtain a commercial license from Oracle.

Today, MySQL is the RDBMS behind many of the top websites in the world and countless corporate and consumer-facing web-based applications, including Face book, Twitter and YouTube.

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Today, MySQL is the RDBMS behind many of the top websites in the world and countless corporate and consumer-facing web-based applications, including Face book, Twitter and YouTube.

How MySQL works

MySQL is based on a client-server model. The core of MySQL is MySQL server, which handles all of the database instructions (or commands). MySQL server is available as a separate program for use in a client-server networked environment and as a library that can be embedded (or linked) into separate applications.

MySQL operates along with several utility programs which support the administration of MySQL databases. Commands are sent to MySQL Server via the MySQL client, which is installed on a computer.

MySQL was originally developed to handle large databases quickly. Although MySQL is typically installed on only one machine, it is able to send the database to multiple locations, as users are able to access it via different MySQL client interfaces. These interfaces send SQL statements to the server and then display the results.

Operating System

Window XP / Window 7 / Window Vista

5. SOFTWARE DESIGN

5.1 INTRODUCTION

Software design is the process by which an agent creates a specification of a software artifact, intended to accomplish goals, using a set of primitive components and subject to constraints Software design may refer to either "all the activity involved in conceptualizing, framing, implementing, commissioning, and ultimately modifying complex systems" or "the activity following requirements specification and before programming, as a stylized software engineering process."

Software design usually involves problem solving and planning a software solution. This includes both a low-level component and algorithm design and a high-level, architecture design.

5.2 SYSTEM ARCHITECTURE

A **system architecture diagram** would be used to show the relationship between different components. Usually they are created for systems which include hardware and software and these are represented in the diagram to show the interaction between them.

5.3. UML DIAGRAMS

The UML (Unified Modeling Language) will be use to design the portal and storyboard technique will be use design the interface. Class diagram, use-case diagram, sequence diagram and activity diagram will use to illustrate the project design. The UML is most preferable because it is easy to specify, construct, visualize and document the project's design. Storyboard is use to visualize the input and output interfaces. In order to make the process effective, the design in the storyboard will be finalize first before it is applied.

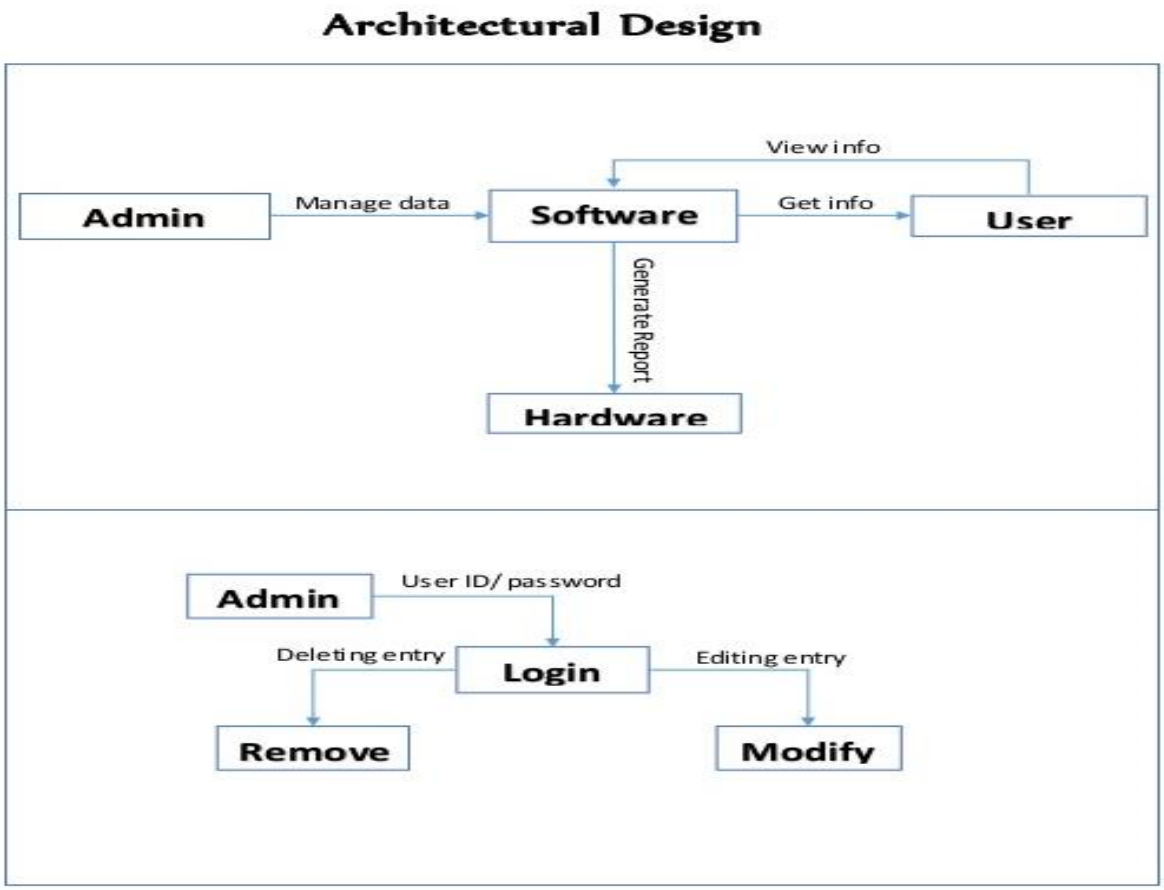

Fig.1 Architectural Design

5.4. DATA FLOW DIAGRAM/SOFTWARE MODEL

A **data-flow diagram** (DFD) is a way of representing a flow of a data of a process or a system (usually an information system) The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow; there are no decision rules and no loops. Specific operations based on the data can be represented by a flowchart

There are several notations for displaying data-flow diagrams. The notation presented above was described in 1979 by Tom DeMarco as part of Structured Analysis.

For each data flow, at least one of the endpoints (source and / or destination) must exist in a process. The refined representation of a process can be done in another data-flow diagram, which subdivides this process into sub-processes.

