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Education ERP management System

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Independent University, Bangladesh

An Undergraduate Internship/Project on

Education ERP management System

By

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Summer,2022

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September 14, 2022

Dissertation submitted in partial ful llment for the degree of

Bachelor of Science in Computer Science

Department of Computer Science & Engineering Independent University, Bangladesh

Attestation

I thus certify that I, Faiyaz Mahmood Arnob-1711126, a student affiliated with Independent University Bangladesh, have finished the report, and submitted it in partial fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). I followed the advice of my honoured faculty, Raihan Bin Rafique, and gave due credit where credit is due for the sources of material used in this project and report.

Signature

Faiyaz Mahmood Arnob

Name

14/9/2022

Date

Acknowledgement

I thank Allah, the Almighty first and foremost for giving me this chance and for giving me the capacity to complete my internship report on time. I would like to thank my internal supervisor, Mr. Raihan Bin Rafique, Lecturer in the Department of Computer Science and Engineering at Independent University, Bangladesh (IUB), for all his invaluable advice, constant direction, support, and inspiration throughout my internship and the writing of this report.

Working as an intern for "AddieSoft" has been a fantastic honour. The people at "AddieSoft" have shown me so much support and encouragement. I would want to express my gratitude to my supervisor for devoting his time and expertise, both of which were crucial to the completion of this report. My appreciation goes out to my classmates. They have always been supportive and occasionally offered insightful information.

Finally, I want to express my gratitude to my family. They have offered unwavering support without conditions. Even on difficult days, their belief in me and dreams for me kept me going.

Letter of Transmittal

Raihan Bin Rafique

Lecturer,

Department of Computer Science and Engineering,

School of Engineering and Computer Science

Independent University, Bangladesh

Subject: **Submission of Internship Report.**

Dear Sir,

This is to let you know that I, Faiyaz Mahmood Arnob (ID: 1711126), from the summer 2022 semester's CSE 499 Internship Course, would like to submit my Internship Report. This report is based on my internship program and the project I worked on at AddieSoft Ltd. I attempted to make this report as useful as possible with the experience I have obtained throughout my internship term. I completed my internship program under the direction of Md. Shariful Islam.

I've done my best to present a solid report. It might not be flawless, though. Please accept my sincere thanks if you can read this report and offer your insightful opinion. The report that follows, I trust, will be sufficient and earn your approval.

Sincerely,

Faiyaz Mahmood Arnob

ID- 1711126

Department of Computer Science & Engineering

Independent University, Bangladesh (IUB)

Evaluation Committee

.....

.....

Name: Raihan Bin Rafique
Supervisor

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Name: Mohammad Noor Nabi

Internal Examiner-1 / Panel Member-1

.....

Name: Md. Asif Bin Khaled

Internal Examiner-2 / Panel Member-1

Abstract

This Document contains the Education ERP management, architectural design, user interface design, testing, and future work of ‘Education ERP management System’. This system allows teachers, students to use web portal. Teachers can give notice, take attendance, or give results throughout the system on the other hand students can check their grading here.

Several modules, including the modules for data entry and data records, are included in this project. Sub-modules are further broken down into these modules. This means that the Data Entry module contains information on the Class Setup, Student Setup, Teacher Setup, Fees Setup, Student Attendance, Employee Attendance, Subject Setup, Add Expense, Expense Detail, Examination Setup, and Exam Details. The Data Records module contains information on students, teachers, students' attendance, employees' attendance, and fees. These modules facilitate effective organization management. Therefore, this project aids in the effective management of human resources inside the company. Additionally, it takes up less time. The primary and most significant advantage of this suggested approach is how accurate and user-friendly it is.

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Chapter 1

Introduction

1.1 Overview/Background of the work

An integrated enterprise computer system is referred to as an enterprise resource planning (ERP) system. Most of an enterprise's information systems requirements are met by this bespoke packaged software-based system. It is a software architecture that streamlines information exchange between all business operations. It uses a single development environment and is supported by a single database. ERP systems are modified to support a company's operational procedures.

ERP systems, which combine specialized software with standardized interfaces based on a shared database, are arguably a common-sense approach to business computers. As a result, the deployment of an ERP system fundamentally implies that a sizable portion of an organization's IS function (i.e., source code development and maintenance) is outsourced. As a result of this outsourcing potential, management consulting firms expanded their activities and created numerous new job opportunities.

1.2 Objectives

Student data management will be a very user-friendly management information system that will assist Accounts, Management, and administrative systems in gathering, communicating, and computerizing information as well as in acting on crucial information more quickly and effectively. The approach calls for connecting many departments to improve data flow and timely information availability at both ends. Additionally, it helps with creating and maintaining user-definable queries and reports. The application's key features are described below:

- Owner of data to be the owner of the database
- Capture of information at the source of generation
- Sharing of data
- Minimizing duplicate work
- Reducing inconsistency by eliminating multiple databases of the same data
- Consolidation of data at all levels

Outlined objectives of the system:

User friendliness:

The created method is simple to learn and comprehend. The technique is simple to use and beneficial for new users as well. To address the users' additional questions, the help and user guides are offered. The user can learn all the specifics of the system's functionality with the aid of the user manuals.

User satisfaction:

The design of the system ensures that it meets user expectations. The system is effective at producing reports on the task status and student information. The organization is currently operating the system successfully.

Response time:

All operations have faster reaction times. The tasks involved in creating reports and creating lists take a long time to complete. The purpose of the queries employed is to speed up query processing.

Error handling:

To keep the system from halting, responses to user failures and undesirable situations have been taken care of. Codes for proper error handling are included with the codes.

Security and robustness:

The system has the capacity to stop or stop catastrophic actions. Because the software is secured by a username and password, only the legitimate user can access it. To prevent unauthorized intrusion, only the project leader is permitted to do all administrative duties.

Modularity:

The system is made up of largely autonomous, single-function components that work together to form a whole. Thus, despite being resilient, the system is not complicated as a result of this modular approach. Additionally, it helps the system run quickly.

Maintainability:

The technology can reduce the amount of time and work required for program maintenance. Each student's task status and all relevant project information are properly recorded, and reports are generated in accordance with the specifications.

1.3 Scopes

The system is designed to assist the department responsible for keeping track of all university details. Previously, records were kept by hand. With the aid of this system, the concerned departments will be able to increase productivity, cut down on processing time, and lower system costs. The system's automation will aid the business in maintaining records correctly, using less people, fewer man-days, less money, and operating in a proper and precise manner.

The primary purpose of the system was to completely automate the formerly laborious process of maintaining student information. By creating this system, the department's burden of managing student information was greatly reduced. It decreased the time needed to complete the operation manually, decreased the cost, and increased efficiency. This method makes it possible to evaluate the pupils' historical performance and produce reports based on that performance.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

My undergraduate degrees have given me the information and abilities that I need to develop this endeavour. If these courses hadn't been completed before beginning this assignment, it would have been harder. In addition to that, the group, and individual projects I completed for my undergraduate classes were helpful to me with this endeavour.

Several of the courses include:

- Data structures, which are a specific format for organizing, processing, retrieving, and storing data, are covered in CSC 203. Data structures come in both simple and complex forms, all of which are made to organize data for a certain use. Users find it simple to access the data they need and use it appropriately thanks to data structures. The organizing of information is framed by data structures in a way that both machines and people can better grasp. In addition to using data structures, it is crucial to select the best data structure for each activity. A bad data structure selection could lead to poor run times or unresponsive programming.
- Object-Oriented Programming: The foundation of object-oriented programming is the idea of objects. Data structures or objects with individual attributes or properties are defined in object-oriented programming. Additionally, each object may have its own set of rules or practices. Using things that interact with one another, software is created. OOP can be used to reduce the amount of work required in manufacturing and design applications. It can be applied, for instance, when creating flowcharts and blueprints. It aided in the writing of the real-time system design utilized to create this project.
- Database Management: A software program called a database management system (DBMS) is made to access, manipulate, and manage data stored in databases. The data itself, the data format, field names, record structure, and _le structure are typically all altered by a DBMS. It also specifies guidelines for manipulating and validating this data.
  As database administration techniques advance, database management systems are built on specific data handling principles. The first databases could only manage distinct,

individually prepared chunks of data. The more sophisticated systems of today can handle many types of less structured data and connect them in more complex ways. My first course that taught me how to conceptualize and organize a project was this one. I learned the fundamentals of common planning and strategy techniques in the database management course, including the system development life cycle, Six Element Analysis, Rich Picture, Requirement Analysis, Entity Relationship Diagram, Business Process Model, and many more.

- Web Applications and Internet: This course provides a thorough review of web technologies and how they are used. We addressed fundamental subjects such OS and TCP/IP architecture, Internet Routing, IP addressing, and Domain Name System. My effort was aided by discussions on common browsers, HTML and Cascading Style Sheets, HTTP, HTTPS, FTP, Client and Server-side scripting, Scripting (Java Script, AJAX, XML) with Query libraries, and Web Servers (IIS, Apache). I gain knowledge about creating dynamic websites using Django and MySQL and SQL server.
- System Analysis and Design: Planning, analysis, design, deployment, and maintenance are just a few of the processes that make up the systematic process of developing a system. We'll concentrate mostly on System Analysis and System Design in this session. The methods and tools employed in the design and analysis of information systems are covered in this course. Systems and models, project management, tools for figuring out system requirements, data flow diagrams, decision tables, and decision trees, and systems analysis: models for the systems development life cycle are some of the topics covered. Unified Modelling Language, use-case modelling, and object-oriented analysis. System design and implementation include feasibility study, structured analysis, system prototype, application architecture, and user design. database design, software management, front-end and back-end design, as well as hardware selection. study of information systems case cases.

2.2 Related works

- While doing system analysis and design I made a project which helped me to design and implement in my field work.
- In web application and design made website of weather-forecasting.

- Doing (OOP) I made a project about BKSP.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

A project's tasks are organized hierarchically in a work breakdown structure (WBS). WBS is a project management technique that aids in breaking down a complicated project into smaller, more manageable tasks or procedures. The concept, design, development, maintenance, and closing procedures and activities are all included in the e-appointment system. Additionally, those processes are divided into smaller tasks and subtasks. Requirement analysis is a sub job that also includes a detailed sitemap, a project timeline, risk analysis, and cost estimation. The design process has two subtasks. Design of Development-Oriented Models and Systems. We divide our tasks into class diagrams, use case diagrams, and UML designs in the development-oriented model. We have tasks like rick pictures, ow charts, and system architecture for the system design. The two development processes for the project are frontend and backend. Four user acceptance tasks System evaluation, bug reports, bug fixes, and customer comments. Review the formalities of the documentation, deployment Deliverable Tasks related to finalizing changes and deploying the finished product fall within the deployment process, which is a closing action. This WBS aims to manageably scale up a big project. We at OS-IT Solutions use the top-down strategy known as WBS.

3.2 Process/Activity Wise Time Distribution

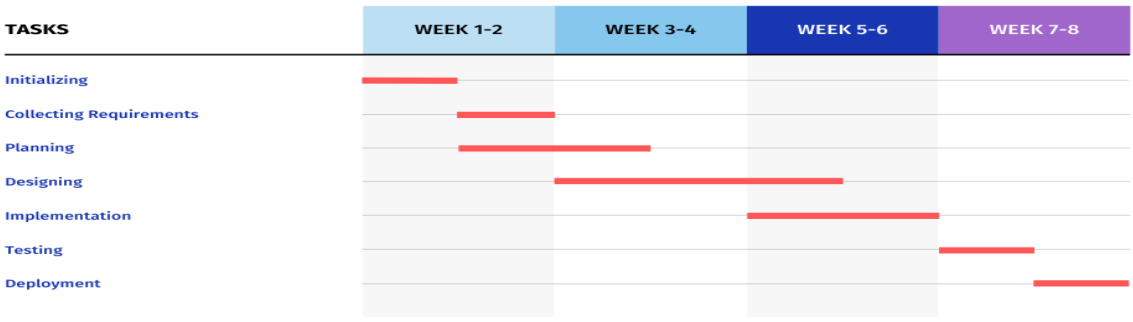
Project managers and other professionals frequently use the probabilistic form of the Critical Path Method called the process/activity wise time distribution (PM). One way for identifying tasks required for a project's completion is the critical route method. Time management is the main issue that the project manager and developers encounter when properly designing an application. The lengthiest series of tasks that must be completed on schedule for the project to be concluded is known as a critical path in project management. The rest of the project will be delayed if important activities are delayed. Project management benefits significantly from the Critical Path Method. The CPM method determines the shortest path of scheduled activities to logical end points or the

project's completion as well as the earliest and latest times that each activity can begin and stop without lengthening the project.

Task	Days
Requirement Analysis	6
Design Layout	12
Development	35
User Acceptance Testing	8
Deployment	9
Total	70

3.3 Gantt Chart

One of the most common and effective methods of displaying activities (tasks or events) displayed against time is the Gantt chart, which is frequently used in project management. A list of the activities is located on the chart's left side, and a suitable time scale is located along the top. A bar is used to symbolize each activity, and the position and length of the bar correspond to the activity's beginning, middle, and finish dates. We can monitor the project's advancement with the use of a Gantt chart.



3.4 Process/Activity Wise Resource Allocation

The process of allocating resources in a way that advances the objectives of the team. The success of a project depends on having the correct resource at the right moment. The staff members allocated to this project are listed in the table.

Position	Input(months)
Project Manager	2
Business Analyst	0.5
Database Designer	0.5
Sr. Developer	1
Developer	2
UX designer	0.5
UI designer	0.5
QA Expert	0.5
System Administrator	0.5

3.5 Estimated Costing

The "ERP Management System" projected cost is linked to several services. The expected cost of the project's development before it is turned over to the client is roughly 320k BDT. The system's estimated cost is provided below. It can be updated and expanded upon as the program changes.

Position	Staff Month Rate	Input(months)	Sub Cost (BDT)
Project Manager	50,000	2	100000
Business Analyst	30,000	0.5	15000
Database Designer	30,000	0.5	15000
Senior Developer	40,000	1	40000
Developer	25,000	2	50000
UX designer	20,000	0.5	10000
UI designer	20,000	0.5	10000
QA Expert	35,000	0.5	17500

System Administrator	30,000	0.5	15000

Chapter 4

Methodology:

We have provided a customized SDLC approach for the creation of this eService solution, considering the current setting of Bangladesh's adoption of digital government. According to the SDLC methodology, the scope of this project can encompass a single system but can be divided into several packages based on the importance and dependency of the modules and features that need to be built and released to achieve early release as a practical result. The Project Authority (implementing agency), in consultation with our Proposed Project Team, will specify the packages' components/modules at the project's initial planning stage.

