



A PROJECT REPORT  
ON  
**STUDENT RESULT MANAGEMENT SYSTEM**

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## **ABSTRACT**

The technological development and impact of computers and internet on our lives has been verified over time affected various sectors of activity. And almost every task today is being run through computers. Getting information and quickly turning it into a product that consumers want is the essential key to staying in business and all of this is done nowadays using computers and applications or information systems. And the education system is undeniably the backbone of the society, it focuses at preparing the young talents for the future. However, currently the process of students' result management is where the students' results are generated through a spreadsheet application and then printed on a paper. The current project aims at creating a web-based student result management system, reducing time, effort and improving security. The methodology adopted for the elaboration of the project is based on qualitative study. The project results in the development of a multi-user system, based on web technology with MVC architectural pattern and developed using Java programming language with Apache Tomcat Server and MySQL Database Management System support.

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# **1. INTRODUCTION TO STUDY**

## **1.1 Introduction:**

The Project Student Result processing Software is a complete multi-user Software. The Scorer accept and then processes the scores of students and subsequently produces their report cards. The main objective of this project is to provide the examination result to the student in a simple way. This project is useful for students and institutions for getting the results in simple manner. By a result analyzer with subjects status and marks is an application tool for displaying the results in secure way.

The system is intended for the student and the privileges that are provided to students to read and execute his/her result by providing their roll number and admin/teacher can login using their username and password. In case of new registration of student, admin/teacher can add the new student form.

## **1.2 Problem Definition:**

Currently, the process of declaring and managing the students' results is performed manually with extensive human intervention. The students' results are generated through a spreadsheet application and then on a printed paper. Despite having an application that generates the result, it is not very effective as the system consumes a lot of time and human resources in performing various tasks, it is costly, it lacks data security and efficiency.

## **1.3 Scope:**

The study aims at developing and implementing a web-based student result management system, replacing the old manually done paper work and to minimize the security issues and the problems it possesses. The proposed is a multi-user system, developed using Java programming language with Apache Tomcat Server and MySQL DBMS (Database Management System) support. The system is confined to and intended for the students. They possess privileges to

check their results after he/she is provided with a specific roll number for a secure login. The entire system is managed by a system administrator, who possesses the full control of the system, to read, write and execute the results and to assign privileges to teachers and students. And the teachers have the privilege to assign the students' marks, through which, a result will be generated automatically and each student will have access to their results only, using their respective account.

## **1.4 System Requirements:**

- **Hardware Requirements:**

- System : Pentium IV 2.4 GHz.
- Hard Disk : 40 GB.
- Floppy Drive : 1.44 Mb.
- Monitor : 15 VGA Colour.
- Mouse : Logitech.
- Ram : 512 Mb.

- **Software Requirements:**

- Operating system : Windows XP/10.
- Coding Language : JAVA.
- IDE : eclipse.
- Database : MYSQL.

## **2. LITERATURE REVIEW**

### **2.1. Java Server Pages:**

JSP not only enjoys cross-platform and cross-Web-server support, but effectively melds the power of server-side Java technology with features of static HTML pages. JSP pages typically comprise of:

- Static HTML / XML components.
- Special JSP tags.
- Optionally, snippets of code written in the java programming language called “script lets.”

### **JSP Architecture**

The purpose of JSP is to provide a declarative, presentation-centric method of developing servlets. JSP pages are subject to a translation phase and a request-processing phase. The translation phase is carried out only once, unless the JSP page changes, in which case it is repeated. The JSP engine itself typically carries out the translation phase, when it receives a request for the JSP page for the first time.

### **Life Cycle of A JSP:**

Life cycle of a JSP consists of the following three methods:

`_jspInit`

`_jspService`

`_jspDestroy`

## 2.2 Servlets:

A servlet is a java programming language class that is used to extend the capabilities of servers that host applications access via a request-response programming mode. Servlets are Java technology's answer to Common Gateway Interface (CGI) Programming. They are programs that run on a Web server, acting as middle layer between request coming from a Web browser or other HTTP client and databases of applications on the HTTP server.

**Servlet Life Cycle:** The life cycle of a servlet is controlled by the container in which the servlet has been deployed. When a request is mapped to a servlet, the container performs the following steps.

1. If an instance of the servlet does not exist, the Web container:

- Loads the servlet class.
- Creates an instance of the Servlet class.
- Initializes the servlet instance by calling the init method.

