



Green University of Bangladesh

*Department of Computer Science and Engineering (CSE)
Semester: (Fall, Year: 2023), B.Sc. in CSE (Day)*

Online Course Registration

*Course Title: Database System Lab
Course Code: CSE - 210
Section: 213 D3*

Students Details

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[For teachers use only: **Don't write anything inside this box**]

<u>Lab Project Status</u>	
Marks:	Signature:
Comments:	Date:

Contents

1	Introduction	2
1.1	Overview	2
1.2	Motivation	2
1.3	Problem Definition	3
1.3.1	Problem Statement	3
1.3.2	Complex Engineering Problem	4
1.4	Design Goals/Objectives	5
1.5	Application	6
2	Design/Development/Implementation of the Project	7
2.1	Introduction	7
2.2	Project Details	8
2.3	Implementation	9
3	Performance Evaluation	24
3.1	Simulation Environment/ Simulation Procedure	24
3.2	Results Analysis/Testing	25
3.2.1	Home Page	25
3.2.2	Admin Login	27
3.2.3	Student Login	32
3.3	Results Overall Discussion	35
3.3.1	Complex Engineering Problem Discussion	36
4	Conclusion	37
4.1	Discussion	37
4.2	Limitations	38
4.3	Scope of Future Work	38

Chapter 1

Introduction

1.1 Overview

This project involves the development of a comprehensive web application designed for managing university course enrollments and related administrative functions. The application is built on a robust database structure and is tailored to cater to the needs of educational institutions in handling course-related activities efficiently.

1.2 Motivation

The motivation for developing this University Course Enrollment and Management Web Application stems from the need to streamline and modernize the way educational institutions manage their academic and administrative tasks. With the evolving landscape of education, driven by technological advancements and changing student needs, there is a growing demand for more efficient, accessible, and user-friendly systems.

1. Bridging the Gap in Educational Administration.
2. Enhancing User Experience of course registration.
3. Leveraging Technology for Efficiency.
4. Meeting the Demands of Modern Education.
5. Contributing to Academic Success.

1.3 Problem Definition

1.3.1 Problem Statement

The landscape of university administration, particularly in the context of course enrollment and management, is often fraught with challenges that impede efficiency, accessibility, and user satisfaction. Traditional methods of managing academic and administrative tasks in universities are increasingly proving to be inadequate in meeting the demands of modern educational environments. This project aims to address these critical issues through the development of a comprehensive web application.

1.3.2 Complex Engineering Problem

Table 1.1: Summary of the attributes touched by the mentioned projects

Name of the P Attributes	Explain how to address
P1: Depth of knowledge required	The project demands expertise in database design, front-end technologies (Bootstrap, CSS), and back-end development (PHP), requiring a deep understanding of software engineering principles. Knowledge in cybersecurity is crucial for data protection. It also necessitates proficiency in systems engineering for effective integration of different software components.
P2: Range of conflicting requirements	—
P3: Depth of analysis required	Comprehensive analysis includes requirement gathering, performance evaluation, and usability testing. The project requires systematic problem-solving and data-driven decision-making to ensure scalability, reliability, and user satisfaction. Continuous improvement through user feedback and predictive analysis is essential.
P4: Familiarity of issues	—
P5: Extent of applicable codes	Adherence to web development standards, data protection regulations, and accessibility guidelines is mandatory. The project must align with software engineering ethics, ensuring user privacy and data integrity. These codes ensure compatibility, inclusivity, and legal compliance.
P6: Extent of stakeholder involvement and conflicting requirements	—
P7: Interdependence	—

1.4 Design Goals/Objectives

The project's design goals and objectives are as follows:

1. Streamlines the course enrollment process, making it more efficient and error-free.
2. Provides easy access to course information, schedules, and academic records for students and faculty.
3. Integrates various administrative functions into a cohesive system for better data management and workflow efficiency.
4. Features a user-friendly, responsive interface that enhances the overall experience and accessibility on multiple devices.
5. Facilitates effective communication within the university community through integrated news and updates features.
6. Ensures high standards of data security and privacy protection.