Level 0 DFD

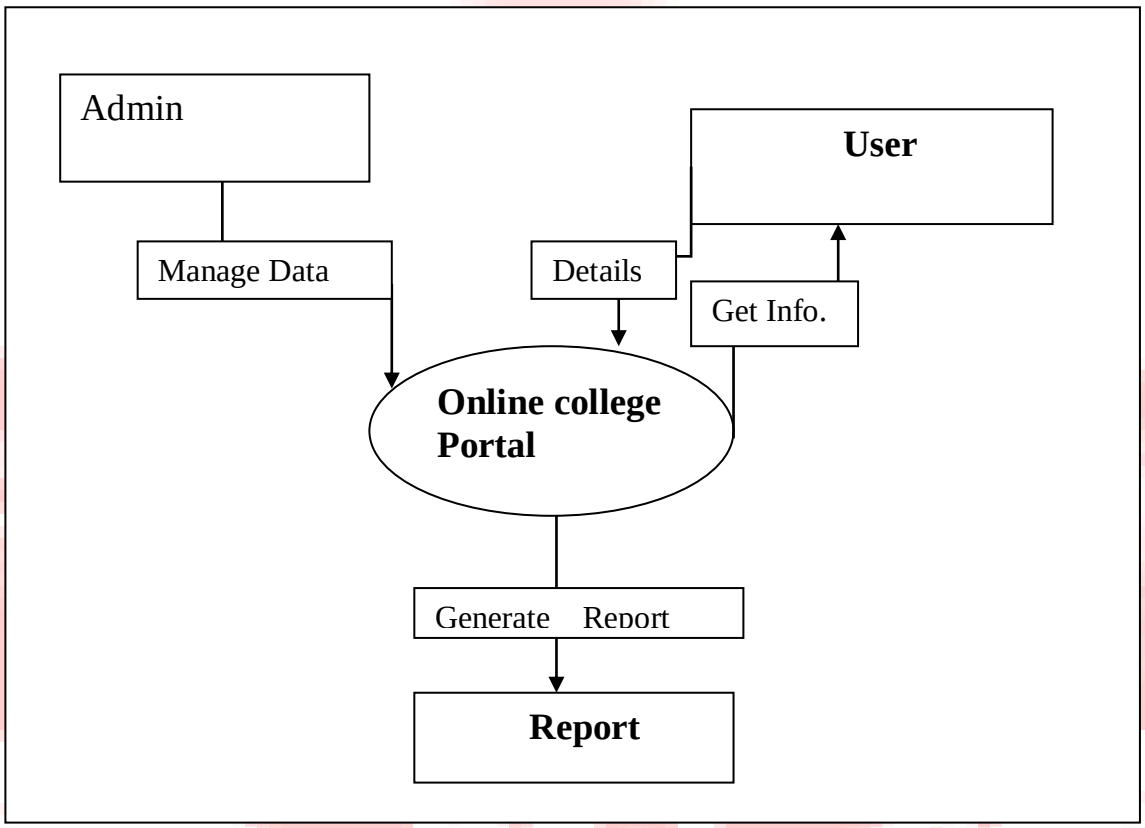

Fig.2 0DFD

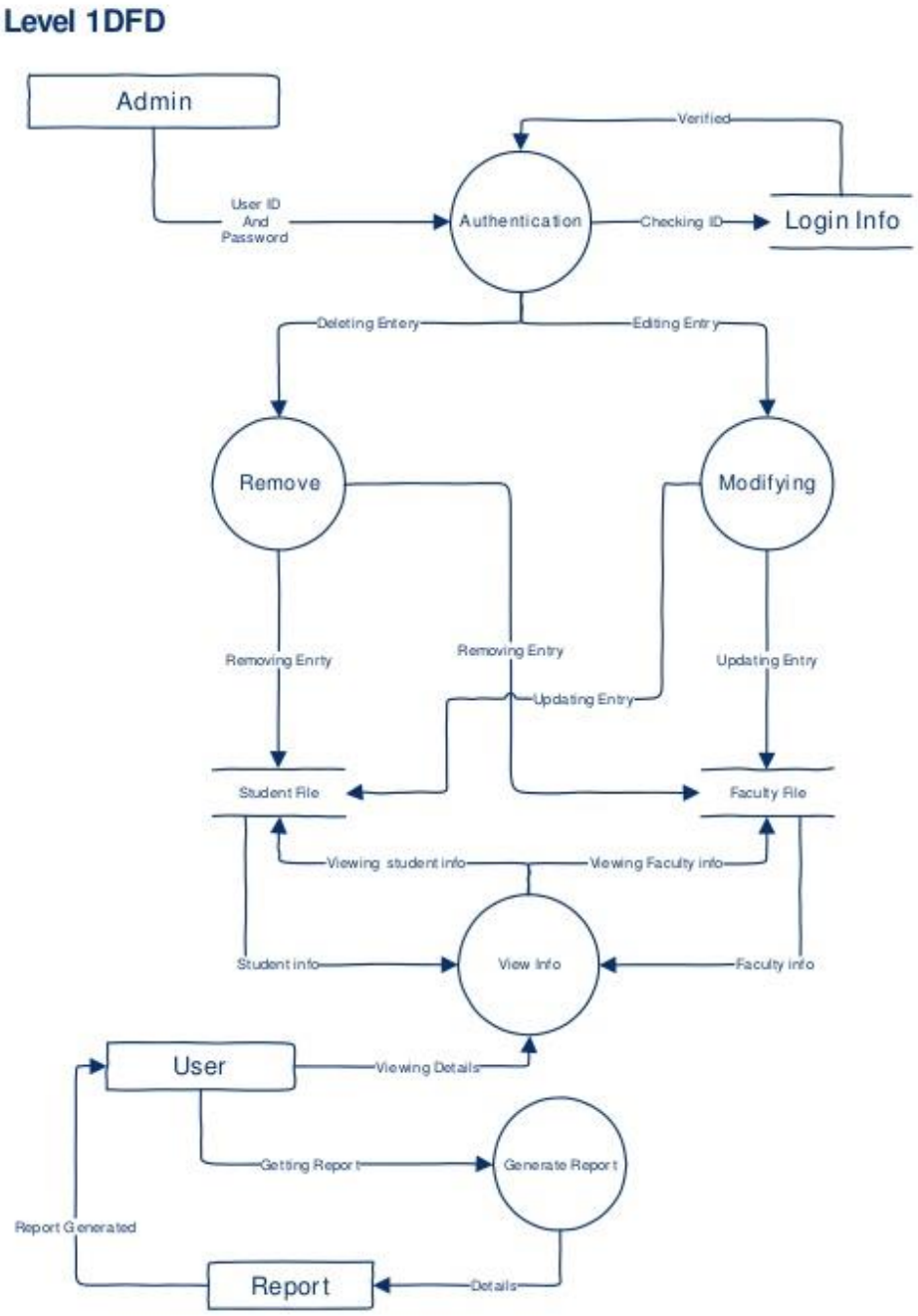
Level 1DFD
Admin
Verified
User ID And Password
Authentication
Checking ID
Login Info
Deleting Entery
Editing Entry
Remove
Modifying
Removing Enrty
Removing Entry
Updating Entry
Updating Entry
Student File
Faculty File
Viewing student info
Viewing Faculty info
Student info
View Info
Faculty info
User
Viewing Details
Getting Report
Generate Report
Report Generated
Report
Details