2. Invokes the service method, passing request and response objects.

If the container needs to remove the servlet, it finalizes the servlet by calling the servlet's destroy method.

### Session Management:

Many applications require that a series of requests from a client be associated with one another. Sessions are represented by an Http Session object. A session can be accessed by calling the get Session () method of a request object. This method returns the current session associated with this request, or, if the request does not have a session, it creates one. The timeout period can be accessed by using a session's [get\set] Max Inactive Interval methods.



## **Session Tracking:**

A Web container can use several methods to associate a session with a user, all of which involve passing an identifier between the client and the server. The identifier can be maintained on the client as a cookie, or the Web component can include the identifier in every URL that is returned to the client.

In fact, on many servers, they use cookies if the browser supports them, but automatically revert to URL-rewriting when cookies are unsupported or explicitly disabled.

### **3. RESEARCH METHODOLOGY**

A research methodology is the elaboration of a clear strategy for gathering evidence, including the specific data collection methods to be used, the kinds of evidence to be collected, and the approach for analyzing the evidence (Darian-Smith & McCarthy, 2017). It is the path to solve a research problem. Hence it must be planned according to the objectives of the study.

#### **3.1 Research Design:**

The research design used in this study is qualitative. Dawson (2015) states that, a qualitative research method is a scientific method of observation, used to gather non numerical data and that enables to conduct in-depth studies about a broad array of topics. They are more common within the field of information science and involve methods such as case studies and surveys.

#### **3.2 Data Collection Method:**

Refers to the methods used to obtain and gather all the required data and information for the execution of the current research. The data was collected using both, by primary data collection methods as well as secondary sources.

Primary data are the original data that has been collected specially for the purpose in mind. And data collected from the original source using one or more of the primary data collection methods such as, interviews, observations, surveys, etc. (Darian-Smith & McCarthy, 2017). In the current research most of the information were gathered through primary sources. And the methods that were used to collect the primary data are: on site observation, structured interview and document analysis.

Secondary data is the one that was collected and that has already been analyzed by someone else other than the user. This means that huge data sets are already out there, either completely unanalyzed or ready to be analyzed in new and creative ways. Furthermore, many of these data sets are inexpensive or freely available to researchers. And for an average scholar, doing secondary research on existing data can be more convenient, much faster, and less expensive than trying to do one's own primary research to collect new data (Darian-Smith & McCarthy,

2017). And the secondary data was collected through: books, thesis and internet or Web.

### **3.3 Data Analysis:**

The classification and tabulation transform the raw data collected into useful information by organizing and compiling the bits of data into graphically understandable manner, and in the current research, it was done with the help of a UML (Unified Modelling Language) modelling tool, Astah.

### **3.4 System Development:**

System development is a set of activities used to build an information system. System development activities often are grouped into larger categories called phases. This collection of phases sometimes is called the system development life cycle (SDLC), each system development phase consists of a series of activities (Freund et al., 2017). And in the current research, to develop the Web-Based Student Result Management System, the incremental model was employed, which is now the most common approach for the development of application systems and software products. Incremental development is based on the idea of developing an initial implementation, getting feedback from users and others, and evolving the software through several versions until the required system has been developed. Rarely a complete problem solution is worked out in advance but it moves toward a solution in a series of steps, backtracking when realized that some mistake have been made. By developing the software incrementally, it is cheaper and easier to make changes in the software as it is being developed (Sommerville, 2016).

## **4. SYSTEM ANALYSIS**

### **4.1 Requirements Analysis:**

Requirement analysis for web applications encompasses three major tasks: formulation, requirements gathering and analysis modeling. During formulation, the basic motivation and goals for the web application are identified, and the categories of users are defined. In the requirements gathering phase, the content and functional requirements are listed and interaction scenarios written from end-user's point-of-view are developed. This intent is to establish a basic understanding of why the web application is built, who will use it, and what problems it will solve for its users.

#### **Existing System with Limitations:**

- It is time consuming process as the user has to type the dbase commands. He has to remember all the commands which are difficult.
- It is limited to a single system.
- A user who wants only to have some information has to contact the administrator every time.

### **4.2 Requirements Determination:**

The following are the functional requirements of the current system:

[FR01] – The system will have two types of users: Administrator and Student.

[FR02] – The system will allow students to access only after they are registered.

[FR03] – The system will prepare the students result report.

[FR04] – The system will allow the Administrators to register new students.