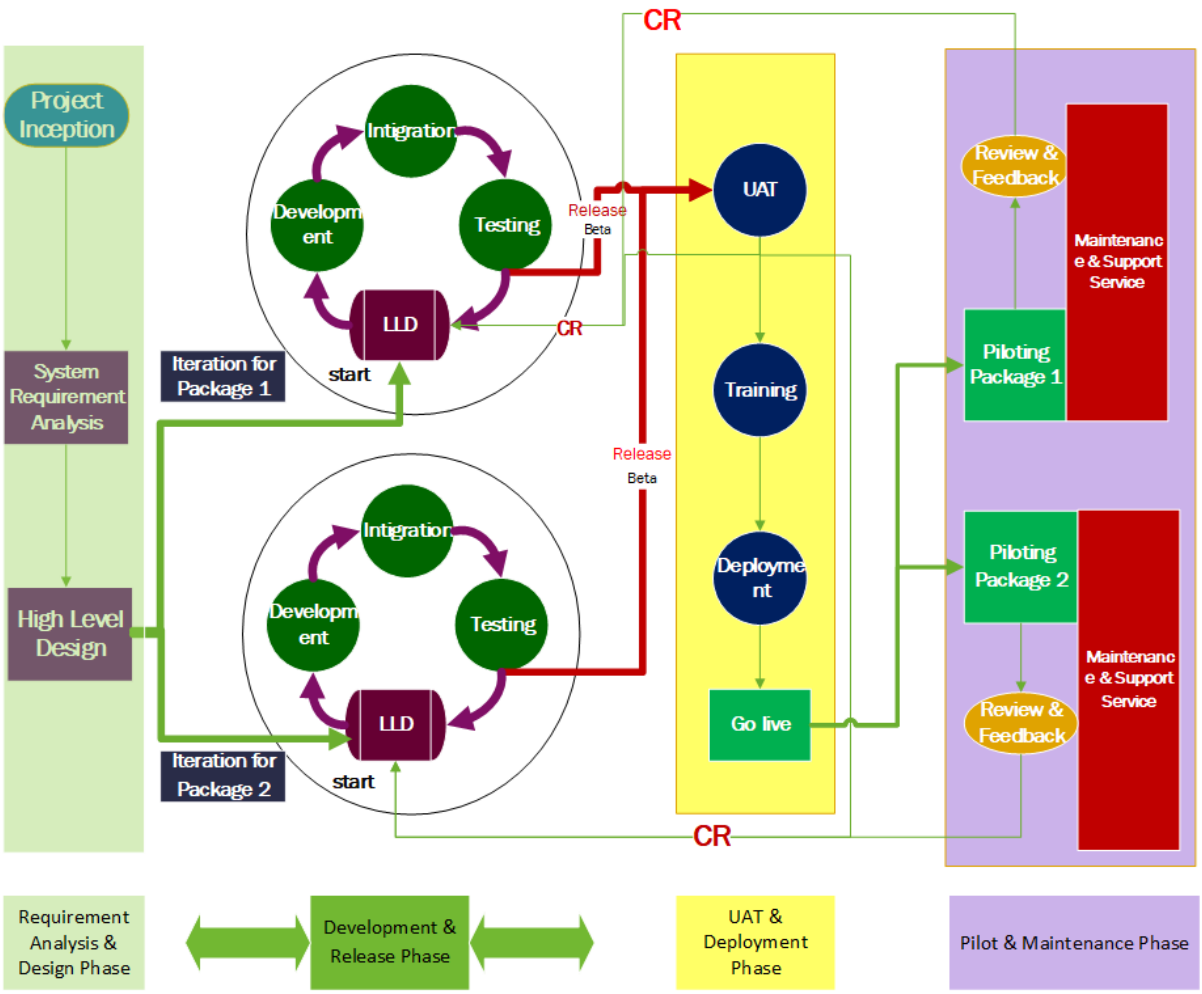


Figure: Hybrid SDLC Methodology

Why Use this Methodology for this Project?

- **Responsiveness to Clients**— You can provide items to your consumers nearly instantly and be more flexible when you operate in short, frequent development cycles.
- **Lower Cost of Development**— Agile and Scrum have shown to be more efficient and economical. Because smaller units can be more successfully tested by the people who produced them, developers can wear multiple hats and are more adaptable. The elimination or reduction of specialized roles ultimately results in cost savings.

- **Job Satisfaction**— The Project Authority feels that extra rush of fulfillment when a product is finished and leaves the building by delivering them quickly. Every Project Authority is familiar with the satisfaction of launching a product twice a year, but with this process, Project Authorities may experience that same joy twelve times every year.
- **More Immediate Returns**— Customers now praise businesses much more frequently than twice a year. Furthermore, features can be released more frequently than the twice-yearly requirement that would attract new consumers, and urgent requests can be accommodated as part of the expedited delivery plan.

Chapter 5

Body of the Project

5.1 Work Description

This phase will mark the beginning of the SDLC process. A kick-off meeting involving We, the project authority, and the pertinent stakeholders will mark the beginning of the project. At this stage, the whole project scope specified in the TOR will be thoroughly explained, the boundaries of the requirements will be established, a preliminary project implementation timeframe will be addressed, as well as the format and content structure of the project management plan. We will provide a thorough and complete project management plan, along with a power point presentation and hard copies of the required documentation, for the Project Authority's approval at the conclusion of this step. Only the phase will advance to Step-2 after receiving approval of the project management plan.

Product Owner: The person who has a solid understanding of the product's business value is the Product Owner (for this project, that person is PROJECT AUTHORITY). They don't handle the technical aspects of development; instead, they communicate the customer/stakeholder demands to the project team. The user stories are prioritized and written by the product owner as well.

The project owner's main duty is to speak for the project's vision and objectives to all potential end users. By virtue of this representation, project owners oversee making important choices about the course of the project and supplying all necessary needs, either on their own or with the assistance of subject matter specialists.

Subject Matter Experts: A subject matter expert (SME) is primarily responsible for providing requested needs to the development project team during iteration planning meetings or via ad hoc

requests throughout an iteration. Throughout the project, a SME representative should be available for software testing and present at all review and planning sessions that are pertinent to their day-to-day duties. These project positions may or may not represent individuals. Even though it's desirable to have a distinct person or persons play each of these responsibilities throughout a project, it's not always achievable. You require at least two individuals to represent the creator and consumer roles, respectively.

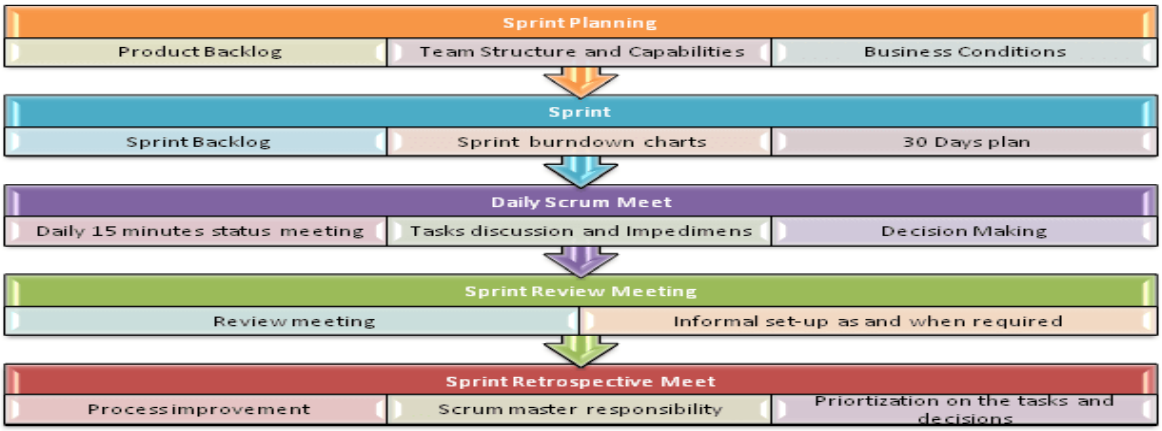
Scrum Master: The Scrum Project Team's work is facilitated by the Scrum Master, also known as the Project Manager. To remove barriers and avoid distractions, the Scrum Master collaborates with the Product Owner and the development project team. The Scrum Master filters all non-Project Team communications to the development project team. (Scrum Project Teams occasionally get together for a "Scrum of Scrums," typically with the Scrum Masters from each Project Team.)

Development Project Team: Making sure that everyone on the project team is knowledgeable about and at ease with the project process is the Scrum Master's main duty. We frequently engage with clients that may not have previously been a member of a software development Project Team because we are using this methodology on somewhat large bespoke development projects. It is crucial that each member of the project team understands the procedure, which may necessitate repeated reminders over the course of the project.

All technical development duties are carried out by the development Project Team. Based on the user stories and user story priority, the cross-functional project team oversees analysis, design, creation of code, testing, technical communication, etc. The developer's main duty is to create the software at the right velocity and according to the iteration meetings' plans, as described in the feature list. During iteration planning and iteration review, developers are also in charge of coordinating the thorough requirements gathering sessions and showcasing finished features.

Testers The tester's main duty is to examine and execute the project test cases as provided by the developer, and then to find and report any software flaws. Instead of doing so from a technical standpoint, the tester should evaluate the software from the perspective of the end user. Never try to fix the software while it is being tested, as you could not know what impact your changes will have on other components of the system. Even if the testers' recommendations for improving the user experience fall beyond the scope of the test case, they may nevertheless offer them to the

developer. Additional user experience feedback should only be considered if it is included in the project feature list and is financially feasible.



5.2 System Requirement Analysis

This step will start the project off by finalizing the requirements for the whole project scope from a functional standpoint.

A crucial phase of the entire SDLC is the investigation, analysis, and finalization of the proposed EMIS's requirements. It is anticipated that We will conduct in-depth requirement research and analysis for each EMIS scope listed in the TOR. In accordance with this work's scope, we will study the precise functions, procedures, records, participants, service delivery locations, and infrastructure of the concerned organization. Our main goal at this stage will be to complete the EMIS requirements in detail within the TOR and win the Project Authority's approval.

Feature Planning

In this section of our own modified requirement gathering methodology, feature planning—which resembles the classic discovery phase—is the first step in each project that we accept. The main distinction is that feature planning produces a list of user-based features that outline what users will be able to accomplish with the system or anticipate it to perform automatically after the project is finished.

The outcome of the feature planning sessions and debates is a feature list. It is merely a summary of all anticipated features that will be present in the suggested system. The list's features are each independently estimated in hours. The projected development time is the sum of those features,

but it excludes any extra expenses like meeting time, project management time, and software testing time.

Release Planning

It's time to start working once the suggested feature list and project estimate have been approved. Release planning or outlining how the project will proceed across the anticipated timetable, is the next step in the procedure. The first meeting of the actual project is when this happens. Releases are segments of the entire project schedule that last four to six weeks. A copy of the system is given to users for testing and evaluation at the conclusion of each release.

Beta testing begins after the completion of the final release, which signifies the conclusion of development. The project manager will review the feature list in advance of release planning to get a broad idea of the sequence in which feature development should take place and to explain the amount of development time anticipated for each week. Additionally, he or she should gather as much information as they can about any potential delays experienced by developers and testers, such as scheduled vacations or obligations to other projects. The project manager will be better able to lead the initial meeting and establish reasonable timeframe expectations if they have a firm grasp of this data.

Based on the agreed-upon meeting schedule, the Project Team's availability, and the anticipated amount of weekly dedicated development time, the project timetable may then be approximated and presented. The estimated project timetable should also include an additional two weeks for beta testing, according to the project manager. The project manager should make sure to let the project team know that the delivery date is merely an estimate and that unanticipated factors may, and probably will, impact the estimates after a schedule and projected delivery date have been established.

Development Tasking

The development project team will compile all notes made during the session and set out tasks for each feature after Feature Planning & Release Planning is finished. The developer will receive the most precise description of how to continue from newly created tasks because the features have been well discussed. As the iteration progresses, the developer might refer to the tasks as a technical to-do list.

To assess whether it will be possible to finish the intended development work within the iteration, the developer should then estimate each task. The developer can move things to the next iteration if it turns out that work will probably take longer than expected. Additional features may be added to the current iteration if task estimates indicate that the planned development will take less time than anticipated if there is enough time to obtain requirements from the project owner and/or subject matter experts at some point mid-iteration. In either case, any alterations to the iteration feature plan should be communicated to the entire project Team.

Having said that, tasking might not always be required. Spending extra time to write down tasks may be wasteful if features are relatively straightforward and have been thoroughly specified based on meeting notes and supporting documentation. As a planning tool for complicated features or if the developer is having trouble finishing scheduled features within iterations, the choice of whether to write tasks can be left to the developer's discretion.

There should be minimal doubt about what needs to be done to fulfill each feature by the time development takes place during the iterations. Expectations of what will be evaluated at the next meeting should not exceed a fair amount of work because the features are planned into iterations based on available hours and feature estimations. Additionally, when actual development starts, the developer should have access to either thorough meeting notes for the scheduled features or tasks that were produced right away after the planning session. The project owner and SMEs have open lines of communication that the developer can use to get clarifications if they have any questions regarding a specific feature.

Requirements Identification & Analysis:

- Evaluating all requirements documents applicable to the client's organization or operation, determining which requirements apply and to what degree they apply, and recommending how clients can best implement those requirements within their own management framework.
- Summarizing existing client procedures and mapping them to the controlling directives and orders in a Required Implementation Matrix to illustrate their degree of compliance.
- Recommending what new system controls and implementing procedures are needed.

Program Development:

- Determining quality assurance requirements applicable to the operation
- Evaluating existing quality achieving and quality assuring activities
- Preparing quality assurance plans or program descriptions to integrate requirements with existing controls

- Determining the need for new and/or revised procedures and assisting in preparing them.
- Establishing a graded approach, where appropriate, to apply more extensive controls to high-risk activities.

Implementation:

- Implementing quality assurance programs in accordance with applicable standards
- Providing implementation documents such as: Quality assurance program descriptions, plans, and procedures
- Evaluation and assessment plans
- Schedules

Evaluation and Assessment:

- Identifying requirements, developing schedules, assisting in evaluations independently or as a Project Team, documenting and analysing results, evaluating, and tracking corrective actions, analysing quality trends, and developing program improvement plans
- Conducting assessments, audits, surveillances, reviews, appraisals, and procurement surveys
- Assisting in managing and coordinating corrective action programs in response to evaluations and assessments
- Throughout the process of quality assurance program development and implementation, we obtain and encourage full participation from client's operating personnel and management. Our approach fosters Project Team building, which results in increased quality awareness and assures our client's ultimate success.

5.2.2 Functional & Non-Functional Requirements

Functional Requirements –

- Need Student Portal as per our OEMS
    - Student Profile view, edit and report download.
    - Individual Result report can see.
    - Fees Payment, Payment History, money receipt download, fees book download.
    - Attendance info. View.