Fig.3 1DFD

Level 2 DFD

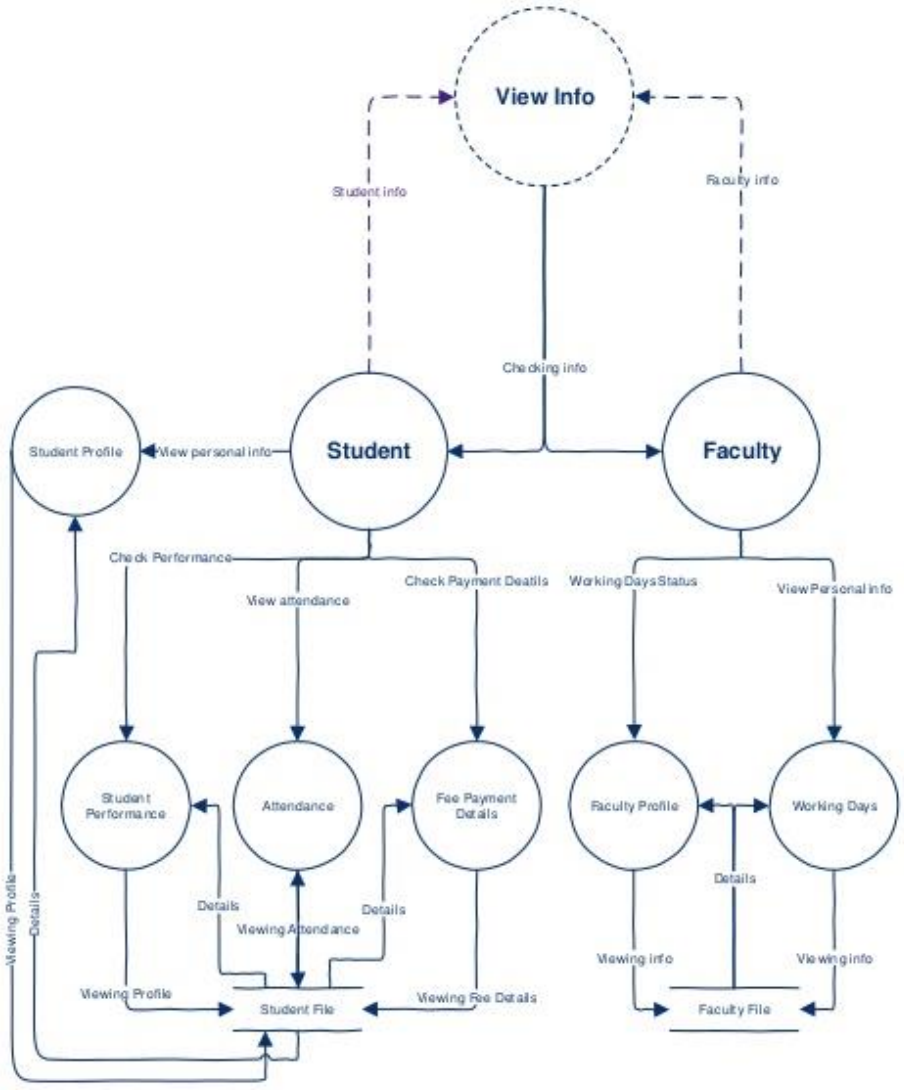

Fig.4 1DFD

5.5. USER CASE DIAGRAM FORADMINISTRATOR

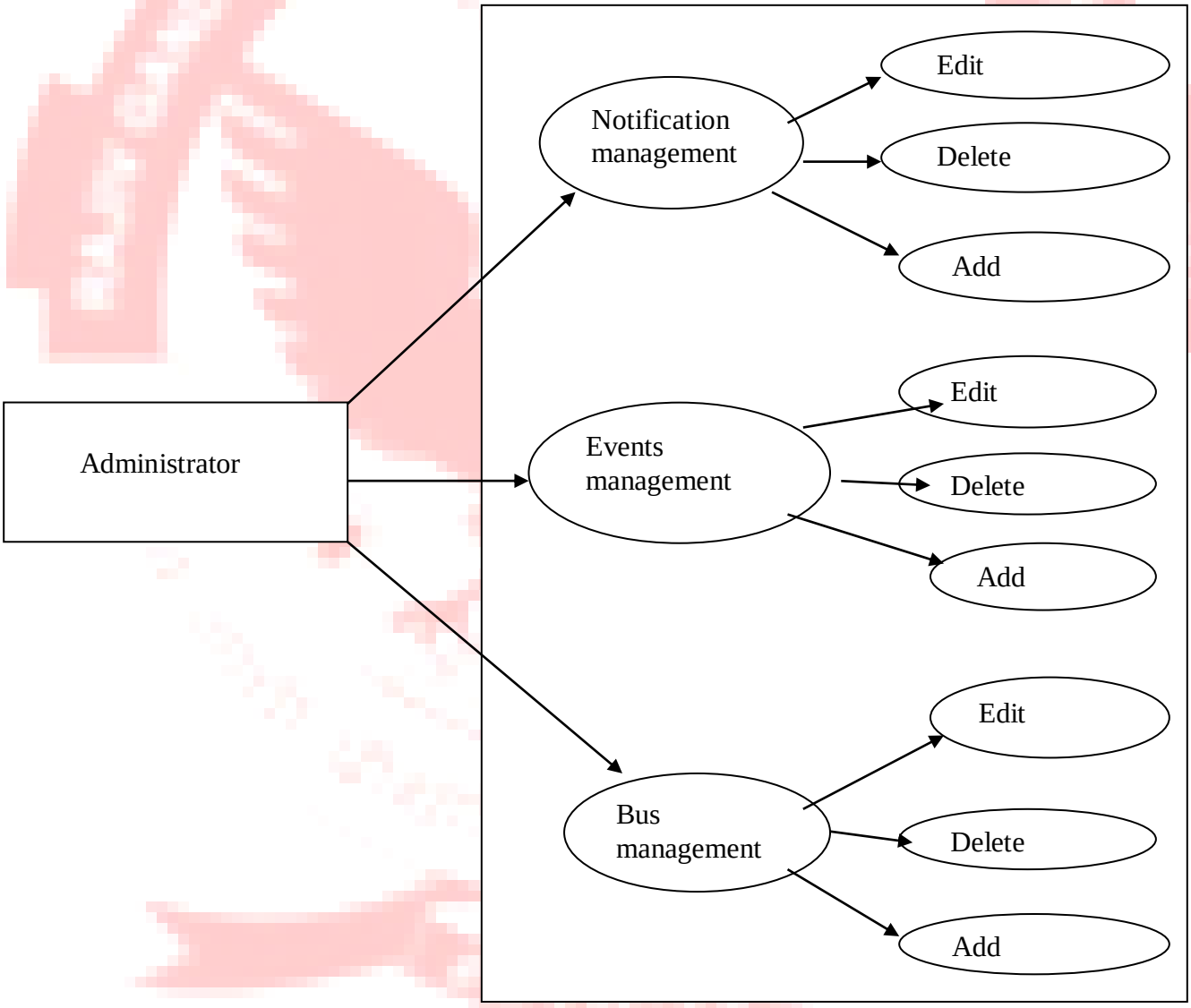

Fig.5 Use Case Diagram

6. CODING AND IMPLEMENTAIONS

6.1. CODING

If the software application is designed properly and requirements are gathered accurately, the **coding process** is more streamlined. Project teams are better able to meet software coding deadlines when the correct information is gathered upfront from the customer.

For example, Sandy is a developer for a software company with a new project to develop code for a customer. Before Sandy can develop code, she needs to understand what the customer wants. She can learn this by requesting a requirements specification document with the customer's details for the project. She also needs the design documents to ensure the product design will handle the specific coding requirements.

6.2. IMPLEMENTATIONS

During **implementation**, the project team creates the actual product. Product implementation can be an exciting phase for the customer, because their idea for the project becomes something tangible. Project developers begin building and coding the software.

For example, if a customer wants a new gaming application, the project developers must program the application to perform the customer's gaming requirements. As the team develops the code, the team must follow specific coding requirements. Customer requirements may call for specific computer programming languages or upgrades, and developers need to run the applications to ensure they function properly.

6.3. Features of project

1. They put online notices, schedule and events so that the entire user can view this.
2. Students can see the information provided by the admin like educational details, extracurricular activity or other information.
3. Admin also uploads the information

4. The proposed Online College Portal is intended to avoid all the drawbacks of existing system.
5. The proposed Online College Portal is a cost effective way of doing the manual processes done in the existing system.
6. This helps the organization to win the war in the existing competitive world.