[FR05] – The system will allow the Administrators to manage all the students' and subject's records.

[FR06] – The system will allow the Administrators to assign and update students' marks.

[FR07] – The system will allow the Administrators to enroll students in a particular course.

[FR08] – The system will allow the Administrators to generate results.

[FR09] – The system will enable the students to check their results.

[FR10] – The system will enable the students to print their results reports.

[FR11] – The system will allow the professors to generate results.

And the following are the non-functional requirements of the current system:

[NFR01] – The system should be developed based on web technology.

[NFR02] – The system should be implemented using Java programming language;

[NFR03] – The system should be able to connect and perform operations on DBMS MySQL.

[NFR04] – The system should be able to work on any web browser.

[NFR05] – The system should be available for use 24 hours per day, 365 days per year.

[NFR06] – Only administrators can manage students' account and subjects' records.

[NFR07] – The system should use Apache Tomcat v8 or higher as the Application Server.

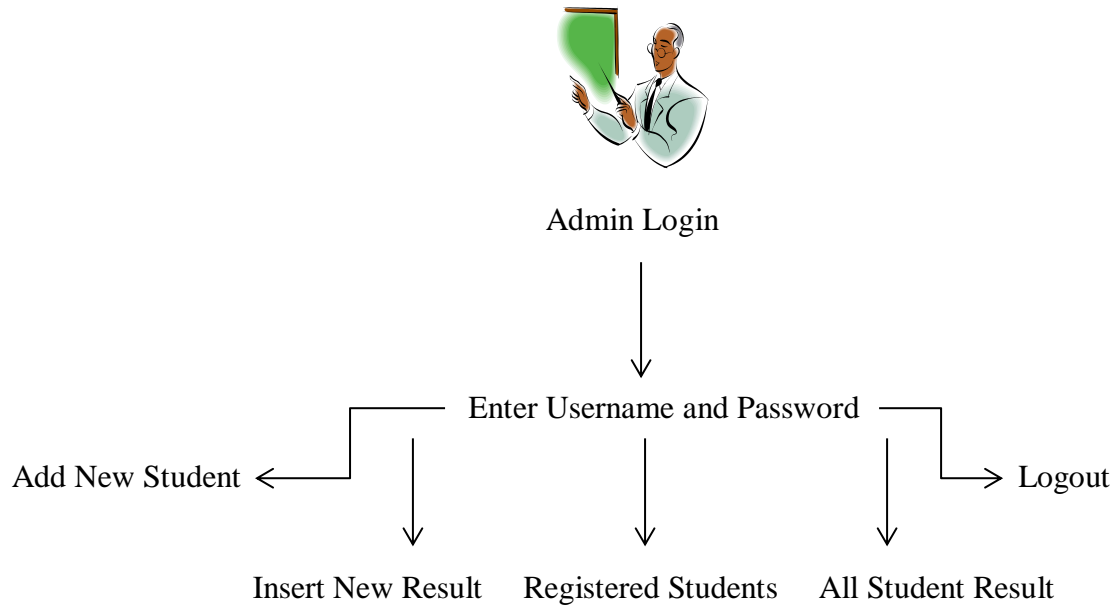
[NFR08] – The system should be executed on JDK v8 or higher.

[NFR09] – The system should support multiple simultaneous users' access at all times.

[NFR10] – The system should have a higher level of security, restricting access to some functionalities according to users' role.

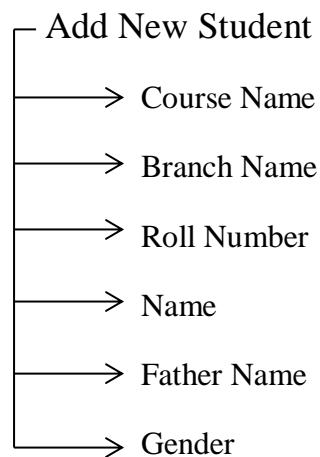
## 5. SYSTEM DESIGN

### 5.1 Case Diagram for Admin Login:

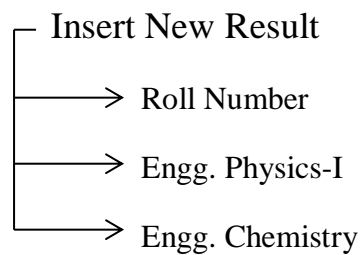


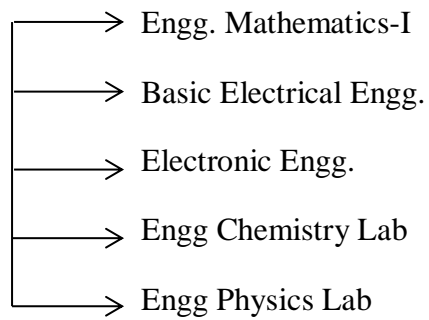
**Figure 5.1 Case diagram for Admin Login**