- Need Attendance Module as per our OEMS
    - Academic Calendar Setup
    - Course wise Attendance taken panel as per us.
    - Reports

- On Fees collection panel there should be added
    - POS/Live collection panel
    - Fees Book (Design is given)

- User Management Role Assign panel as per our OEMS

- Bangla & English entry field need in a single panel.
- Student Photo need to mandatory only, not father & mother photo.
- For the Music there should be Theoretical & Practical under the 60 Marks

Non-Functional Requirements –

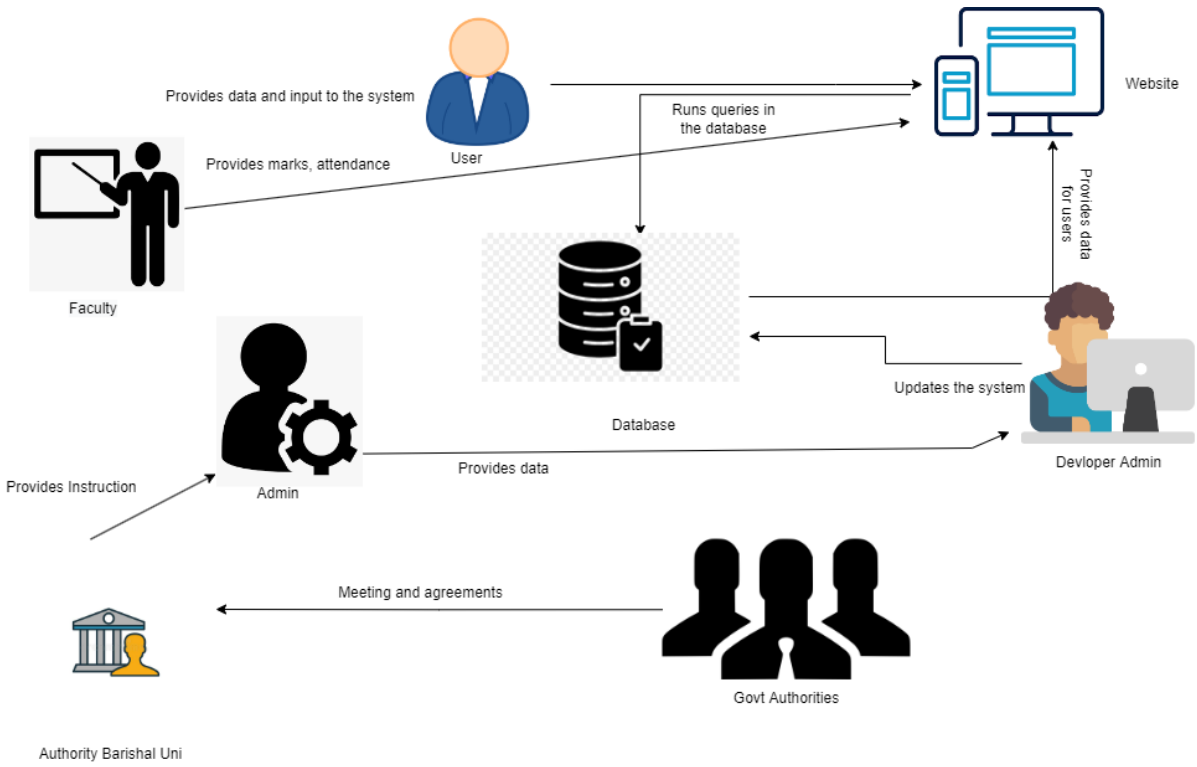
- **Operational -** The system should run all PCs with windows 7 or higher version of OS.
- **Security -** The system will be secured with a password. So, only authorized persons will be able to gain access into the system.
- **Usability -** The website should be pleasant to use. It is user-friendly, even non-technical user can easily use the platform.

5.2.3 Other Requirements

1. One result calculation on Final total should be ceiling.
2. On Tabulation Sheet report for Final Exam, deviation more than 20% should be mentioned by red colour.
3. Transcript and Transcript Details report should be in a single report named Transcript details.
4. Admit Card Format they will provide.

5.3 System Analysis

Rich Picture



5.3.1 Six Element Analysis

	System Roles					
Process	Human	Non-Computing Hardware	Computer Hardware	Software	Database	Comm & Network
Create Report	Admin	N/A	Computer, Smart Phone	Web browsers	MySQL	WAN/LAN
View Report	User	N/A	Computer, Smart Phone	Web browsers	MySQL	WAN/LAN
Upload Results	Admin	N/A	Computer, Smart Phone	Web browsers	MySQL	WAN/LAN
Delete Entry	Admin	N/A	Computer, Smart Phone	Web browsers	MySQL	WAN/LAN
Place Entry	User	N/A	Computer, Smart Phone	Web browsers	MySQL	WAN/LAN

Manage Entry	Admin	N/A	Computer, Smart Phone	Web browsers	MySQL	WAN/LAN

5.3.2 Feasibility Analysis

Given that a feasibility analysis evaluates a project's prospects of success, the study's perceived neutrality is a crucial component of its credibility with prospective lenders and investors. It establishes the project's viability from a moral, philosophical, and economical standpoint as well as whether it is desirable to invest in.

For this project, feasibility studies are being considered:

- **Technical feasibility –**
  The technical resources accessible in our organization are the subject of this assessment. It helps in examining whether technical resources are sufficient and whether the technical experts can convert ideas into functional solutions for the website. The proposed system's hardware, software, and other technical needs are also evaluated for technical viability.
- **Economic feasibility –**

  The cost and advantages of this website have been evaluated in this section. On the website, there are no hidden expenses for users.
- **Operational feasibility –**

  When the pandemic was going on and the current economic circumstances, going out for anything is now highly risky. With the help of our website, Students and teachers can properly maintain their academic reasoning.
- **Legal Feasibility–**

  All legal restraints, including data protection acts, social networking regulations, zoning laws were evaluated before moving forward with this project to ensure that it would not face any legal complications in the future.

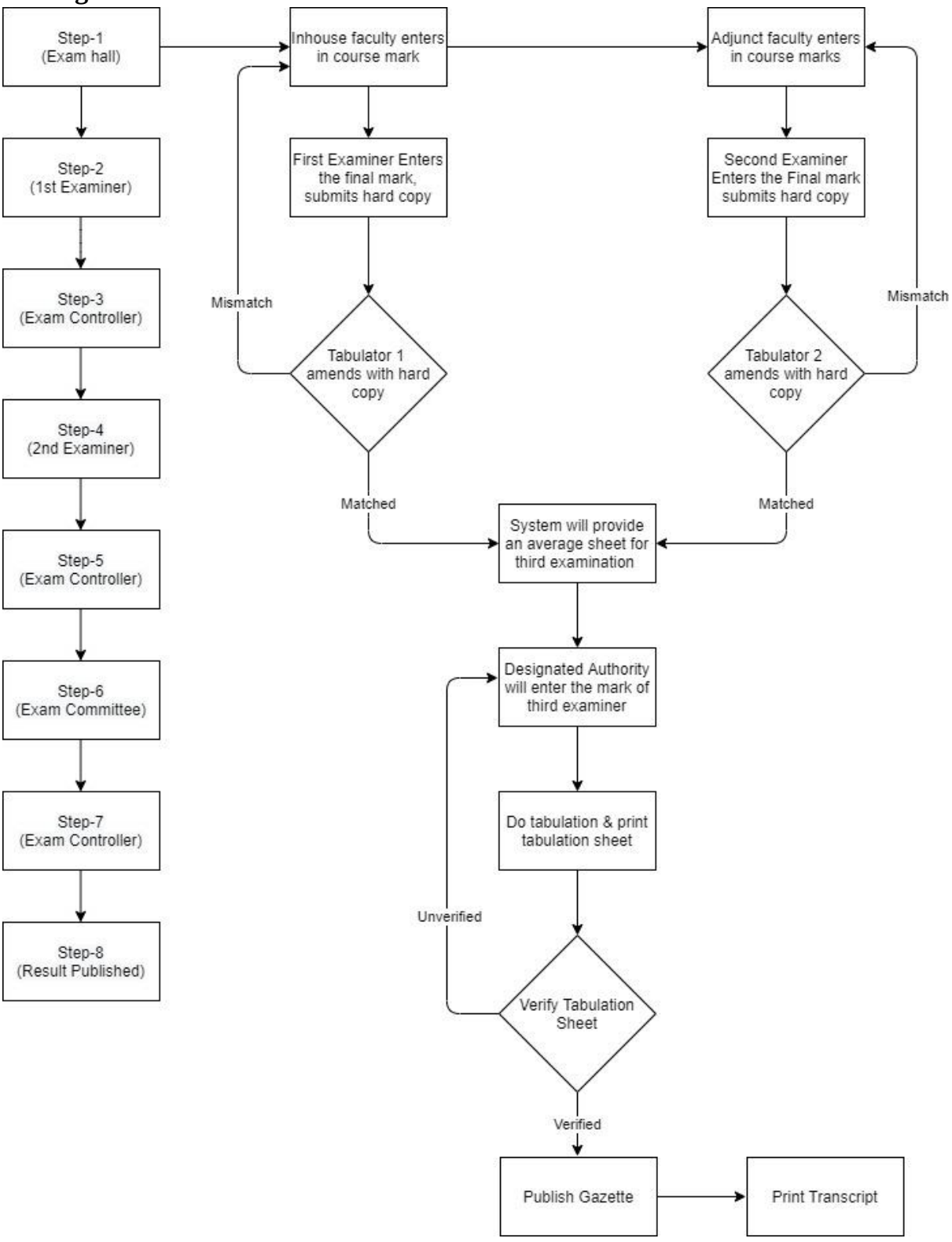
5.3.3 Problem Solution Analysis

There were several problems that were encountered while completing the projects and they were solved

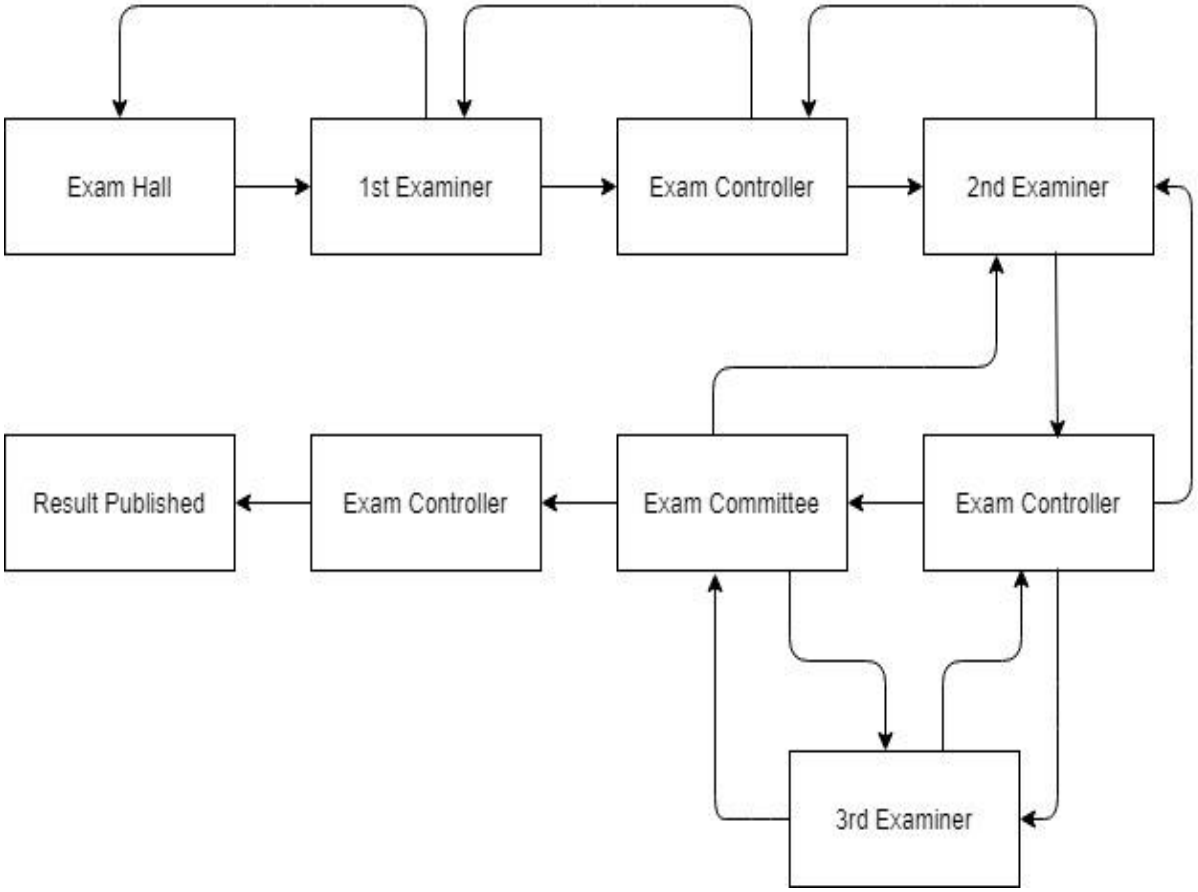
accordingly. Some of the problems were –

1. **Responsive Website:** Making the website responsive for all devices was a great challenge. This problem was solved by using Bootstrap5 and custom CSS.
2. **Page Load Issue:** Another issue that was faced while browsing the website was page loading and it was resolved with compressing the image and getting a new host.