7. OUTPUT SCREEN

Fig.6 Home Page

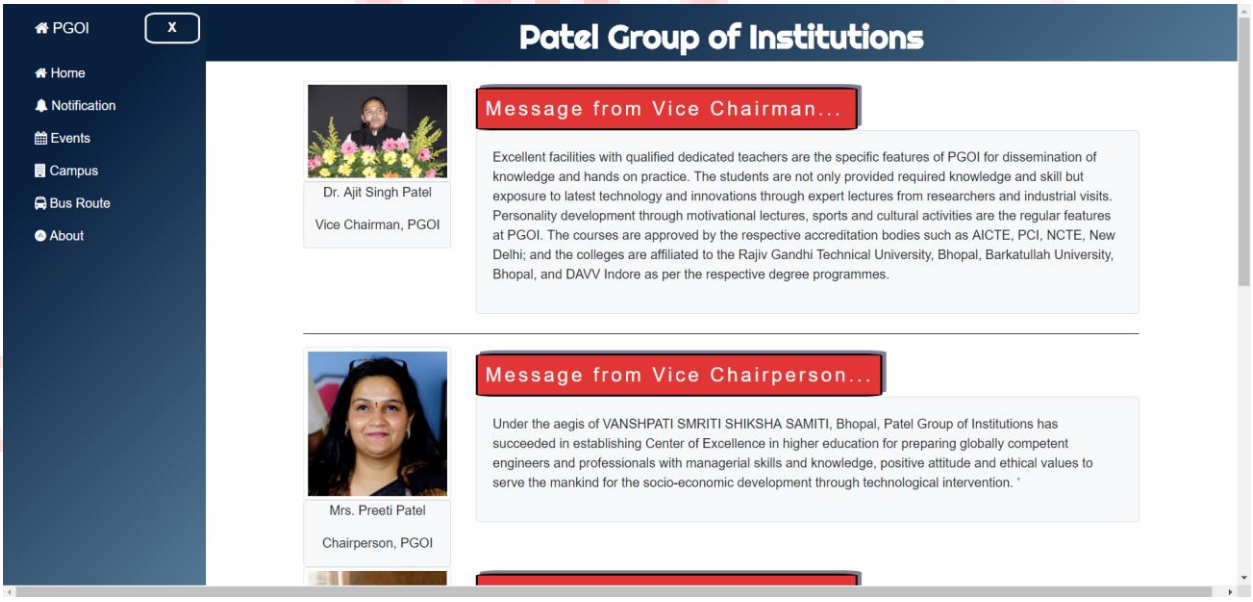

Fig.7 About Page

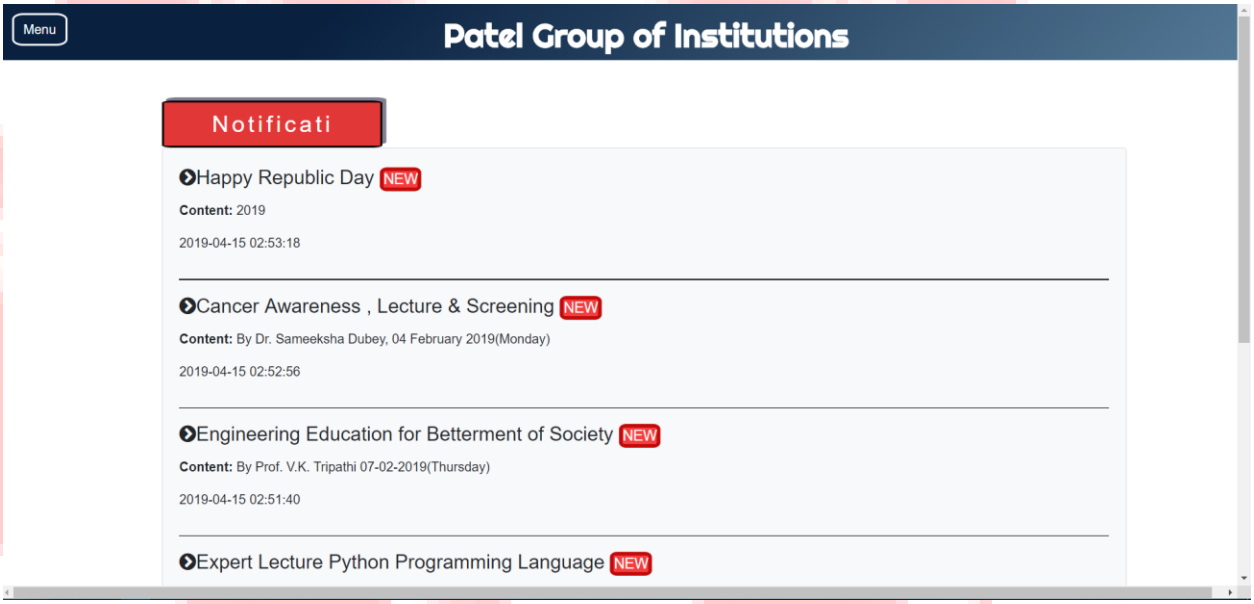

Fig.8 Notification Page

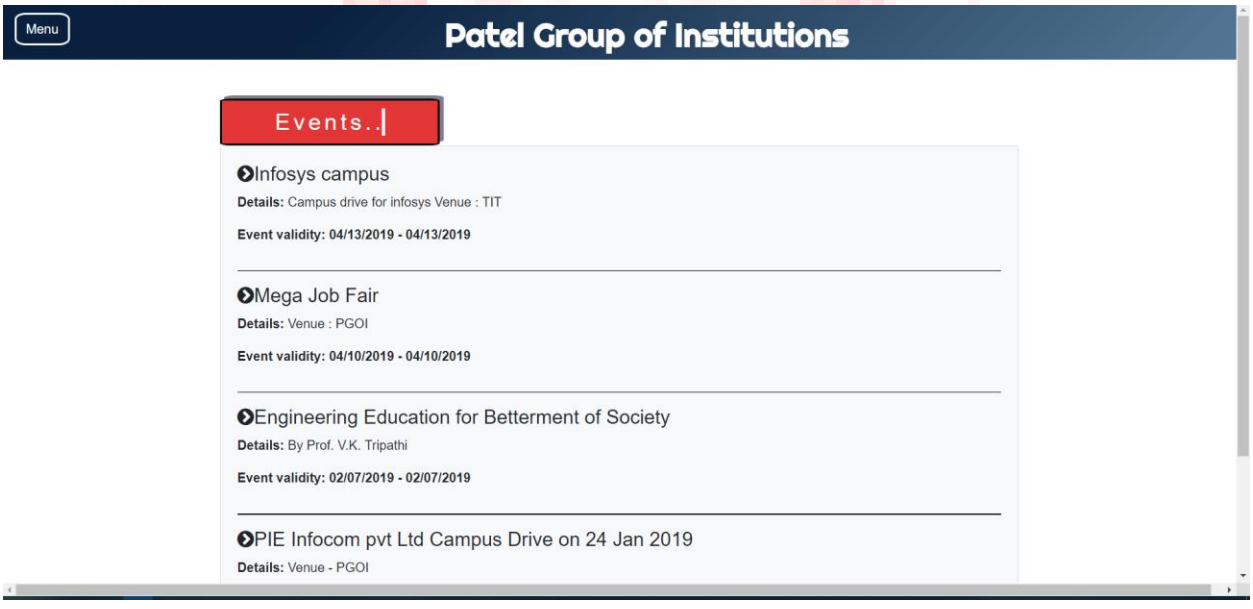

Fig.9 Event Page

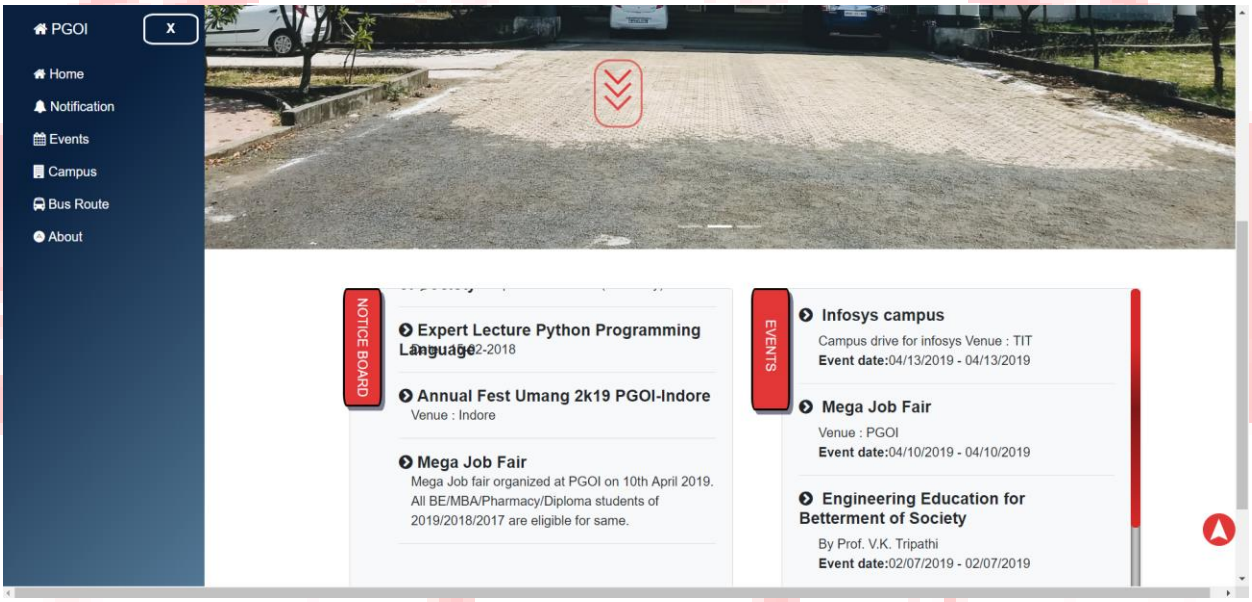

Fig.10 Front Page

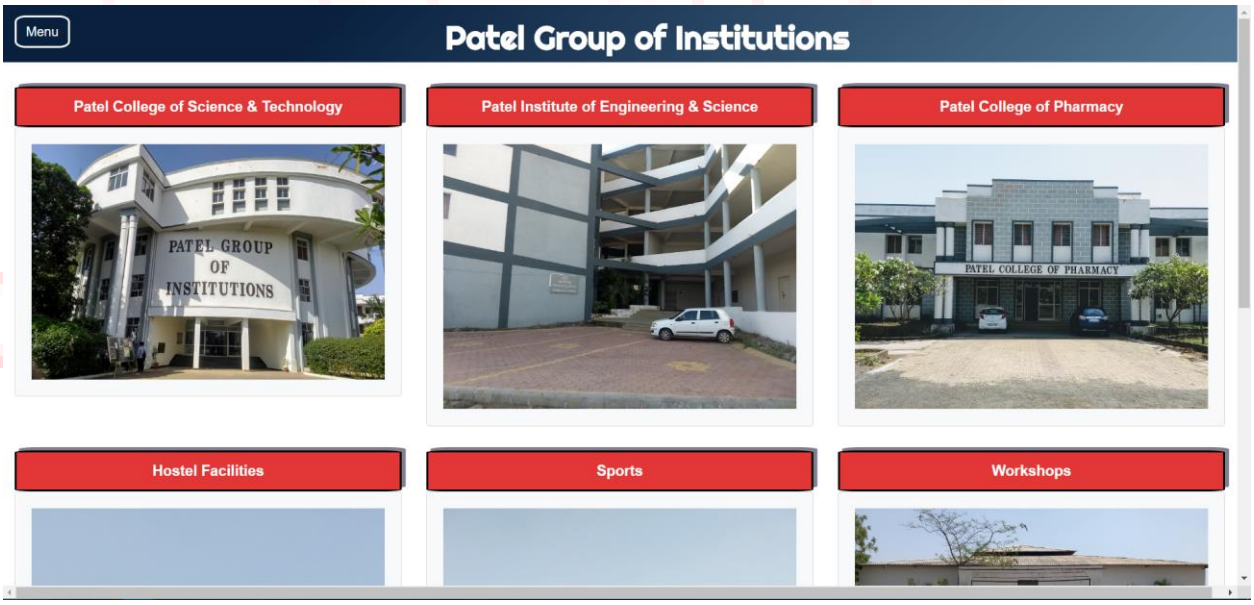

Fig.11 Campus Page

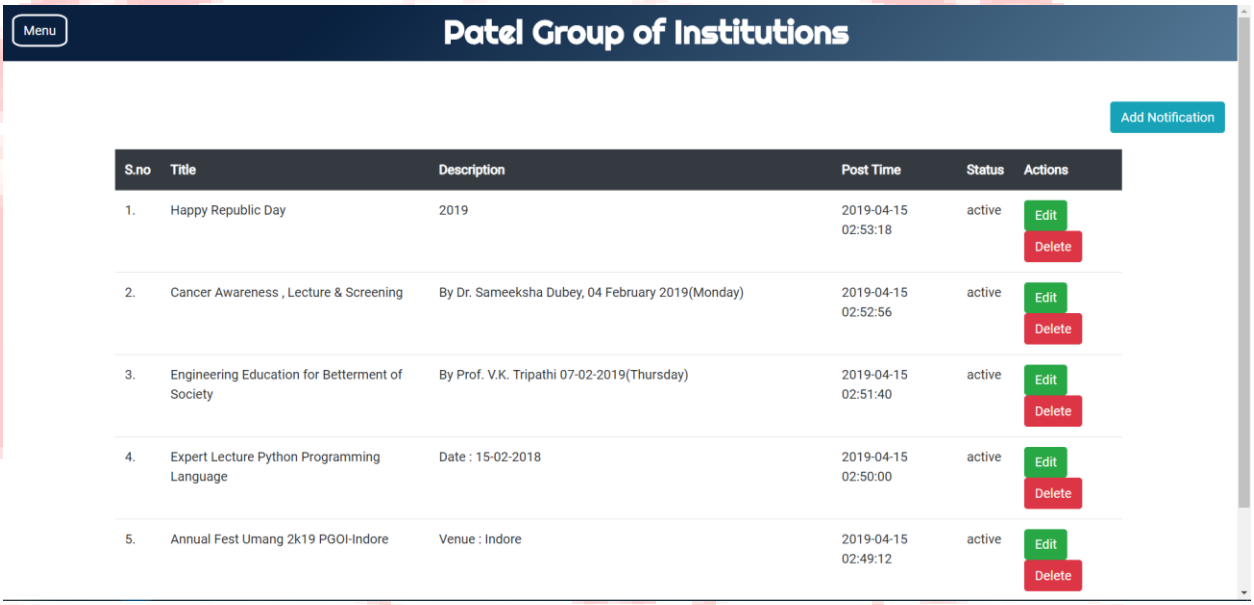

Fig.12 Admin Event Page

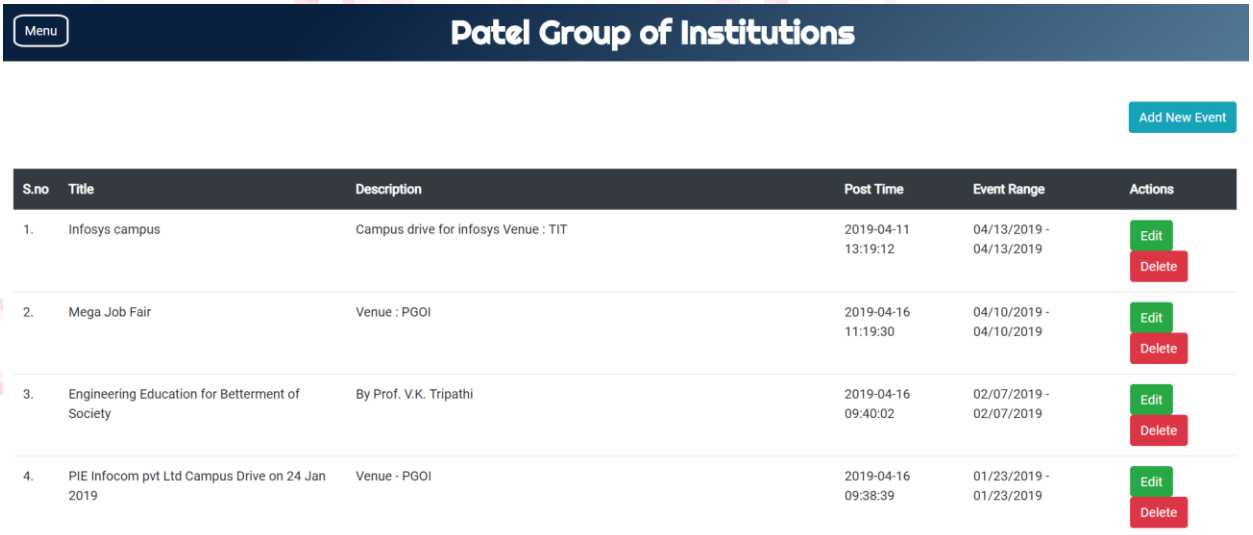

Fig.13 Admin Notification Page

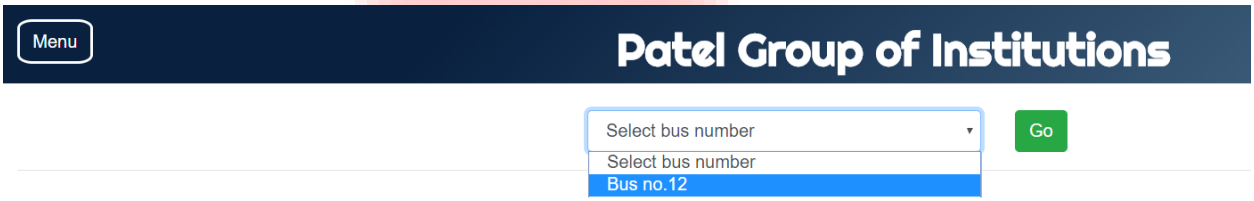

Fig.14 Bus Route

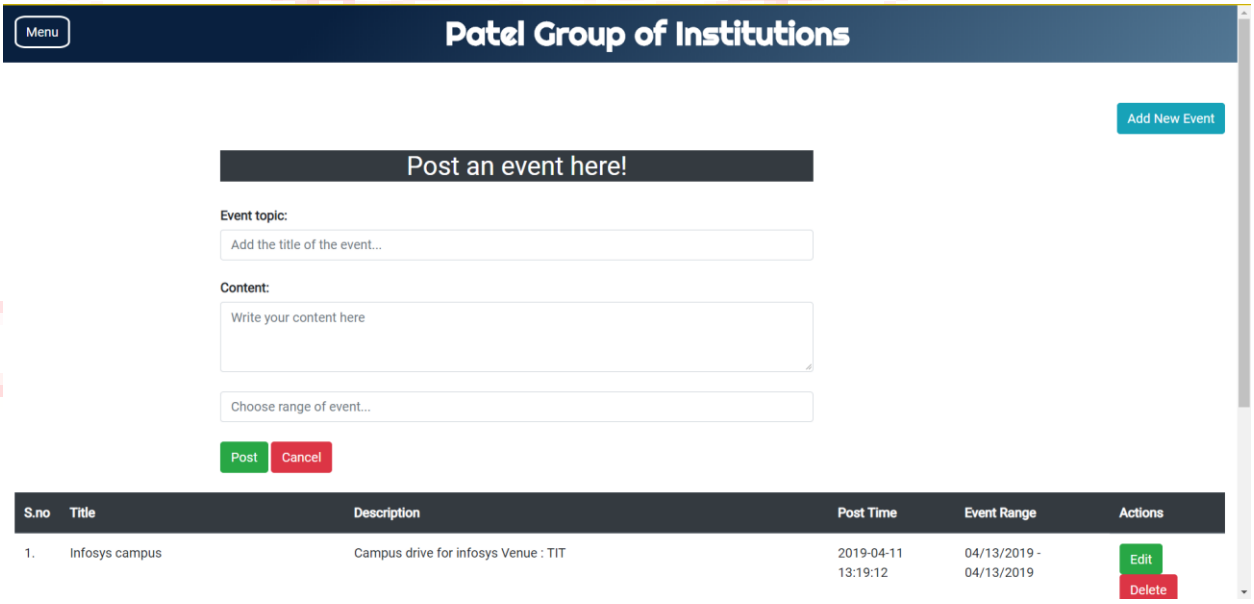

Fig.15 Admin Post Event

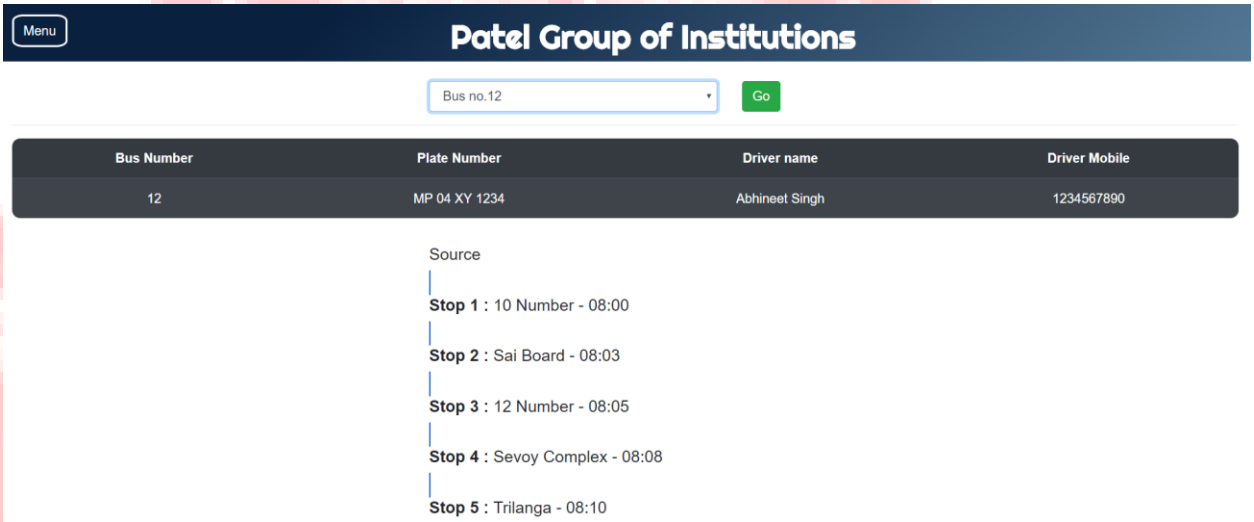

Fig.16 Bus Route

Fig.17 Admin Bus Route

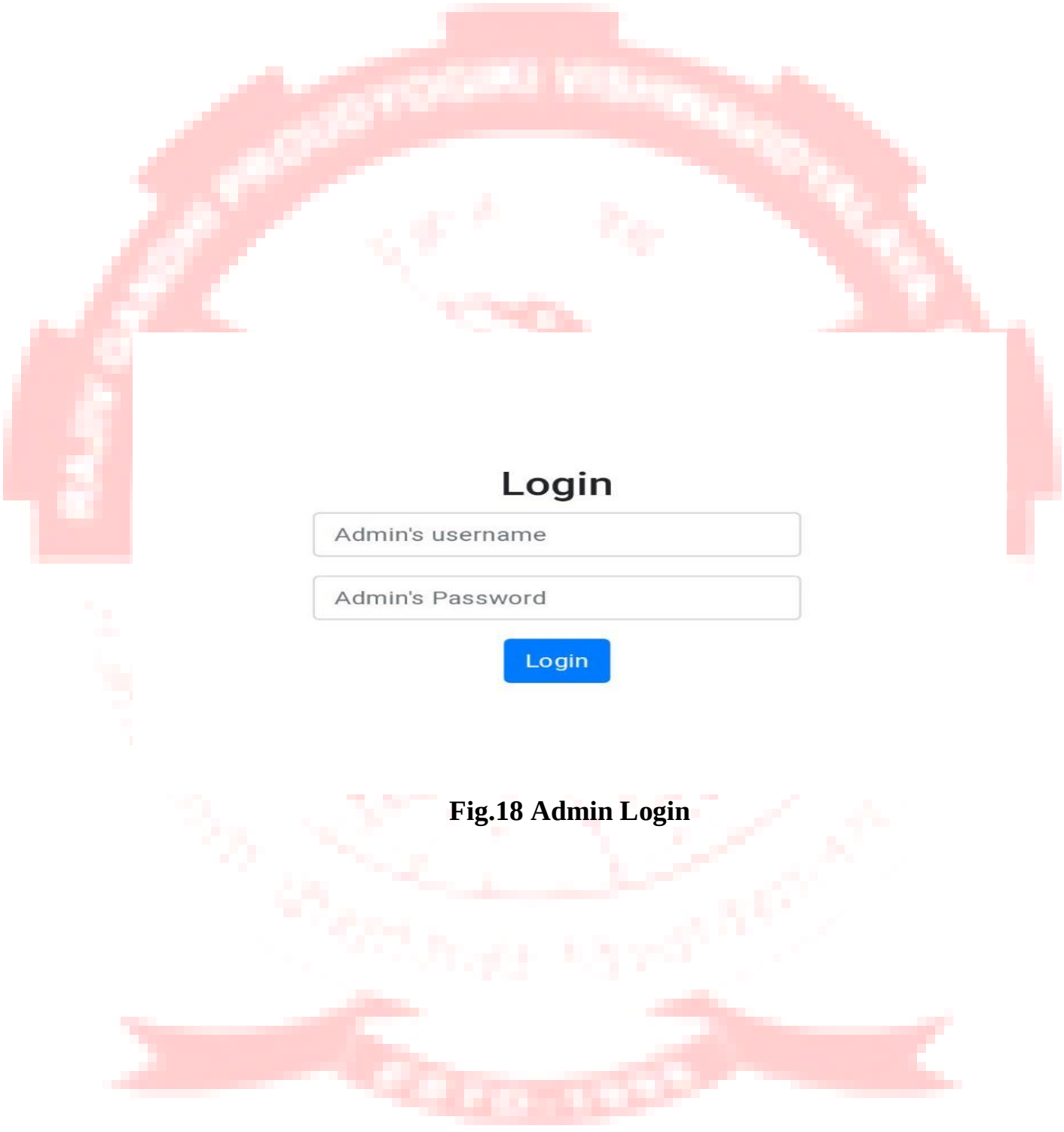

Fig.18 Admin Login

8. TESTING

The testing will be conducted in the final stage. The usability testing will be use to evaluate the portal. The testing also will cover the correctness of spelling, layout and consistency of style, compatible browsers, correctness of all hyperlinks, graphic 7 rendering and the programming scripts. The test case and test plan will be designed and conducted to detect errors and to refine the portal.