In Add New Student there are following fields to be filled by the administrator :



In Insert New Result there are following fields to be filled by the administrator :





The Registered Students field will have the details of the registered student details filled by the administrator.

All Student Result field will have the result of the student along with their respective roll number.

## 5.2 Case Diagram for Student Login:



Student Login



Enter Roll Number

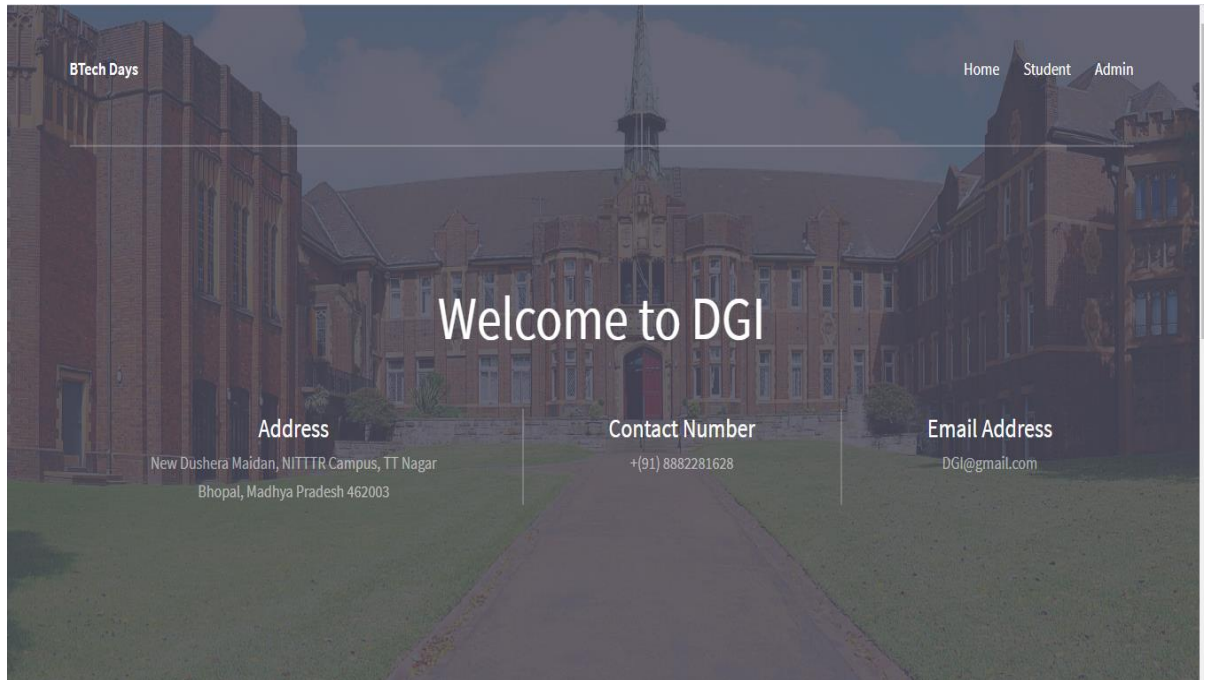


The Result will be shown in the given page if the Roll Number is correct

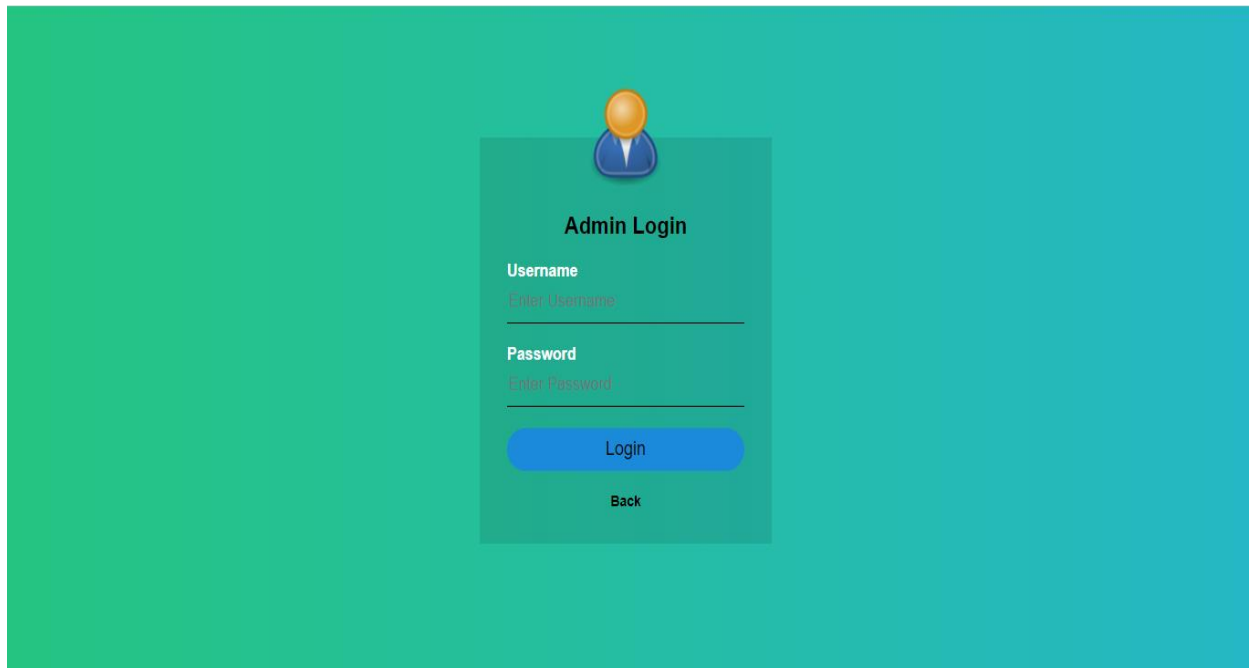
If the student want to print the result they can print the report by clicking printer icon.