5.4 Logical Functionalities of EMIS



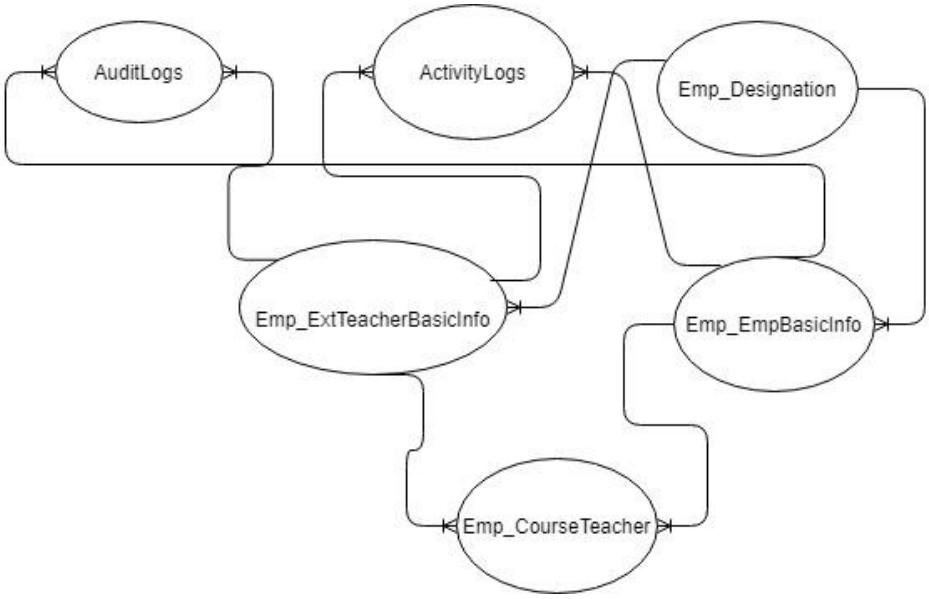
5.4.1 Process Flow of EMIS



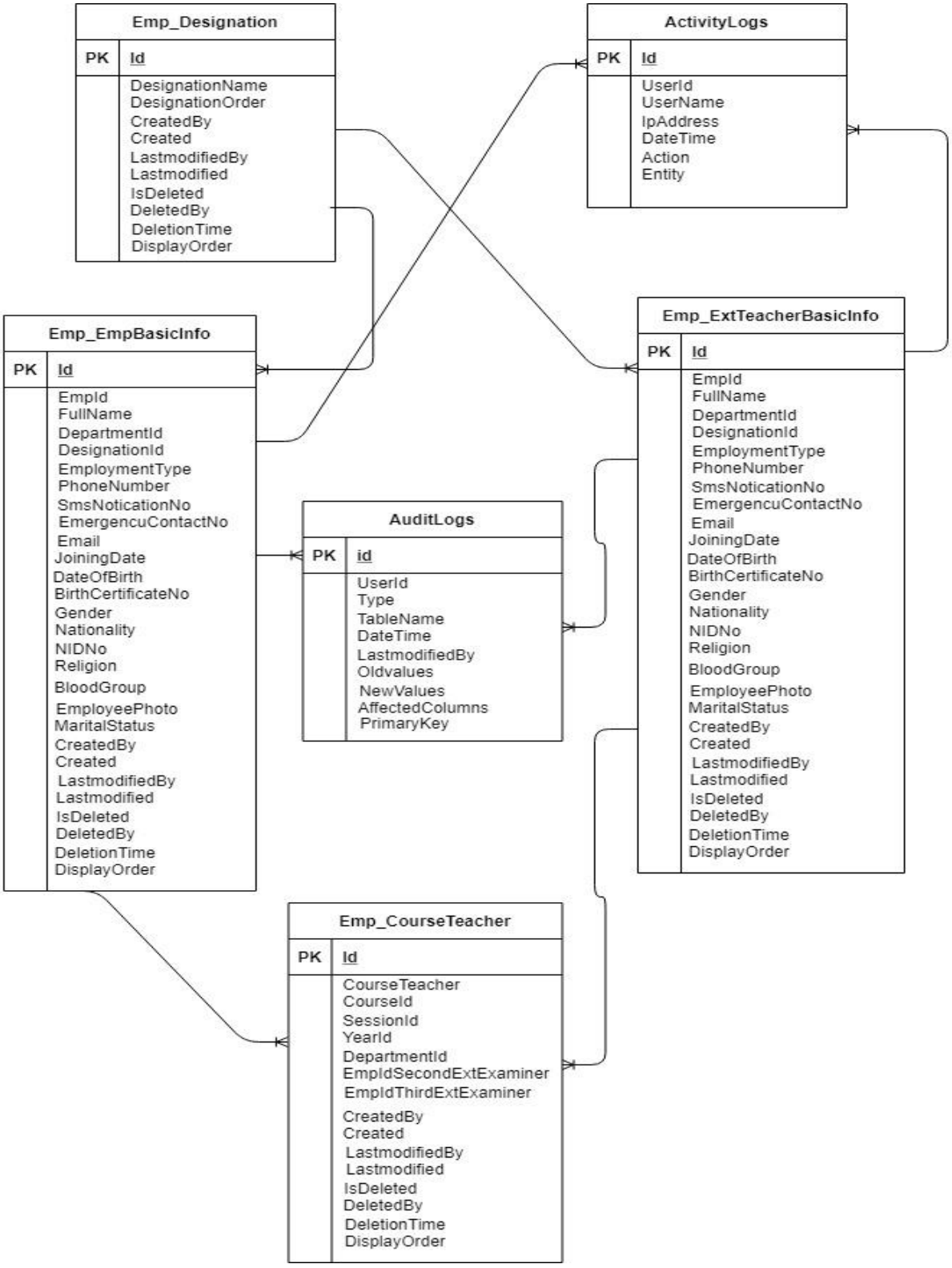
5.4.2 Logical Design of EMIS

Module Name: Employee

Employee ERD:

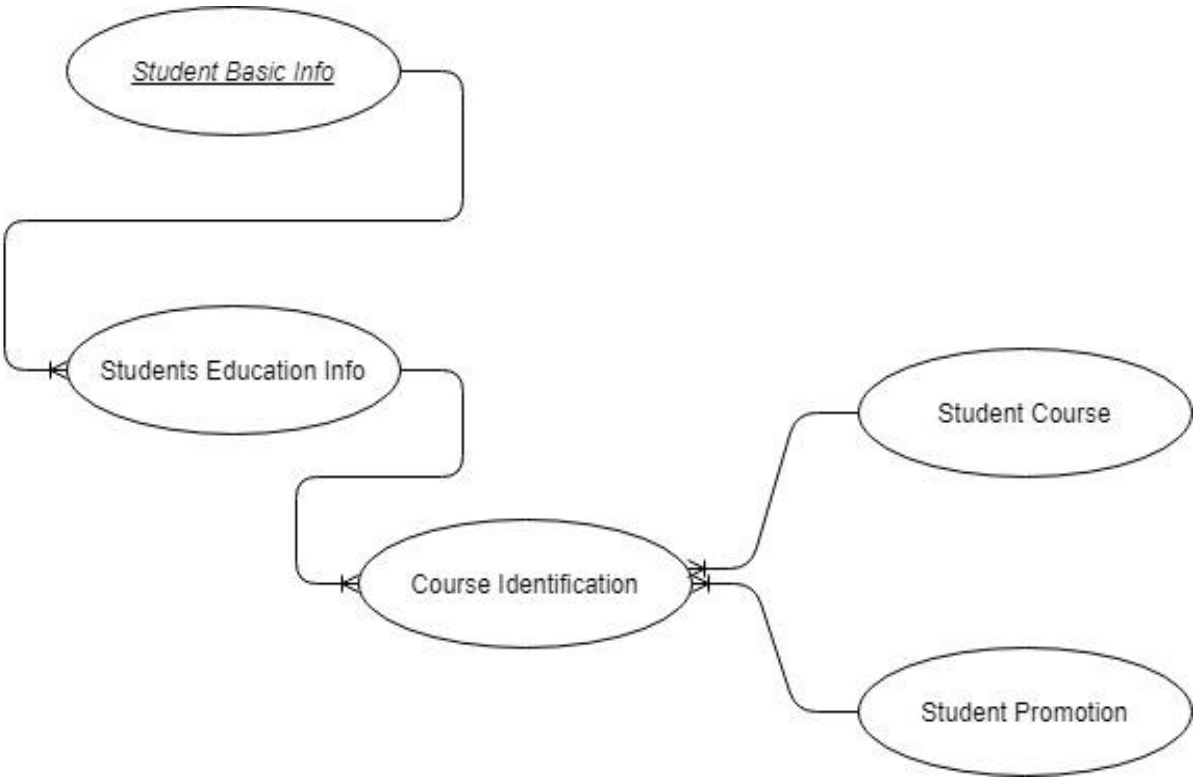


Employee Class Diagram:

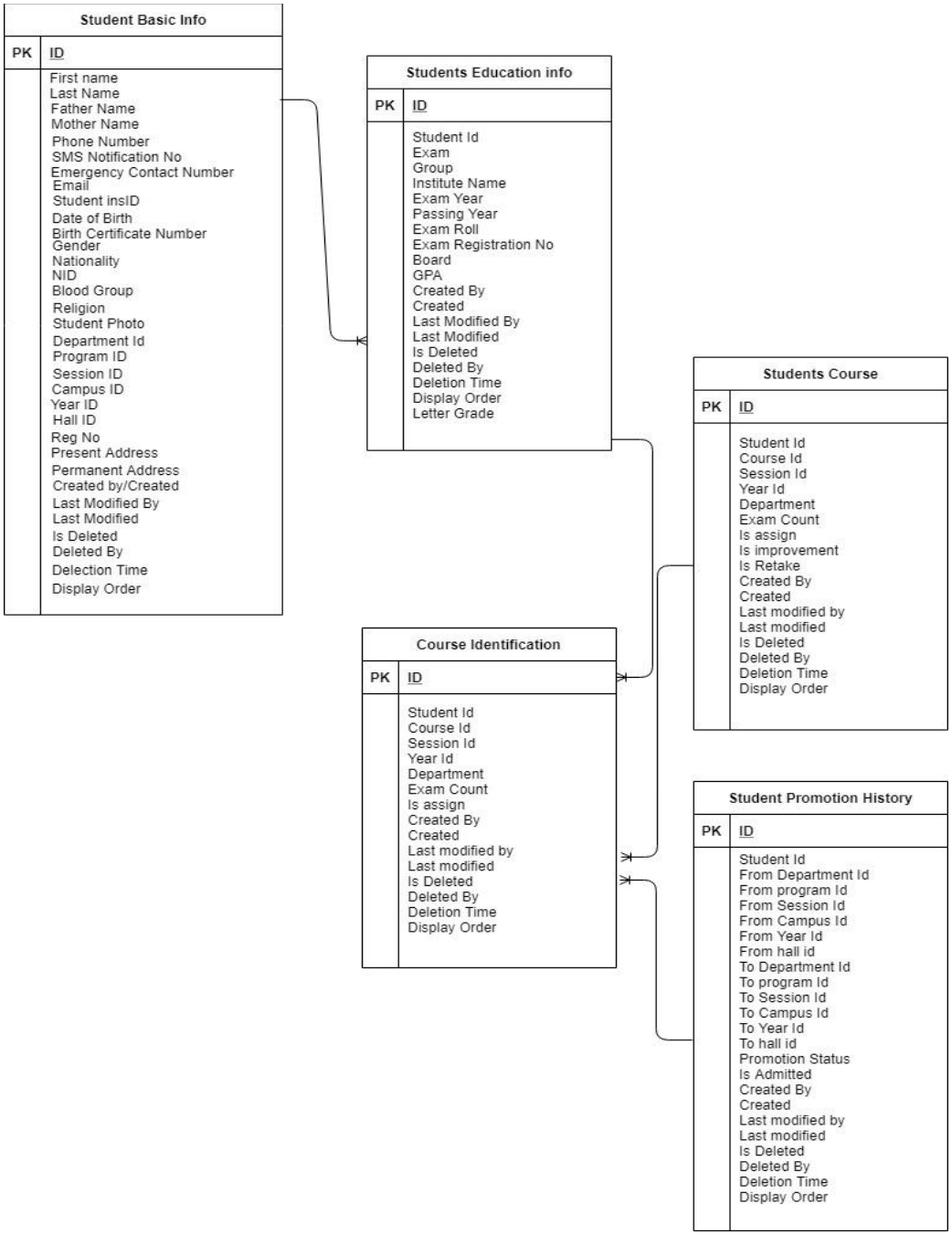


Module Name: Student

Student ERD:

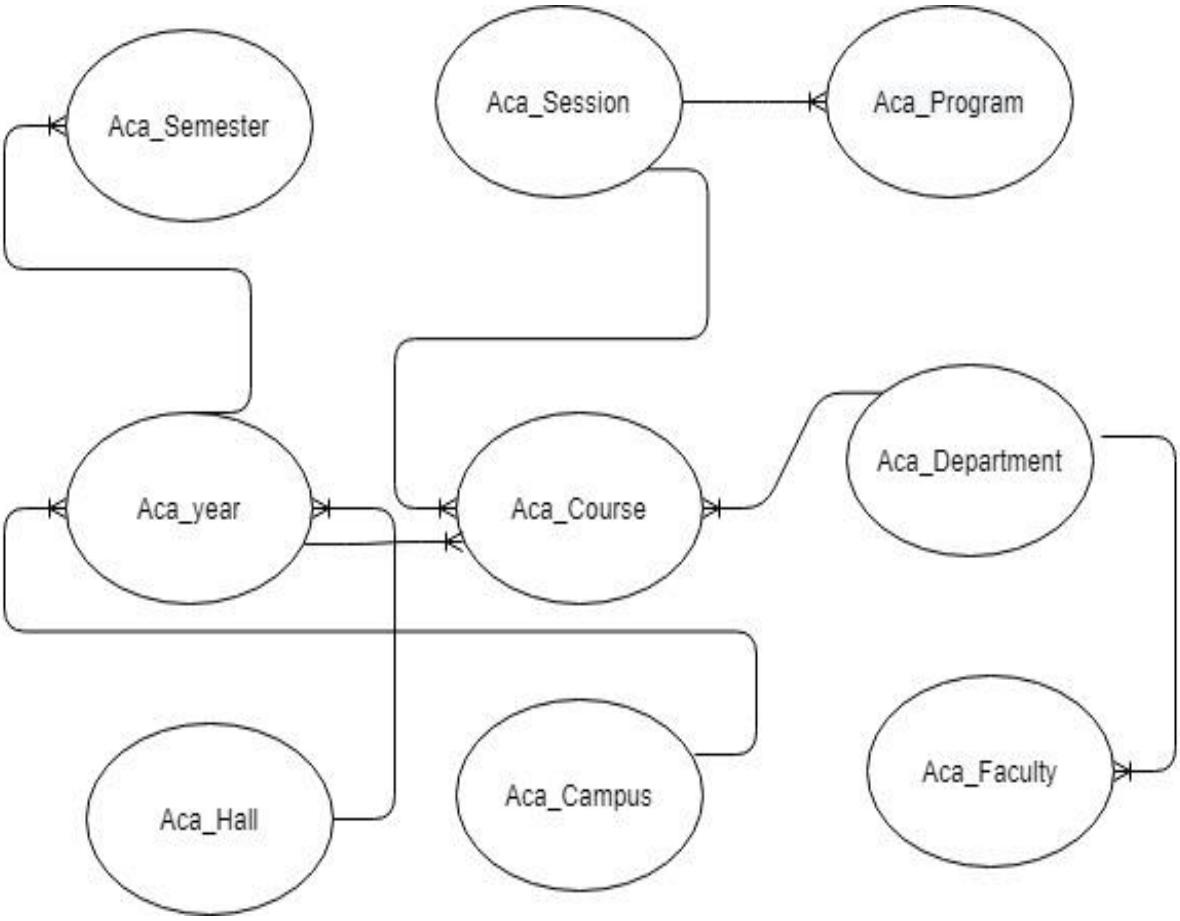


Student Class Diagram:

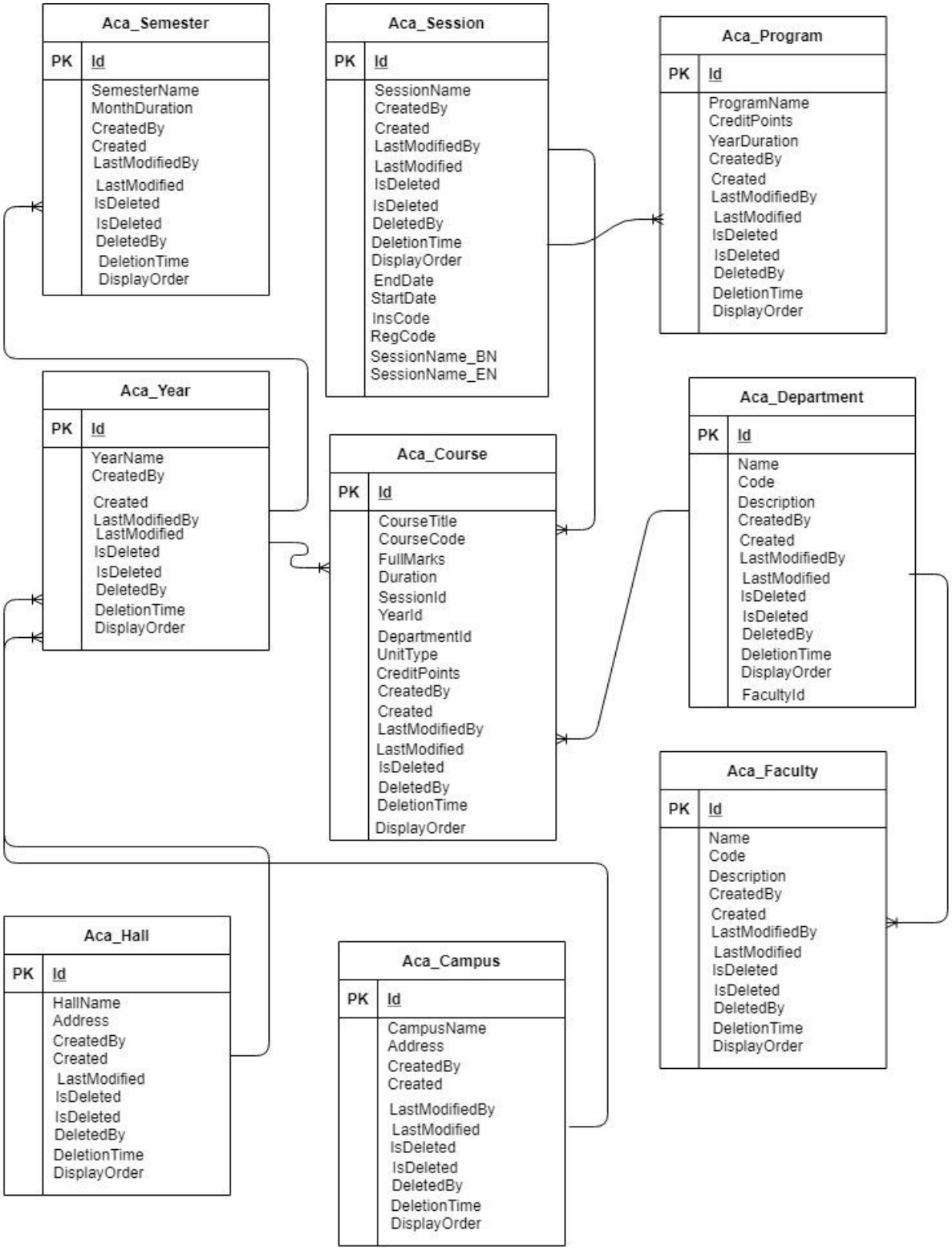


Module Name: Academic

Academic ERD:

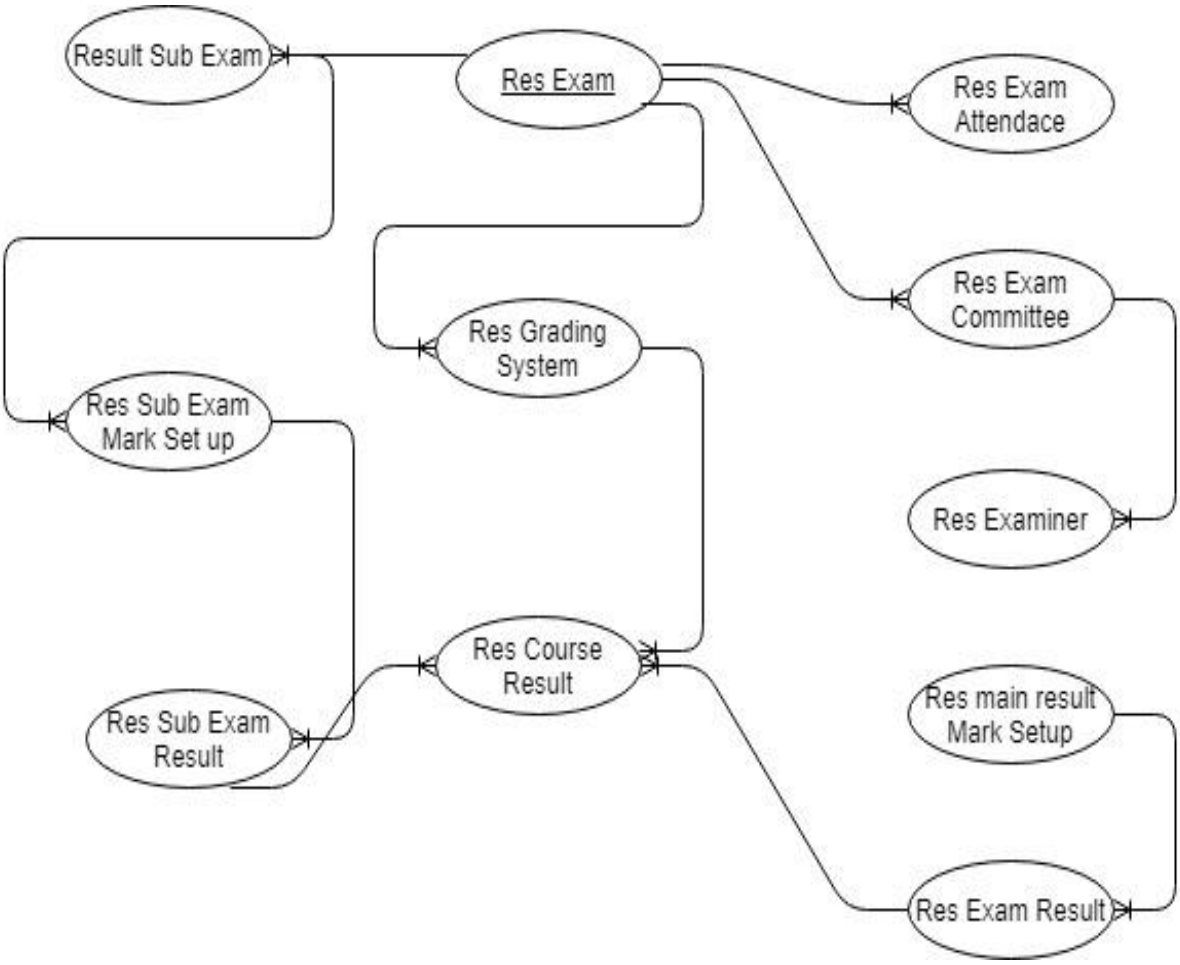


Academic Class Diagram:

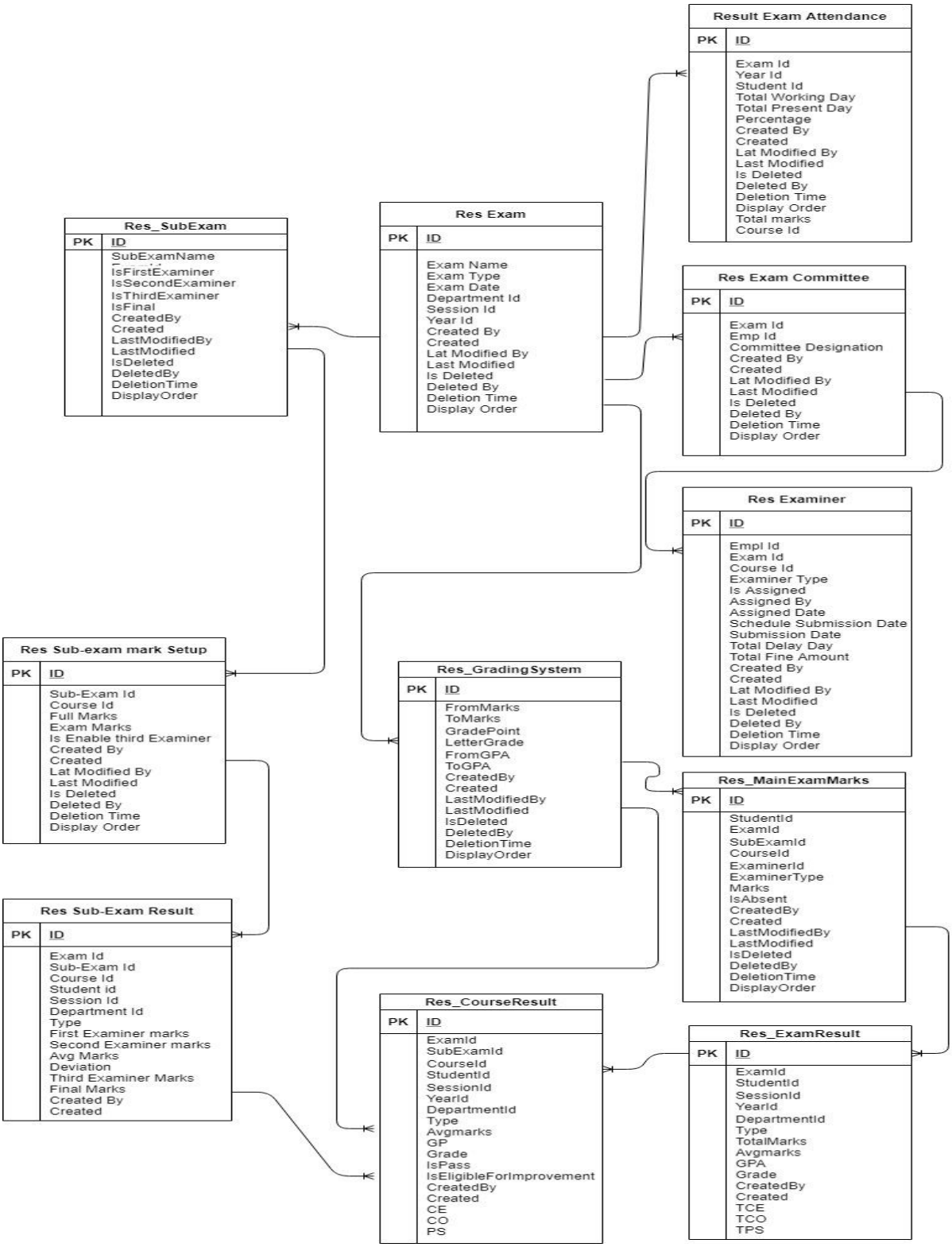


Module Name: Result

Result ERD:

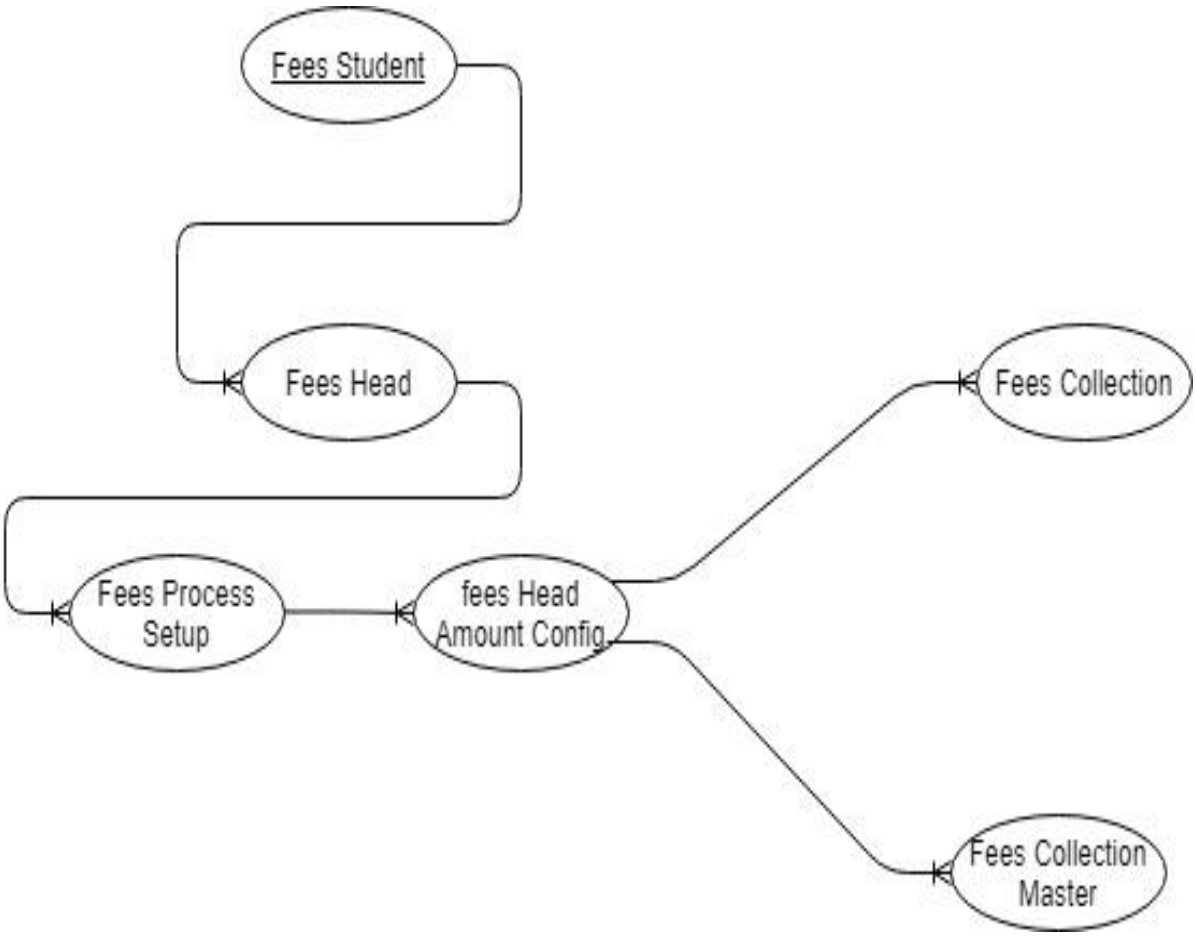


Result Class Diagram:

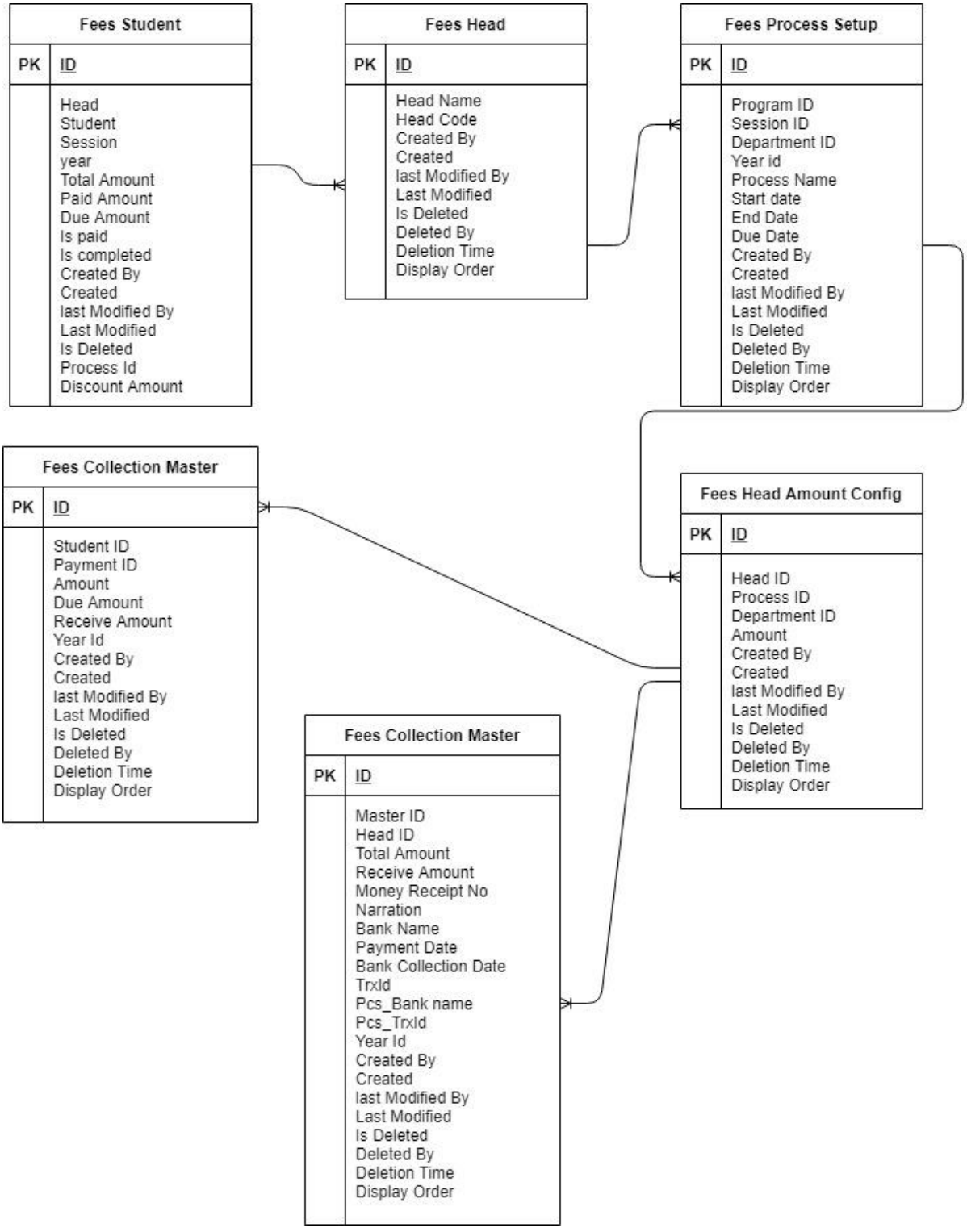


Module Name: Fees

Fees ERD:

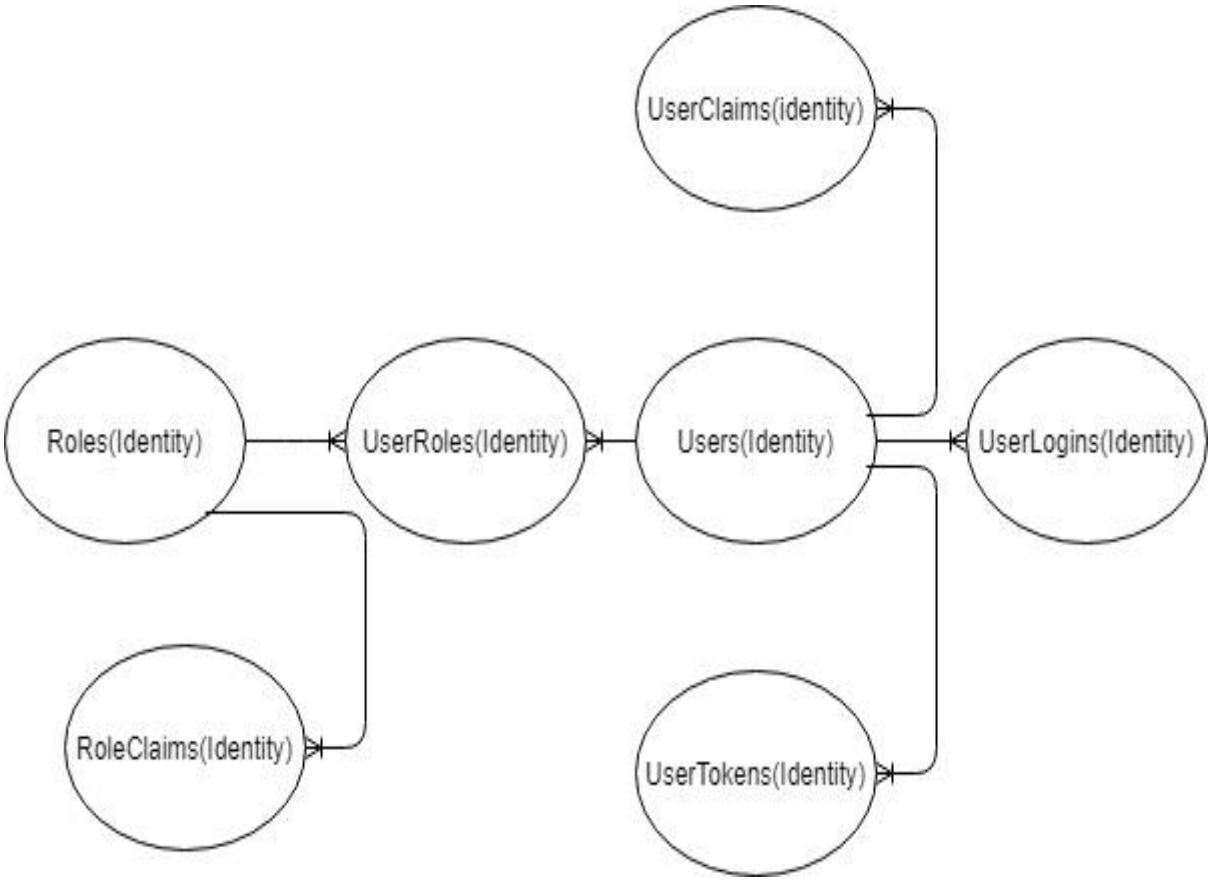


Fees Class Diagram:

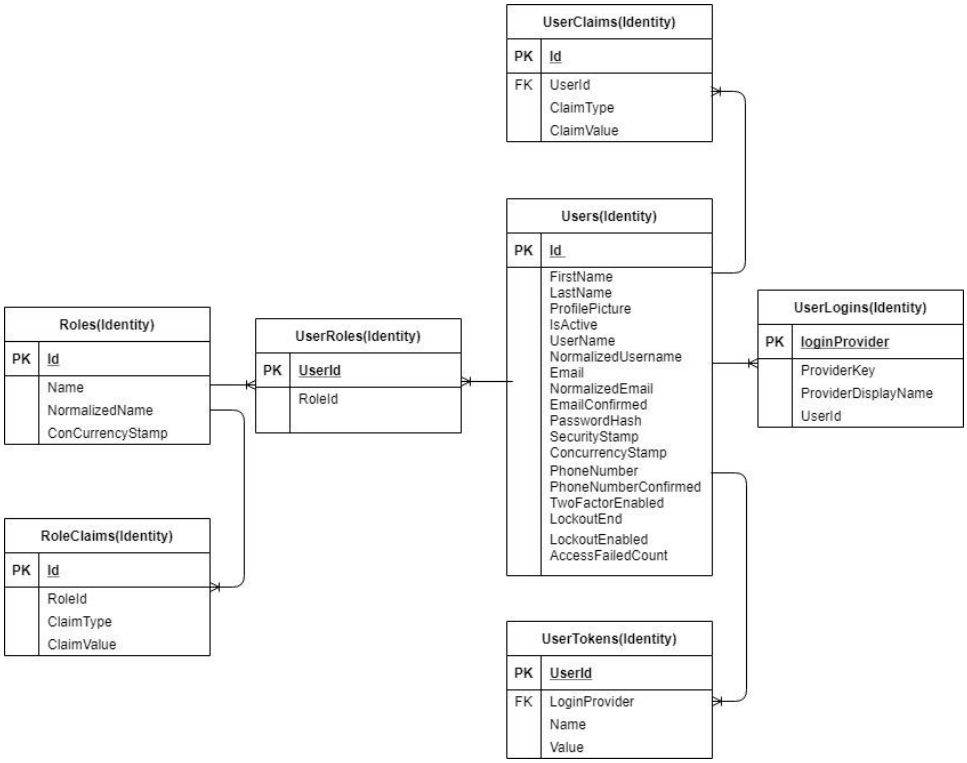


Module Name: Admin Setting

Admin Setting ERD:



Admin Setting Class Diagram:



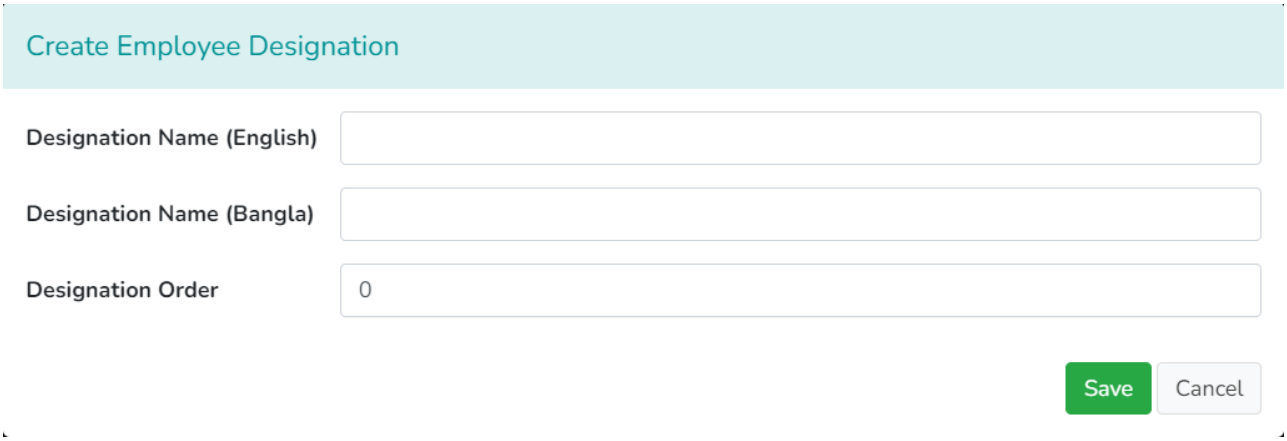
Employee Module

Module Name: Employee	
Description: In Employee Module, user can add designation, add employee, check employee list, can add external teacher, see external teacher list and can assign course teacher.	
Form List	**Short Description**
Designation	User can add designation and can check new and existing designation names
Employee Quick Add	User can add employee providing required information
Employee List	User can check new and existing employee list
Ext Teacher Quick Add	User can add external teacher providing required information
External Teacher List	User can check new and existing external teacher list
Course Teacher Assign	User can assign course to respective teacher

Users	Vice Chancellor, Exam controller, Chairman, Teachers, Exam Committee Chairman, Academic Committee

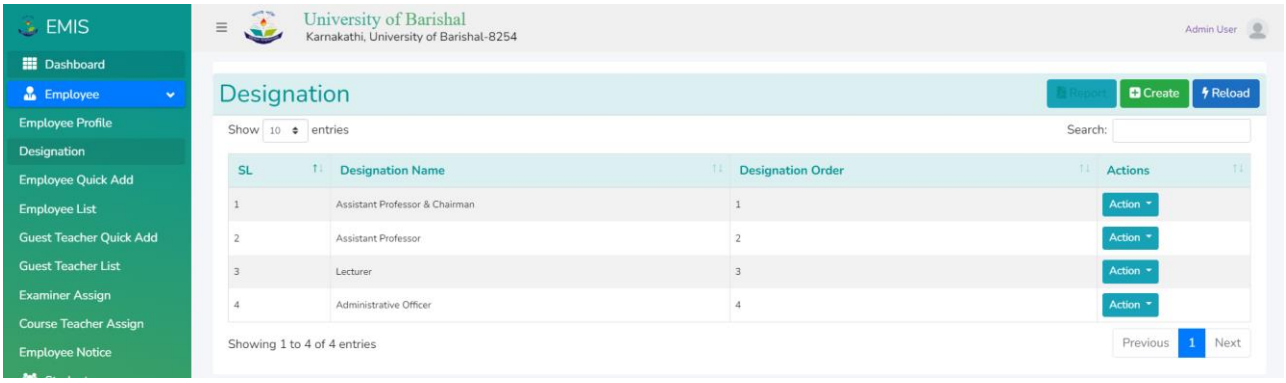
1.Designation: Clicking on "Designation" will navigate to employee designation page. New designation name can be added from create option. Newly added and existing designation name can be viewed with search option. Moreover, existing designation names can be edited or deleted from action button.

Create Employee Designations			
Attribute	**Type and Size**	**Input Type**	**Remarks**
Designation Name	STRING (50)	Text Field	Primary key
Designation Order	INT (50)	Counter	Serial Number
Buttons: 1.Save 2.Cancel			



Employee Designation View			
Attribute	**Type and Size**	**Input Type**	**Remarks**
SL	INT (50)	Label	Data View
Name	STRING (50)	Label	Data View

Order	INT (50)	Label	Data View
Buttons: 1.Actions -> Edit 2.Actions -> Delete			



Students Module

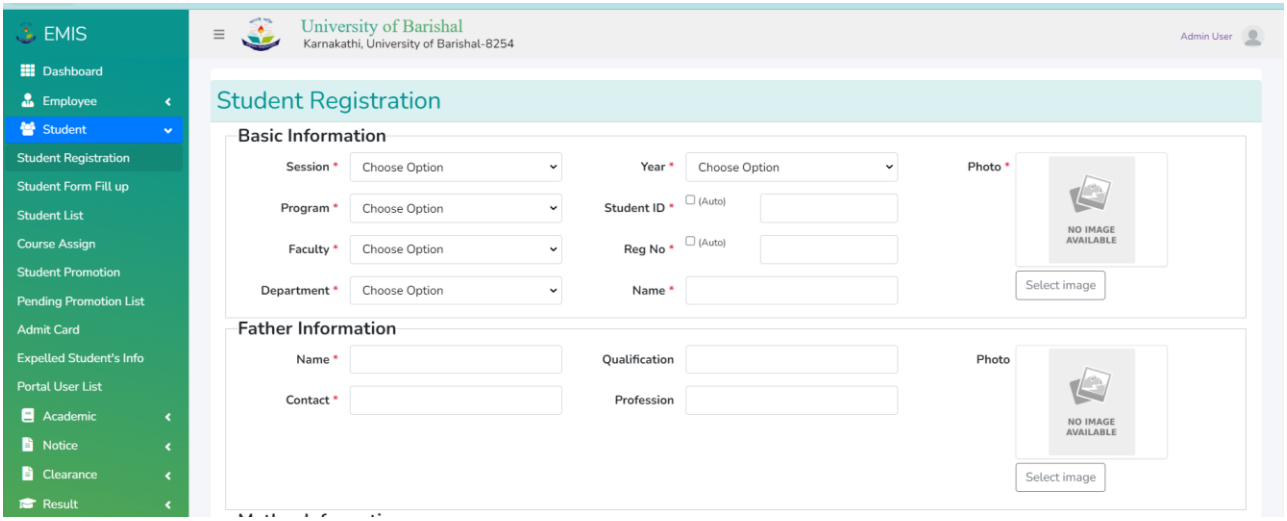
Module Name: **Student**	
Description: In this Student Module, User can Add students, can check students lists, can assign course with students promotions with pending list and Admit cards.	
Form List	**Description**
Student Quick Add	Can add students with providing required information
Student Lists	can check new and existing lists
Course Assign	Can assigned course to respective individuals
Student promotion	Student promotion related information
Pending Promotion List	Pending lists of promotion seekers
Admit Card	Views Admit cards of students
Users: Vice Chancellor, Exam controller, Chairman, Teachers, Exam Committee Chairman, Academic Committee.	