What are the different types of software testing?

We, as testers are aware of the various types of Software Testing such as Functional Testing, Non-Functional Testing, Automation Testing, Agile Testing, and their sub-types etc.

Types of software Testing:

Functional testing types include:

- Unit testing
- Integration testing
- System testing
- Sanity testing
- Smoke testing
- Interface testing
- Regression testing
- Beta/Acceptance testing

Non-functional testing types include:

- Performance Testing
- Load testing
- Stress testing
- Volume testing
- Security testing
- Compatibility testing
- Install testing
- Recovery testing
- Reliability testing

- Usability testing
- Compliance testing
- Localization testing

1) Alpha Testing
It is the most common type of testing used in the Software industry. The objective of this testing is to identify all possible issues or defects before releasing it into the market or to the user.

Alpha testing is carried out at the end of the software development phase but before the Beta Testing. Still, minor design changes may be made as a result of such testing. Alpha testing is conducted at the developer's site. In-house virtual user environment can be created for this type of testing.

2) Acceptance Testing
An acceptance test is performed by the client and verifies whether the end to end the flow of the system is as per the business requirements or not and if it is as per the needs of the end user. Client accepts the software only when all the features and functionalities work as expected.
It is the last phase of the testing, after which the software goes into production. This is also called User Acceptance Testing (UAT).

3) Ad-hoc Testing
The name itself suggests that this testing is performed on an ad-hoc basis i.e. with no reference to the test case and also without any plan or documentation in place for such type of testing. The objective of this testing is to find the defects and break the application by executing any flow of the application or any random functionality.
Ad-hoc testing is an informal way of finding defects and can be performed by anyone in the project. It is difficult to identify defects without a test case but sometimes it is possible that defects found during ad-hoc testing might not have been identified using existing test cases.