## 6. OUTPUT SCREENS

### Home Page:

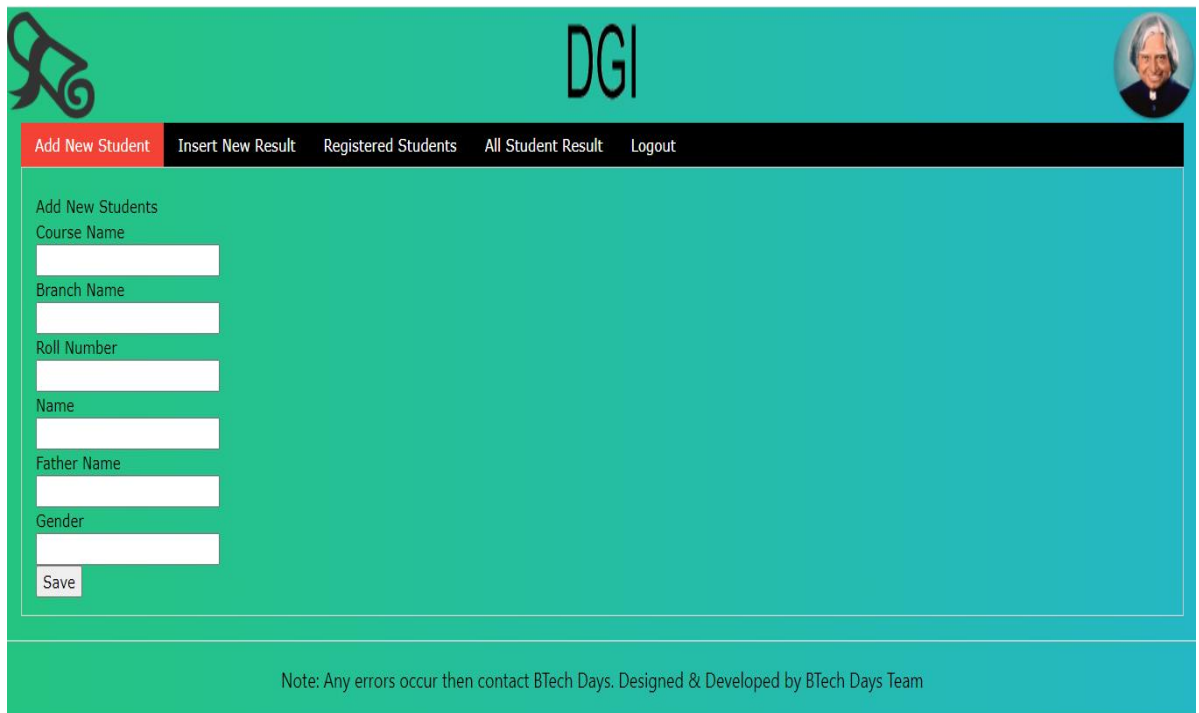


### Admin Login Page:



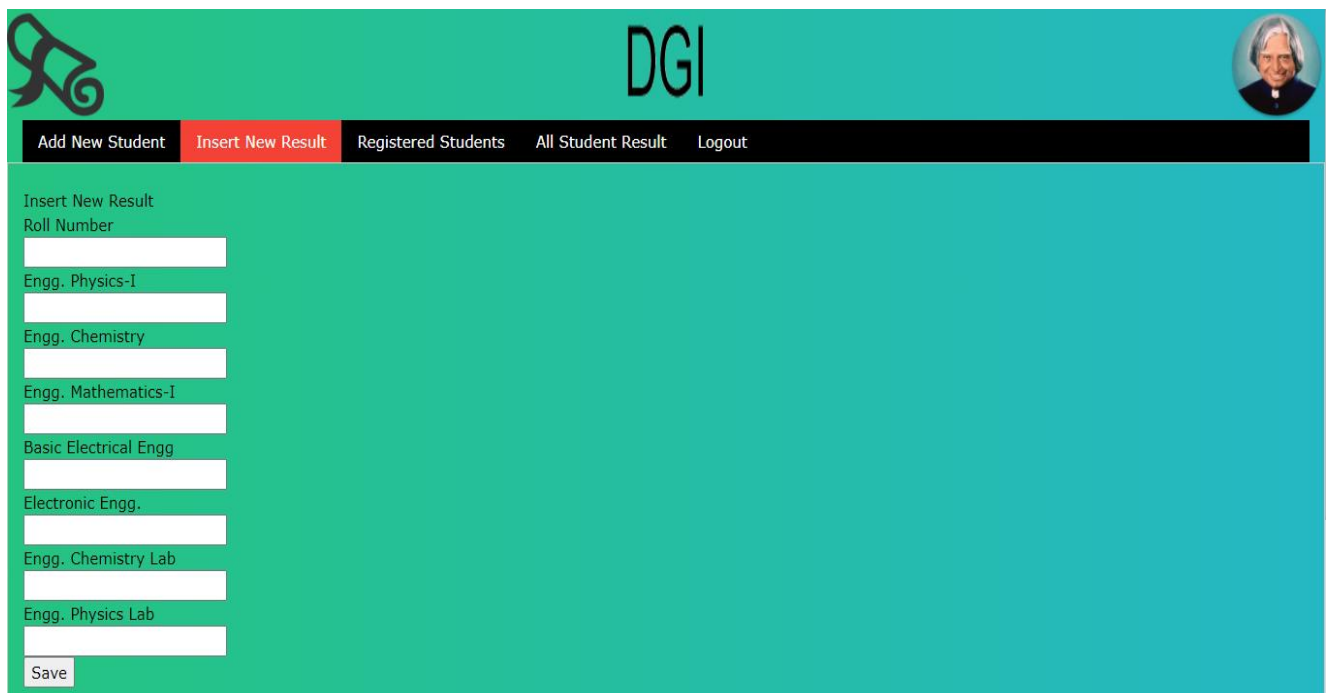


## Add New Student:




The screenshot shows a web application interface for adding a new student. At the top, there is a teal header with a logo on the left, the text 'DGI' in the center, and a circular profile picture of a man on the right. Below the header is a black navigation bar with five white links: 'Add New Student' (highlighted in red), 'Insert New Result', 'Registered Students', 'All Student Result', and 'Logout'. The main content area has a teal background and contains the following form fields: 'Add New Students' (title), 'Course Name', 'Branch Name', 'Roll Number', 'Name', 'Father Name', 'Gender', and a 'Save' button. At the bottom of the page, a teal footer contains the text: 'Note: Any errors occur then contact BTech Days. Designed & Developed by BTech Days Team'.