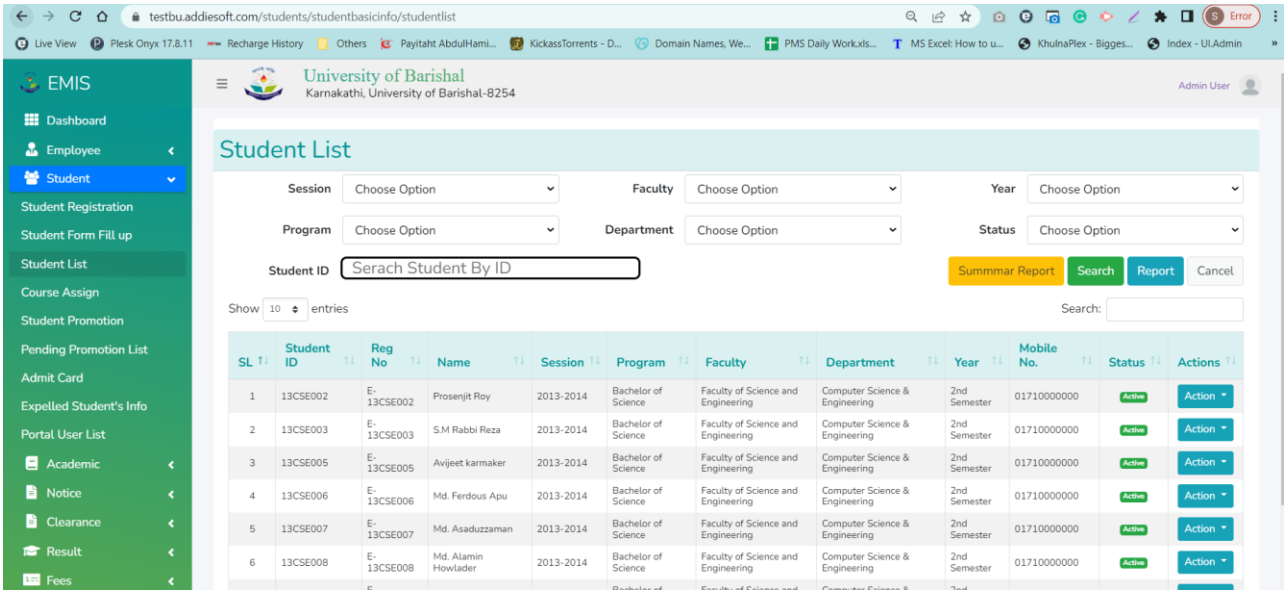
1.Student Quick Add:

Clicking on “Student” that will navigate to its destination page. It will expand the layout and will show the different attributes and its input type.

Students Quick Add			
Attributes	**Type & Size**	**Input Type**	**Remarks**
Session	Int (50)	Drop Down List	Primary
Program	String (50)	Drop Down List	
faculty	String (50)	Drop Down List	
Department	String (50)	Drop Down List	
Campus	String (50)	Drop Down List	
Student I’d	Int (50)	Check Box	
Registration No	Int (50)	Check Box	
First name	String (50)	Texted Field	
Last Name	String (50)	Texted Field	
Father Name	String (50)	Texted Field	
Mother Name	String (50)	Texted Field	
Phone Number	Int (50)	Text Field	
SMS notification No	Int (50)	Text field	
Email	String (50)	Texted Field	
Photo	File	File	
Date of Birth	Date time	Date Time	
Nationality	String (50)	Drop down List	
Religion	String (50)	Drop down List	
Gender	String (50)	Radio Box	
NID	Int (50)	Text Field	Unique
Blood Group	String (50)	Drop Down List	
Hall	String (50)	Drop Down List	
Buttons:			

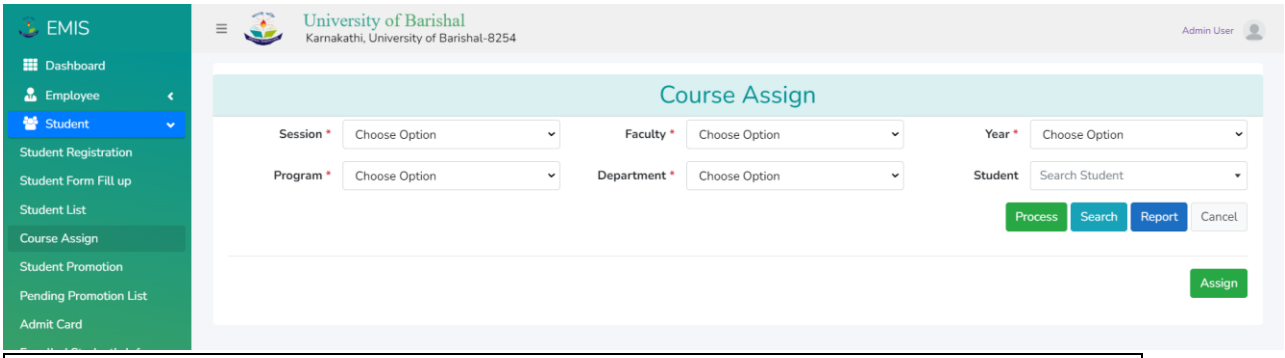
1) Save
2) Cancel





2) Course Assign:

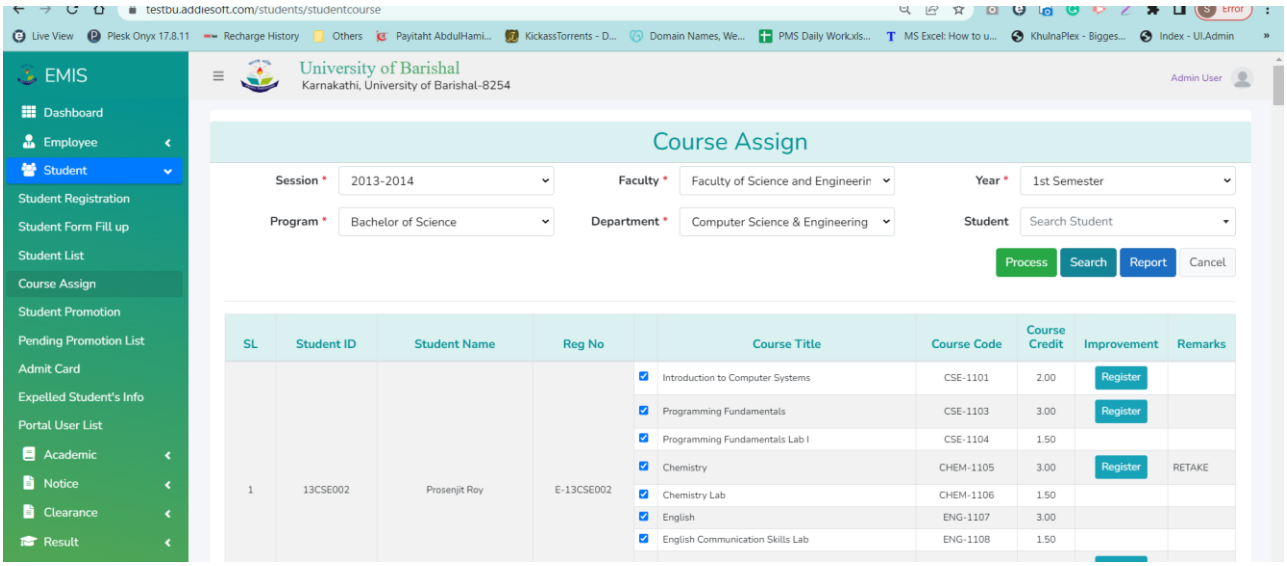
Clicking on “Course Assign” that will navigate to its destination page. It will expand the layout and will show the different attributes and its input type.



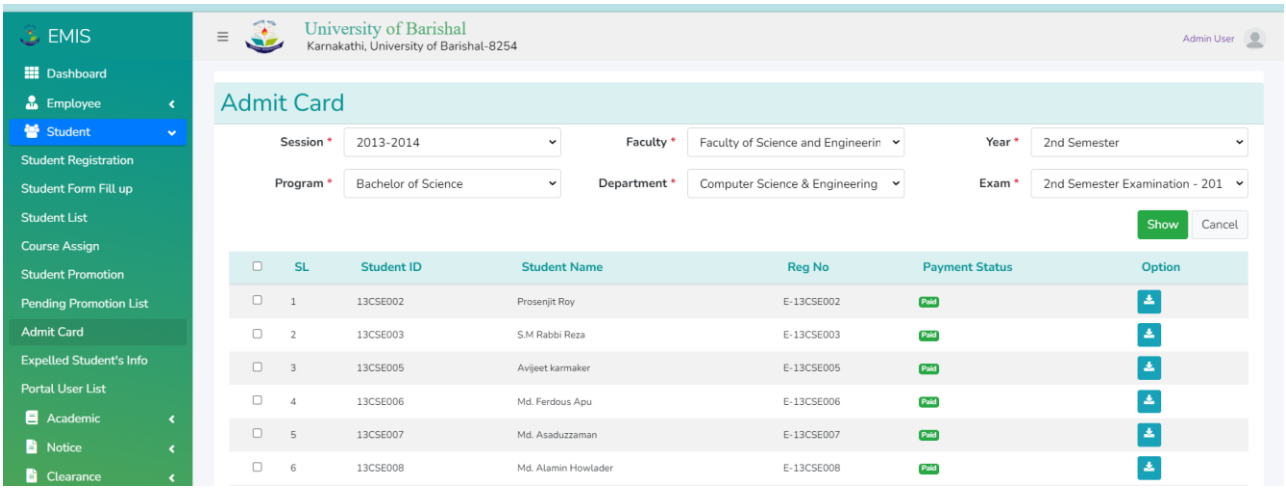
Student Course Assign Search View			
Attribute	Type & Size	Input Type	Remarks
Session	Int (50)	Drop Down List	Data View
Program	String (50)	Drop Down List	Data View
Faculty	String (50)	Drop Down List	Data View
Department	String (50)	Drop Down List	Data View
Year	Int (50)	Drop Down List	Data View
Buttons: 1.Process 2. Search 3.Report 4.Cancel			

Student Course Assign View			
Attribute	**Type & Size**	**Input Type**	**Remarks**
Serial No	Int (50)	Label	Data View
Student id	Int (50)	Label	Data View
Student Name	String (50)	Label	Data View
Registration No	Int (50)	Label	Data View
Check Box		Label	Data View
Course Details	String (50)	Label	Data View

Improvement	String (50)	Label	Data View
Credits	Int (50)	Label	Data View
Buttons: 1) Assign			



Academic Module



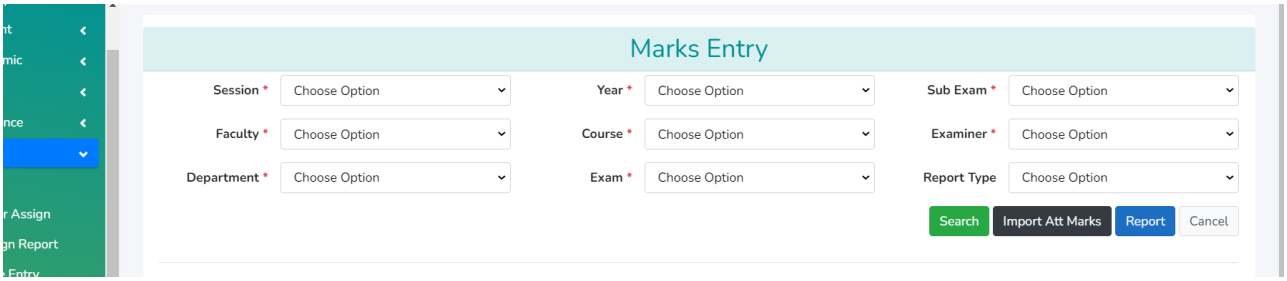
Module Name: Academic
Description: In Academic Module, user can add and view session, program, department, year , course, campus,hall and can generate reports.

Form List	**Short Description**
Session	User can add session and can check new and existing session names
Program	User can add program and can check new and existing program names
Department	User can add department and can check new and existing department names
Year	User can add year and can check new and existing year names
Course	User can add course and can check new and existing course names
Campus	User can add campus and can check new and existing campus names
Hall	User can add hall and can check new and existing hall names
Report	User can generate different types of report
Users	Vice Chancellor, Exam controller, Chairman, Teachers, Exam Committee Chairman, Academic Committee

Module Name: Result	
Description : In Result Module, user can create exam, can manage attendance entry, can manage grading system, can enter marks and result can be processed along with report generation.	
Form List	**Short Description**
Exam	User can create exam and can check new and existing exam names
Attendance Entry	User can calculate attendance marks providing required information like total working day and total present day
Exam Committee	User can create exam committee and can check new and existing exam committee names

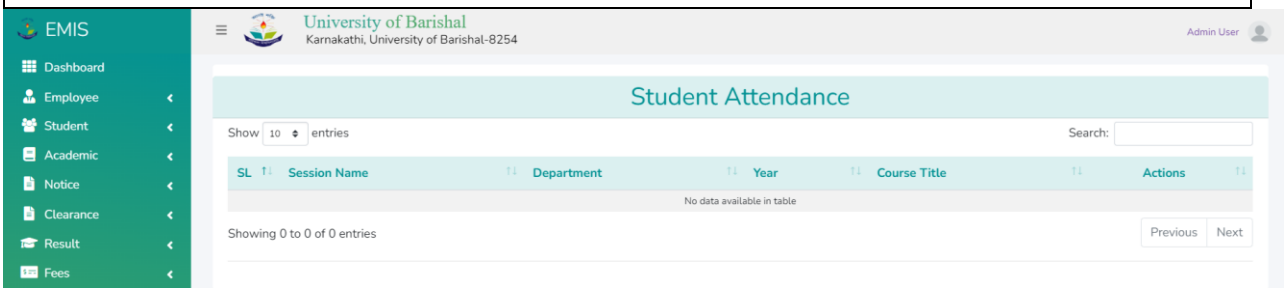
Grading System	User can create grading system and can check new and existing grading system
Marks Entry	Exam marks can be assigned to individual students subject wise
Exam Result Process	Exam result can be processed providing required information
Retake Result Process	Exam result can be processed providing required information
Generate Report	User can generate different types of reports
Users	Vice Chancellor, Exam controller, Chairman, Teachers, Exam Committee Chairman, Academic Committee

Sub Exam Mark Setup			
Attribute	**Type and Size**	**Input Type**	**Remarks**
SL	INT (50)	Data View	
Course Name	STRING (50)	Data View	
Course Code	INT (50)	Data View	
Course Full Marks	INT (50)	Data View	
Sub Exam Full Marks	INT (50)	Text Field	
Exam Marks	INT (50)	Text Field	
Buttons: 1.Save 2.Cancel			



2.Attendance Entry: Clicking on “Attendance Entry” will navigate to attendance entry page. User can calculate attendance marks providing required informations like total working day and total present day

Attendance Entry Search			
Attribute	**Type and Size**	**Input Type**	**Remarks**
Session	INT (50)	Drop-down List	
Faculty	STRING (50)	Drop-down List	
Department	STRING (50)	Drop-down List	
Year	STRING (50)	Drop-down List	
Course	STRING (50)	Drop-down List	
Exam	VARCHAR (50)	Drop-down List	
Buttons: 1.Search 2.Cancel			



Attendance Entry View			
Attribute	**Type and Size**	**Input Type**	**Remarks**
Total Working Day	INT (50)	Text Field	Text Field
SL	INT (50)	Label	Data View
Student Id	VARCHAR (50)	Label	Data View
Name	VARCHAR (50)	Label	Data View
Total Present Day		Text Field	Text Field

Total Percentage (%)		Label	Data View
Marks		Label	Data View
Buttons: 1.Save 2.Reset			

Fees Module:

Module Name: **Fees**	
Description: In this Fees Module, User can create Fees Head, can setup fees Process, can config Fees Head with individual fees process with fees collection.	
Form List	**Description**
Fees Haed	Fees Head name for head name and code
Fees Process Setup	Setup Fees Process for program,session etc.
Fees Head Config	Fees head config for setting amount
Fees Process	This sub module is for processing fees.
Individual Fees Process	Individuals can set fees process
Fees Collection	For collecting the fees.
Due Modify	For due modify
Generate Report	For Generate Reports
Users:	