4) Accessibility Testing
The aim of accessibility testing is to determine whether the software or application is accessible for disabled people or not. Here disability means deaf, color blind, mentally disabled, blind, old age and other disabled groups. Various checks are performed such as font size for visually disabled, color and contrast for color blindness etc.

5) Beta Testing
Beta Testing is a formal type of software testing which is carried out by the customer. It is performed in the Real Environment before releasing the product to the market for the actual end users.
Beta testing is carried out to ensure that there are no major failures in the software or product and it satisfies the business requirements from an end-user perspective. Beta testing is successful when the customer accepts the software.

Usually, this testing is typically done by end-users or others. It is the final testing done before releasing an application for commercial purpose. Usually, the Beta version of the software or product released is limited to a certain number of users in a specific area.

So end user actually uses the software and shares the feedback to the company. Company then takes necessary action before releasing the software to the worldwide.

6) Back-end Testing
Whenever an input or data is entered on front-end application, it stores in the database and the testing of such database is known as Database Testing or Backend testing. There are different databases like SQL Server, MySQL, and Oracle etc. Database testing involves testing of table structure, schema, stored procedure, data structure and so on.

In back-end testing GUI is not involved, testers are directly connected to the database with proper access and testers can easily verify data by running a few queries on the database. There can be issues identified like data loss, deadlock, data corruption etc during this back-end testing and these issues are critical to fixing before the system goes live into the production environment

7) Browser Compatibility Testing
It is a subtype of Compatibility Testing (which is explained below) and is performed by the testing team.

Browser Compatibility Testing is performed for web applications and it ensures that the software can run with the combination of different browser and operating system. This type of testing also validates whether web application runs on all versions of all browsers or not.

8) Backward Compatibility Testing
It is a type of testing which validates whether the newly developed software or updated software works well with older version of the environment or not.

Backward Compatibility Testing checks whether the new version of the software works properly with file format created by older version of the software; it also works well with data tables, data files, data structure created by older version of that software. If any of the software is updated then it should work well on top of the previous version of that software.

9) Black Box Testing
Internal system design is not considered in this type of testing. Tests are based on the requirements and functionality.

Detailed information about the advantages, disadvantages, and types of Black box testing can be seen *here*.

10) Boundary Value Testing
This type of testing checks the behavior of the application at the boundary level.

Boundary value Testing is performed for checking if defects exist at boundary values. Boundary value testing is used for testing a different range of numbers. There is an upper and lower boundary for each range and testing is performed on these boundary values.
If testing requires a test range of numbers from 1 to 500 then Boundary Value Testing is performed on values at 0, 1, 2, 499, 500 and 501.

11) Branch Testing
It is a type of white box testing and is carried out during unit testing. Branch Testing, the name itself suggests that the code is tested thoroughly by traversing at every branch.

12) Comparison Testing
Comparison of a product's strength and weaknesses with its previous versions or other similar products is termed as Comparison Testing.

13) Compatibility Testing
It is a testing type in which it validates how software behaves and runs in a different environment, web servers, hardware, and network

environment. Compatibility testing ensures that software can run on a different configuration, different database, different browsers, and their versions. Compatibility testing is performed by the testing team.

14) Component Testing
It is mostly performed by developers after the completion of unit testing. Component Testing involves testing of multiple functionalities as a single code and its objective is to identify if any defect exists after connecting those multiple functionalities with each other.

15) End-to-End Testing
Similar to system testing, End-to-end testing involves testing of a complete application environment in a situation that mimics real-world use, such as interacting with a database, using network communications, or interacting with other hardware, applications, or systems if appropriate.

16) Equivalence Partitioning
It is a testing technique and a type of Black Box Testing. During this equivalence partitioning, a set of group is selected and a few values or numbers are picked up for testing. It is understood that all values from that group generate the same output.
The aim of this testing is to remove redundant test cases within a specific group which generates the same output but not any defect.

Suppose, application accepts values between -10 to +10 so using equivalence partitioning the values picked up for testing are zero, one positive value, one negative value. So the Equivalence Partitioning for this testing is: -10 to -1, 0, and 1 to 10.

17) Example Testing
It means real-time testing. Example testing includes the real-time scenario, it also involves the scenarios based on the experience of the testers.

18) Exploratory Testing
Exploratory Testing is informal testing performed by the testing team. The objective of this testing is to explore the application and looking for defects that

exists in the application. Sometimes it may happen that during this testing major defect discovered can even cause system failure.

During exploratory testing, it is advisable to keep a track of what flow you have tested and what activity you did before the start of the specific flow.

An exploratory testing technique is performed without documentation and test cases.

20) Functional Testing
This type of testing ignores the internal parts and focuses only on the output to check if it is as per the requirement or not. It is a Black-box type testing geared to the functional requirement.

21) Graphical User Interface (GUI) Testing
The objective of this GUI testing is to validate the GUI as per the business requirement. The expected GUI of the application is mentioned in the Detailed Design Document and GUI mockup screens.

The GUI testing includes the size of the buttons and input field present on the screen, alignment of all text, tables and content in the tables.

It also validates the menu of the application, after selecting different menu and menu items, it validates that the page does not fluctuate and the alignment remains same after hovering the mouse on the menu or sub-menu.

22) Gorilla Testing
Gorilla Testing is a testing type performed by a tester and sometimes by developer the as well. In Gorilla Testing, one module or the functionality in the module is tested thoroughly and heavily. The objective of this testing is to check the robustness of the application.

23) Happy Path Testing
The objective of Happy Path Testing is to test an application successfully on a positive flow. It does not look for negative or error conditions. The focus is only on the valid and positive inputs through which application generates the expected output.

24) Incremental Integration Testing
Incremental Integration Testing is a Bottom-up approach for testing i.e continuous testing of an application when a new functionality is added. Application functionality and modules should be independent enough to test separately. This is done by programmers or by testers.

25) Install/Uninstall Testing
Installation and uninstallation testing is done on full, partial, or upgrade install/uninstall processes on different operating systems under different hardware or software environment.

26) Integration Testing
Testing of all integrated modules to verify the combined functionality after integration is termed as Integration Testing. Modules are typically code modules, individual applications, client and server applications on a network, etc. This type of testing is especially relevant to client/server and distributed systems.

27) Load Testing
It is a type of non-functional testing and the objective of Load testing is to check how much of load or maximum workload a system can handle without any performance degradation.

28) Monkey Testing
Monkey testing is carried out by a tester assuming that if the monkey uses the application then how random input, values will be entered by the Monkey without any knowledge or understanding of the application.
The objective of Monkey Testing is to check if an application or system gets crashed by providing random input values/data. Monkey Testing is performed randomly and no test cases are scripted and it is not necessary to

Monkey Testing is performed randomly and no test cases are scripted and it is not necessary to be aware of the full functionality of the system.

29) Mutation Testing
Mutation Testing is a type of white box testing in which the source code of one of the program is changed and verifies whether the existing test cases can identify these defects in the system. The change in the program source code is very minimal so that it does not impact the entire application, only

the specific area having the impact and the related test cases should able to identify those errors in the system.

30) Negative Testing
Testers having the mindset of "attitude to break" and using negative testing they validate that if system or application breaks. A negative testing technique is performed using incorrect data, invalid data or input. It validates that if the system throws an error of invalid input and behaves as expected.

31) Non-Functional Testing
It is a type of testing for which every organization having a separate team which usually called as Non-Functional Test (NFT) team or Performance team.

Non-functional testing involves testing of non-functional requirements such as Load Testing, Stress Testing, Security, Volume, Recovery Testing etc. The objective of NFT testing is to ensure whether the response time of software or application is quick enough as per the business requirement.
It should not take much time to load any page or system and should sustain during peak load.

32) Performance Testing
This term is often used interchangeably with 'stress' and 'load'
testing. Performance Testing is done to check whether the system meets the performance requirements. Different performance and load tools are used to do this testing.

33) Recovery Testing
It is a type of testing which validates that how well the application or system recovers from crashes or disasters.

Recovery testing determines if the system is able to continue the operation after a disaster. Assume that application is receiving data through the network cable and suddenly that network cable has been unplugged.

Sometime later, plug the network cable; then the system should start receiving data from where it lost the connection due to network cable unplugged.

34) Regression Testing
Testing an application as a whole for the modification in any module or functionality is termed as Regression Testing. It is difficult to cover all the system in Regression Testing, so typically automation testing tools are used for these types of testing.