## Insert New Result:




The screenshot shows a web application interface for inserting a new result. It features the same teal header and black navigation bar as the previous form, with 'Insert New Result' highlighted in red. The main content area has a teal background and contains the following form fields: 'Insert New Result' (title), 'Roll Number', 'Engg. Physics-I', 'Engg. Chemistry', 'Engg. Mathematics-I', 'Basic Electrical Engg', 'Electronic Engg.', 'Engg. Chemistry Lab', 'Engg. Physics Lab', and a 'Save' button. The footer is identical to the first form.

## Registered Students:



DGI



Add New Student

Insert New Result



Registered Students

All Student Result

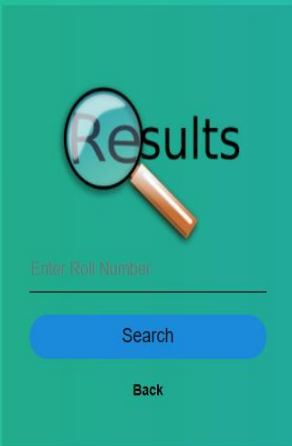
Logout

COURSE NAME	BRANCH NAME	ROLL NUMBER	NAME	FATHER NAME	GENDER
B.Tech	Computer Science	10001	Amit Kumar	Sunil Kumar	Male
B.Tech	Computer Science	10002	Rahmath Afeefa	Shamsudeen	Female

## All Students Result:

		DGI					
Add New Student		Insert New Result		Registered Students		All Student Result	
				Logout			
ROLL NUMBER	ENGG. PHYSICS-I	ENGG. CHEMISTRY	ENGG. MATHEMATICS-I	BASIC ELECTRICAL ENGG	ELECTRONIC ENGG.	ENGG. CHEMISTRY LAB	ENGG. PHYSICS LAB
10001	50	60	70	80	90	25	25
10002	56	62	74	89	90	88	44

## Student Login:



Results

Enter Roll Number

Search

Back

## Student Result Page1:



[Back](#)

INSTITUTION NAME: DGI	COURSE NAME: B.TECH	BRANCH NAME: COMPUTER SCIENCE	ROLLNO: 10001
NAME: AMIT KUMAR	FATHER NAME: SUNIL KUMAR	GENDER: MALE	

Course		Type	Full Marks	Passing Marks	Obtained Marks
Code	Name				
NAS101	Engg. Physics-I	Theory	100	30	50
NAS102	Engg. Chemistry	Theory	100	30	60
NAS103	Engg. Mathematics-I	Theory	100	30	70

## Student Result Page 2:

NAS102	Engg. Chemistry	Theory	100	30	60
NAS103	Engg. Mathematics-I	Theory	100	30	70
NEE101	Basic Electrical Engg.	Theory	100	30	80
NEC101	Electronic Engg.	Theory	100	30	90
NAS152	Engg. Chemistry Lab	Practical	30	15	25
NAS151	Engg. Physics Lab	Practical	30	15	25
Total Marks			560	180	400
Percentage			71		

Note: Institution doesn't own for the errors or omissions, if any, in this statement. Designed & Developed by BTech Days Team

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## **7. CONCLUSION**

The present research was based on the computerization and the implementation of a sophisticated Web-Based Student Result Management System. The main objective was to enhance and automate the management and declaration of students' results using a computerized system. A well-defined, efficient, controlled and managed information system or software based on web technology storing, processing and providing information through the internet. And the objectives were achieved by following a process model such as system analysis, design and system implementation. The system analysis was composed of two activities, requirement determination and structuring. The first activity focused on the collection of data or requirements through structured interview, work environment observation and by collecting procedures and other written documents.

From a proper analysis of positive points and constraints on the component, it can be safely concluded that the product is a highly efficient GUI based component. This application is working properly and meeting to all user requirements. This component can be easily plugged in many other systems.

## **8. FUTURE ENHANCEMENTS**

In near future, the system interface could be improved, with more attractive, interactive and meaningful images;

- Enhance the system with an email and SMS (Short Message Service) or email notifications;
- Enhance the current system by computerizing almost all of the services provided by the institution (online exams, enrolment, library and others), turning it into a complete LMS;
- And evolve the system by developing several versions through users' feedback, if a complete solution has not been worked out. by developing several versions through users' feedback, if a complete solution has not been worked out.

Now the developed System is a web based system, it gives all the student details. In the future the results can be directly printed, and this functionality can be made available to the user. This can also be enhanced by giving the user more services such as aggregate calculation etc.,

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