1.5 Application

This web application serves as a versatile tool for universities, encompassing aspects of academic administration, student services, data management, communication, resource planning, accessibility, compliance, and security. Its broad applications make it an indispensable asset in modernizing and enhancing the efficiency of educational institutions.

1. Academic Administration

- **Course Management:** Facilitates the creation, update, and deletion of course information, scheduling, and seat allocations.
- **Department Management:** Manages different academic departments, aligning courses and resources accordingly.

2. Student Services

- **Online Enrollment:** Enables students to enroll in courses online, view their schedules, and track academic progress.
- **Academic Advising:** Assists in academic planning and course selection based on student's academic history and program requirements.

3. Data Management and Reporting

- **Record Keeping:** Maintains comprehensive records of students, courses, faculty, and departmental data.
- **Reporting:** Generates reports on enrollment statistics, departmental performance, and other academic metrics.

Chapter 2

Design/Development/Implementation of the Project

2.1 Introduction

The development journey of this application encompasses a multifaceted approach, integrating advanced technology, user-centric design, and robust data management strategies. This chapter delves into the intricate stages of the development lifecycle, from initial conception and requirement analysis to design, implementation, testing, and deployment.

Key Development Phases

1. **Requirement Analysis:** Identifying the specific needs of the university's administrative and academic processes.
2. **System Design:** Architecting a solution that is both scalable and user-friendly, leveraging modern technologies in web development.
3. **Implementation:** Coding the application, with a focus on both front-end and back-end development.
4. **Testing and Quality Assurance:** Rigorous testing to ensure reliability, performance, and user satisfaction.
5. **Deployment and Integration:** Rolling out the application for university-wide use and ensuring seamless integration with existing systems.

2.2 Project Details

Key Features:

1. **Course Management:** Admins can create, update, and delete course information, manage seat allocations, and handle course scheduling.
2. **Enrollment System:** Students can enroll in courses, view their schedules, and track their academic progress.
3. **Departmental Coordination:** Facilitates the management of different academic departments, linking courses to their respective departments.
4. **News and Updates:** A section for posting news and updates, keeping students and staff informed about important academic events and announcements.
5. **User Logs and Security:** Monitoring user activities for security purposes and ensuring data integrity.
6. **Responsive Design:** A mobile-friendly interface that provides an optimal viewing experience across various devices.

Technical Overview:

1. Front-End Development:

- **Bootstrap:** Utilized for responsive design, ensuring the application is adaptable to various screen sizes and devices.
- **CSS:** Employed for styling, enhancing the user interface with an aesthetically pleasing and intuitive layout.
- **JavaScript:** Potentially used for dynamic content and interactive features.

2. Back-End Development:

- **PHP:** Chosen for server-side scripting, handling the application's logic, database interactions, and user authentication.
- **MySQL:** Used as the database management system, ideal for handling complex queries and large datasets.

3. Web Server:

- **Apache:** Suitable web servers for hosting the application, known for their reliability and scalability.

2.3 Implementation

The implementation of the Online Course Registration encompasses various elements detailed in multiple subsections. This section will cover the main aspects, including the workflow and the tools and libraries used.

The workflow

Phase 1: Planning and Analysis

1. **Requirement Gathering:** Collaborate with university stakeholders to identify functional and technical requirements.
2. **Feasibility Study:** Assess the technical and financial feasibility of the project.
3. **Project Scope Definition:** Clearly define the scope, objectives, and deliverables of the project.

Phase 2: Design

1. **System Architecture Design:** Develop a blueprint of the application's architecture, including front-end, back-end, and database design.
2. **User Interface Design:** Design the user interface with a focus on usability and aesthetics, using tools like wireframes and mockups.
3. **Database Design:** Create a comprehensive database schema based on the identified data requirements.

Phase 3: Development

1. **Environment Setup:** Set up the development, testing, and production environments.
2. **Coding:** Begin coding the application, starting with core functionalities. Implement front-end and back-end components in parallel, if possible.
3. **Database Implementation:** Set up the database and integrate it with the back-end.

Phase 4: Testing

1. **Unit Testing:** Test individual components for functionality and reliability.
2. **Integration Testing:** Ensure all components work together seamlessly.
3. **User Acceptance Testing (UAT):** Conduct testing with a group of end users to validate the functionality and usability of the application.