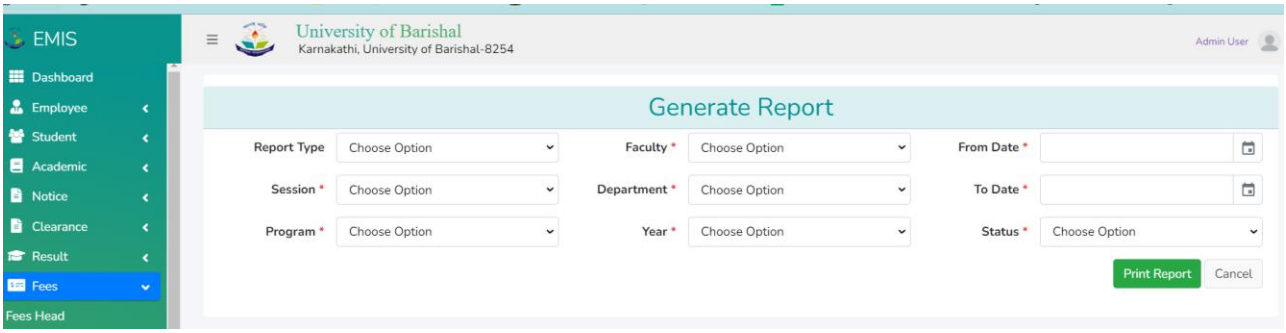
Admin Settings

Module Name: Admin Setting	
Description: In Admin Setting Module, users and roles can be created and can be viewed with search option.	
Form List	**Short Description**
Users	Users can be added and existing user names can be checked
Roles	Roles can be added and existing role names can be checked

Users	Vice Chancellor, Exam controller, Chairman, Teachers, Exam Committee Chairman, Academic Committee

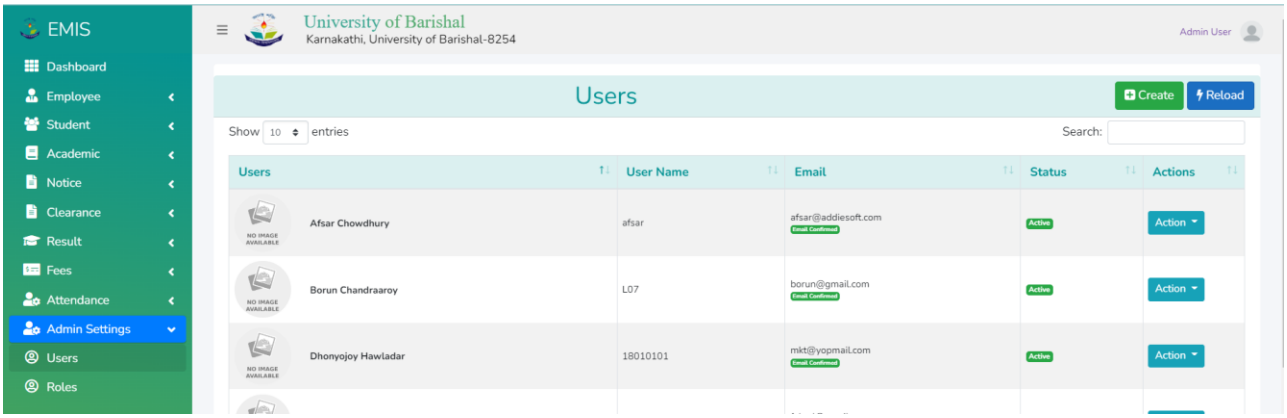
1.Users: Clicking on "Users" will navigate to users' page. New user name can be added from create option. Newly added and existing user name can be viewed with search option. Moreover, existing user profile can be viewed and their roles can be managed from Action button.

Create User			
Attribute	**Type and Size**	**Input Type**	**Remarks**
FirstName	STRING (50)	Text Field	
LastName	STRING (50)	Text Field	
Email	VARCHAR (50)	Text Field	
Password	VARCHAR (50)	Text Field	
ConfirmPassword	VARCHAR (50)	Text Field	

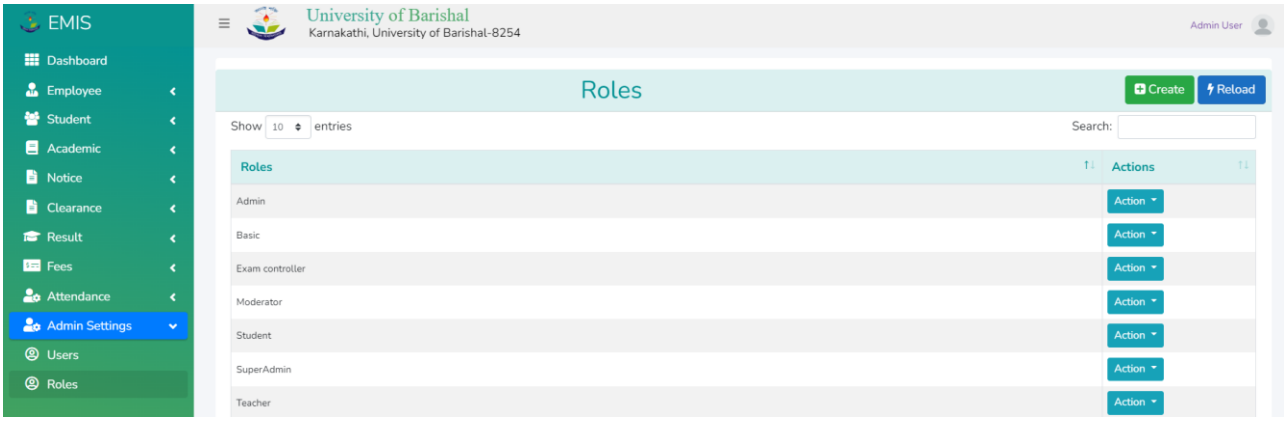


Users View			
Attribute	**Type and Size**	**Input Type**	**Remarks**
User	STRING (50)	Label	Data View
Email	VARCHAR (50)	Label	Data View
Status	STRING (50)	Label	Data View

Buttons: 1.Actions -> Profile 2.Actions -> Manage Roles			



Manage Roles			
Attribute	**Type and Size**	**Input Type**	**Remarks**
RoleName	STRING (50)	Label	Data View
Status	Checkbox	Checkbox	Data View
Buttons: 1.Save			



Chapter 6

Results & Analysis

The results section of the research paper should try to summarize the results without attempting to interpret or evaluate them. It should also serve as a guide for the discussion section. The analysis is revealed, and the results are presented. What was done with the data found in the analysis section is described by the author. Although this does not imply that data is necessary, it is vital to know what the analysis entailed to develop the analysis section. The findings section needs to have been started once the analysis was finished. When the program was tested, several issues appeared. We were able to resolve this tiny issue. Test cases were documented when these problems were fixed. Every test case has been supported by testing techniques.

6.1 Software Testing

One of the most important processes is software testing, during which it is anticipated to assess each functionality of the proposed software application with the goal of determining whether the functional elements of the generated application fulfil the specified requirements.

To enable prompt and accurate detection and correction of any functional failure, we will create a comprehensive testing plan. The goal of software testing should be to ensure that the program works as intended by inspecting the code, running it in a variety of settings, and checking its various components.

In their technical proposal, we will recommend a thorough testing strategy that covers the entire test life cycle from development to deployment for this EMIS application. This testing strategy ought to include all common testing techniques that are appropriate for this EMIS solution, such as step-by-step testing activities like test scripting, test cases, testing tools, testing processes, test logs, result formats, and expected test deliverables like report formats. We'll provide a test plan that might use common test procedures. Below are a few as examples for your reference. We will assist the Project Authority with User Acceptance Testing (UAT), supply all required master data, and support the operation.

1) Unit Testing
2) Installation Testing

3) Compatibility Testing
4) Post-Deployment (in Production Server) Smoke Testing
5) Smoke & Sanity Testing
6) Regression Testing
7) Stress Testing
8) Acceptance Testing
9) Alpha Testing
10) Beta Testing
11) Functional vs. Non-Functional Testing
12) Continuous Testing
13) Destructive Testing
14) Software Performance Testing
15) Usability Testing
16) Accessibility Testing
17) Concurrent Testing
18) Load and Stress Testing
19) System Testing
20) Performance Testing
21) Security Testing
22) Integration Testing with internal & external modules

Deliverables: Test Plan, Test Scripts, Test Logs, Test Reports, Feedback.

Note: Based on the Test reports and received feedback (Change Request) the LLD, version, developed application may be changed accordingly.

System Testing

The Agile-Scrum Methodology has three stages of testing for this project. As the developer creates one or more test cases for each feature, it is tested. The test cases are then executed by an outside tester. At each release and again during the beta testing phase at the end of the project, the project owner and subject matter experts get the chance to test the program.

Preparing Test Cases: A series of user instructions known as test cases explains how to use the database to fulfill the functionality specified in the feature. A list of user-required activities and the expected outcome of each action should always be included in test cases. Screenshots, sample data to help the tester create a more authentic environment, and several accounts and passwords required to login and test the system from various angles are optional components of a test case, depending on how complicated the system's security settings are.

Running Test Cases: The test cases should be executed exactly as written or provided by the developer. If any step of the test case does not pass as indicated, then the tester should reject the test case and mark it for revision. Even if the tester is technically capable of doing so, they should never try to resolve issues that are discovered while executing test cases. When executing the test case, it's possible to miss dependencies that could disrupt the system if ill-informed changes are made.

User Testing: A copy of the system will be made available to the project manager and subject matter experts for internal testing at the conclusion of each release in the project timetable. The testing setting ought to be as real-world as possible. The test system should be hosted on a server and accessed in the same manner as the production system if the system will eventually be hosted using SaaS Server. The same privilege sets that will be used in production should be set up on test accounts and distributed to the testers. Authentic data should also be entered into the system before testing if that is possible and appropriate.

They should be gathered in a list that is like the feature list but tracked separately when users generate feedback items. When bugs or flaws in the software are discovered, they should be quickly scheduled into later iterations and charged to the testing hours. Users will undoubtedly come up with new suggestions for additional features as they start to test the system. The project enhancement list should be used to keep track of any system improvements or modifications that go beyond the original feature list.

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

Engineering issues typically have multiple solutions. The engineer's goal is to find the best answer he or she can use the tools at hand. Engineers are held formally accountable for the reliability and effectiveness of their creations. The goal is to find the best straightforward, secure, and economical solution to a given problem. Of course, one of the applied sciences is engineering. The engineer's individual tasks fall under a broad category. They range from being a pure scientist to working as a sales or applications engineer, which involves more work with humanities-related fields like psychology and economics.

• Community Sustainability: It is anticipated that once ERP management has been developed and made public, it will build a sizable user base and from that will grow a community of users that share interests.

• Organizational Sustainability: This refers to how the organization will carry on its operations after the application has been released. After an application is released, the business typically maintains the application using either its current team, an expanded team, or a brand-new team. Organizations may also switch to other projects, grow their teams, form new teams, etc. in addition to updating their project by adding additional features to it.

7.2 Social & Environmental Effects & Analysis

Technology is increasing at a very fast pace. It has an impact on people's lives and alters how they learn, think, and communicate. It has a significant impact on society, and today it is difficult to picture living without it. Technology and society are intertwined, interdependent, and mutually influential.

Social Effect: In the previous epidemic situation, safety is the top priority for all service providers who wish to reopen once the restrictions are eased. The University can organize the results in a better way which will make the life of students and teacher at ease.

Environmental Effects: The environmental factors will be a positive side in this project after completing the project through the system university can less paper documentation as the records are already in the system. Less use of paper will also guide less usage of ink.

7.3 Addressing Ethics & Ethical Issues

When working on setting up and launching a website in the world of smartphones with so much information gathering, hacking, and other cybercrime, there are a few implicit rules and morals standards that must be monitored. The creators made sure that there were no violations of behaviour and that all the objectives were seriously considered. Some of them are as follows: The following administratively necessary data is gathered: The website, so to speak, compiles basic user data such a user's name and email address. No other information is gathered.

The study of morality as a branch of philosophy dates to ancient Greece. It alludes to a set of values that have the power to drastically alter prior decisions and behaviours. According to a popular belief, the philosophy subfield of ethics is concerned with the dynamics of moral judgment. Like all human endeavours, scientific study is constrained by personal, communal, and social ideals. Research ethics include rules for daily tasks, the safeguarding of individuals' dignity, and the dissemination of research findings.

Chapter 8

Lesson Learned

8.1 Problems faced during this period

My experience working as an QA Engineer intern at "ADDIESoft" has been quite eye-opening. I encountered several difficulties, which I overcome by generating ideas for a bypass or fix.

In addition to all of this, working on this Project has presented many hurdles for me. Following is a list of a few of these:

- Workplace: I experienced some challenges there as well. I had to show there on time and go to meetings every day. I had to make sure I complied with all the laws and regulations that had to be scrupulously upheld. In a very short amount of time, I had to become acquainted with their workplace culture. I was unfamiliar with the idea of a full-stack online application, and on top of that, I had to learn a brand-new JavaScript library, namely Bootstrap, as well as Laravel for the back end.
- Adapting to New Technologies: I had to learn and adapt to new technologies or the company as this was the first time, I had ever worked on a Web application in an office setting. Even while learning the skill set was doable, using it in practical scenarios became challenging.
- Finding and Fixing Bugs: It was frequently difficult to find bugs, and even when they were, fixing them was a major challenge. There were some bugs that were so challenging to resolve that it would take a week to remedy them.

8.2 Solution of those problem

I've learned a lot during the last four years as an undergraduate student. It enabled me to discover most of the problem's solutions. Below is a list of those issues and their solutions:

- Work Environment: I gained valuable knowledge about time management from my academic courses. As a result, I was able to arrange my schedule appropriately so that I could fulfil the project's rigorous deadlines while also studying for other classes and working on it.
- Getting Used to New Technology: At first, I had a hard time getting used to new technologies. But after a few days, with the support of my boss and the team of web developers, I've gotten used to the entire process.

- Finding and Fixing Bugs: Most of the time, I use the online community "Stackoverview," and a senior developer assisted me in fixing several problems. I had to change my code to fix a problem that I was unable to resolve.

Chapter 9

Future Work & Conclusion

9.1 Future Works

As the project is still evolving, the company plans on adding a lot more features to the website to make it even more helpful for the university authority and the users of it. Some Features still need to be polished before it can be developed. It has many sides for improvement.

Some of them are:

• A Mobile App Version of this project.

• Add virtual Meeting System.

• Improve the existing system.

9.2 Conclusion

I had a fantastic internship during this time. I've learned new things, gained new skills, and met a lot of new people. I was able to work and get experience in my sector professionally. An excellent way to acquire this experience is through an internship. It helped to describe my skills and limitations during the internship. This assisted me in identifying the information and abilities I need to develop the following time. During my internship, I picked up skills in JavaScript, Bootstrap, Laravel, etc.

Now I understand how a website could be made. As has, I have worked in ADDIESoft with a developer team. Now I know how to work with the team in a software company and how to communicate in conjunction with other staff members in the project.

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An Undergraduate Internship/Project on

Education ERP management System

By

Faiyaz Mahmood Arnob

ID- 1711126

Summer,2022

Consent Form

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during final viva, and the department can use this version for archiving.

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