35) Risk-Based Testing (RBT)
In Risk Based Testing, the functionalities or requirements are tested based on their priority. Risk-based testing includes testing of highly critical functionality, which has the highest impact on business and in which the probability of failure is very high.

The priority decision is based on the business need, so once priority is set for all functionalities then high priority functionality or test cases are executed first followed by medium and then low priority functionalities.

The low priority functionality may be tested or not tested based on the available time.

The Risk-based testing is carried out if there is insufficient time available to test entire software and software needs to be implemented on time without any delay. This approach is followed only by the discussion and approval of the client and senior management of the organization.

36) Sanity Testing
Sanity Testing is done to determine if a new software version is performing well enough to accept it for a major testing effort or not. If an application is crashing for the initial use then the system is not stable enough for further testing. Hence a build or an application is assigned to fix it.

37) Security Testing
It is a type of testing performed by a special team of testers. A system can be penetrated by any hacking way.

Security Testing is done to check how the software or application or website is secure from internal and external threats. This testing includes how much software is secure from the malicious program, viruses and how secure and strong the authorization and authentication processes are.

It also checks how software behaves for any hackers attack and malicious programs and how software is maintained for data security after such a hacker attack.

38) Smoke Testing
Whenever a new build is provided by the development team then the software testing team validates the build and ensures that no major issue exists.

The testing team ensures that the build is stable and a detailed level of testing is carried out further. Smoke Testing checks that no show stopper defect exists in the build which will prevent the testing team to test the application in detail.
If testers find that the major critical functionality is broken down at the initial stage itself then testing team can reject the build and inform accordingly to the development team. Smoke Testing is carried out to a detailed level of any functional or regression testing.

39) Static Testing
Static Testing is a type of testing which is executed without any code. The execution is performed on the documentation during the testing phase. It involves reviews, walkthrough, and inspection of the deliverables of the project. Static testing does not execute the code instead of the code syntax, naming conventions are checked.

The static testing is also applicable for test cases, test plan, design document. It is necessary to perform static testing by the testing team as the defects identified during this type of testing are cost-effective from the project perspective.

40) Stress Testing
This testing is done when a system is stressed beyond its specifications in order to check how and when it fails. This is performed under heavy load like putting large number beyond storage capacity, complex database queries, and continuous input to the system or database load.

41) System Testing
Under System Testing technique, the entire system is tested as per the requirements. It is a Black-box type testing that is based on overall requirement specifications and covers all the combined parts of a system.

42) Unit Testing
Testing of an individual software component or module is termed as Unit Testing. It is typically done by the programmer and not by testers, as it

requires a detailed knowledge of the internal program design and code. It may also require developing test drive modules or test harnesses.

43) Usability Testing
Under Usability Testing, User-friendliness check is done. Application flow is tested to know if a new user can understand the application easily or not, Proper help documented if a user gets stuck at any point. Basically, system navigation is checked in this testing.

44) Vulnerability Testing
The testing which involves identifying of weakness in the software, hardware and the network is known as Vulnerability Testing. Malicious programs, the hacker can take control of the system, if it is vulnerable to such kind of attacks, viruses, and worms.So it is necessary to check if those systems undergo Vulnerability Testing before production. It may identify critical defects, flaws in the security.

45) Volume Testing
Volume testing is a type of non-functional testing performed by the performance testing team.
The software or application undergoes a huge amount of data and Volume Testing checks the system behavior and response time of the application when the system came across such a high volume of data. This high volume of data may impact the system's performance and speed of the processing time.

46) White Box Testing
White Box testing is based on the knowledge about the internal logic of an application's code.
It is also known as Glass Box Testing. Internal software and code working should be known for performing this type of testing. Under these tests are based on the coverage of code statements, branches, paths, conditions etc.

PhP Unit Testing

Create PHP Unit tests and Selenium test cases for files or folders, run tests, and view test results. You can define test groups to selectively run unit test upon. In the PHP Unit properties, you can define a custom XML configuration file, a bootstrap

file for command line options, or a custom test suite, or project-specific PHP Unit script. You can let the IDE generate skeleton code for you using PHP Unit Skeleton Generator. Use a keyboard shortcut to navigate quickly between test and tested class.

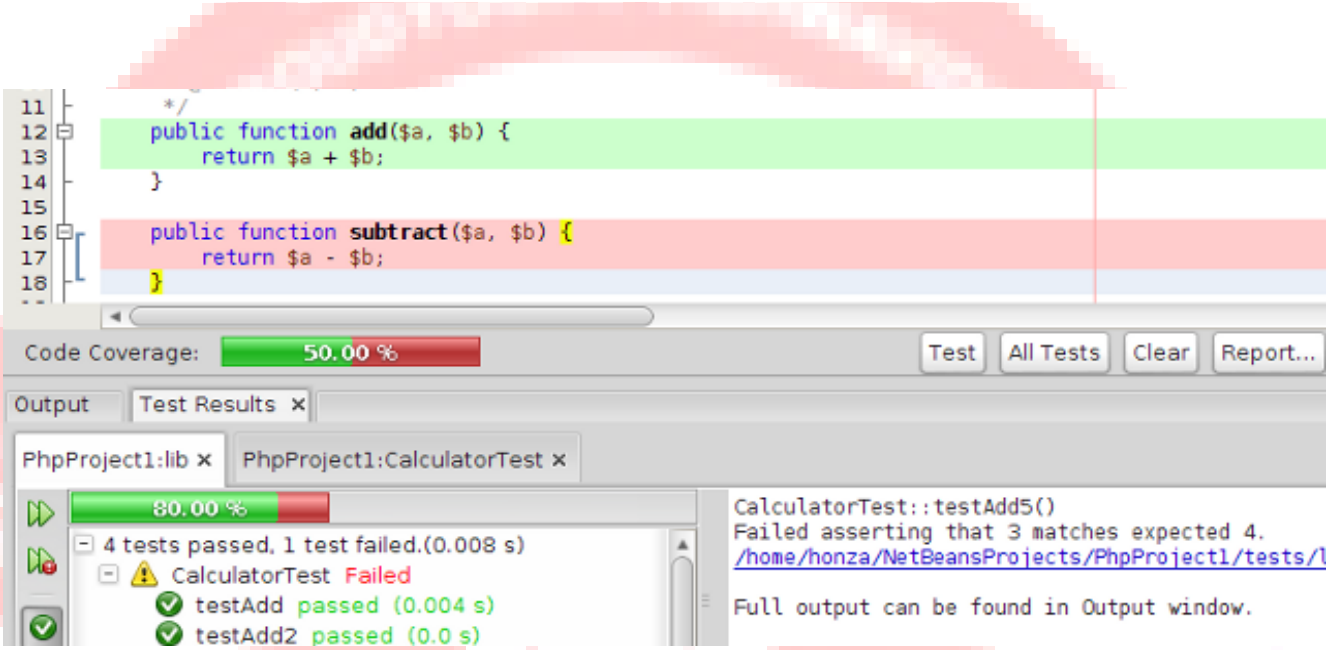

Fig.18 Code Testing

9. CONCLUSION

This system, in addition to lessening the work load on the institute, it also fixes any false data about the users that the institution may have. It is a benefit for the user's whose important time and energy is preserved, for the affected educational college's authority whose workload is immensely reduced, whose services are secured from misuse. This paper assists in automating the existing manual system. This is a paperless work. It can be monitored and controlled remotely. It reduces the man power required and provides accurate information. Malpractice can be reduced. All years together gathered information can be saved and can be accessed at any time. Therefore, the data stored in the repository helps in taking decision by management. So it is better to have a Web Based system. All the stakeholders, faculty and management can get the required information without delay. This system is essential in the colleges and universities.

To conclude, Online College Portal works like a component which can access all the databases and picks up different functions. It overcomes the many limitations incorporated in the attendance.

1. Easy implementation environment

2. Generate report flexibly

10. SCOPE FOR FUTURE ENHANCEMENTS

The project has a very vast scope in future. The project can be implemented on intranet in future. Project can be updated in near future as and when requirement for the same arises, as it is very flexible in terms of expansion. With the proposed software of database Space Manager ready and fully functional the client is now able to manage and hence run the entire work in a much better, accurate and error free manner. The following are the future scope for the project

- Both student and admin are provided with login id and password
- Student by login into portal can his/her attendance, exam dates, results
- GPS enabled bus route
- Information about library books
- Fees information
- Online fees payment
- Student can download notes online
- Availability of syllabus for all departments

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