Phase 5: Deployment

1. **Deployment Strategy:** Develop a deployment plan, including rollback procedures in case of issues.
2. **Initial Deployment:** Deploy the application to the production environment.
3. **Monitoring:** Closely monitor the application for any issues post-deployment.

Phase 6: Training and Documentation

1. **User Training:** Conduct training sessions for administrators, faculty, and students.
2. **Documentation:** Provide detailed documentation for users and technical staff.

Phase 7: Maintenance and Updates

1. **Regular Maintenance:** Perform regular maintenance to ensure smooth operation.
2. **Feedback Collection:** Collect user feedback for future improvements.
3. **Updates and Enhancements:** Implement updates and enhancements based on feedback and changing requirements.

Implementation details (with screenshots and programming codes)

SQL CODE:

```
1  -- phpMyAdmin SQL Dump
2  -- version 5.2.1
3  -- https://www.phpmyadmin.net/
4  --
5  -- Host: 127.0.0.1
6  -- Generation Time: Jan 09, 2024 at 12:06 AM
7  -- Server version: 10.4.28-MariaDB
8  -- PHP Version: 8.2.4
9
10 SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";
11 START TRANSACTION;
12 SET time_zone = "+00:00";
13
14
15 /*!40101 SET @OLD_CHARACTER_SET_CLIENT=
16     @@CHARACTER_SET_CLIENT */;
17 /*!40101 SET @OLD_CHARACTER_SET_RESULTS=
18     @@CHARACTER_SET_RESULTS */;
19 /*!40101 SET @OLD_COLLATION_CONNECTION=
20     @@COLLATION_CONNECTION */;
21 /*!40101 SET NAMES utf8mb4 */;
22
23
24 --
25
26 --
27 -- Table structure for table 'admin'
28 --
29
30 CREATE TABLE 'admin' (
31   'id' int(11) NOT NULL,
32   'username' varchar(255) DEFAULT NULL,
33   'password' varchar(255) DEFAULT NULL,
34   'creationDate' timestamp NULL DEFAULT
35     current_timestamp(),
36   'updatetime' timestamp NULL DEFAULT NULL ON UPDATE
37     current_timestamp()
38 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
39   latin1_swedish_ci;
```

```

37
38 --
39 -- Dumping data for table 'admin'
40 --
41
42 INSERT INTO 'admin' ('id', 'username', 'password', '
    creationDate', 'updatationDate') VALUES
43 (1, 'admin', '21232f297a57a5a743894a0e4a801fc3', '
    2022-01-31 16:21:18', '0000-00-00 00:00:00');
44
45 --
    -----
46
47 --
48 -- Table structure for table 'course'
49 --
50
51 CREATE TABLE 'course' (
52   'id' int(11) NOT NULL,
53   'courseCode' varchar(255) DEFAULT NULL,
54   'courseName' varchar(255) DEFAULT NULL,
55   'department' int(11) NOT NULL,
56   'courseUnit' varchar(255) DEFAULT NULL,
57   'noofSeats' int(11) DEFAULT NULL,
58   'creationDate' timestamp NULL DEFAULT
    current_timestamp(),
59   'updatationDate' varchar(255) DEFAULT NULL
60 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
    latin1_swedish_ci;
61
62 --
63 -- Dumping data for table 'course'
64 --
65
66 INSERT INTO 'course' ('id', 'courseCode', 'courseName',
    'department', 'courseUnit', 'noofSeats', '
    creationDate', 'updatationDate') VALUES
67 (1, 'CSE101', 'DISCRETE MATHEMATICS', 1, '5', 30, '
    2024-01-08 22:05:21', '09-01-2024 03:58:58 AM'),
68 (2, 'CSE201', 'STRUCTURED PROGRAMMING', 1, '3', 30, '
    2024-01-08 22:05:54', '09-01-2024 03:59:24 AM'),
69 (3, 'EEE101', 'FUNDAMENTAL OF EEE', 2, '7', 30, '
    2024-01-08 22:06:54', '09-01-2024 03:59:36 AM'),
70 (4, 'EEE201', 'ADVANCE EEE', 2, '5', 30, '2024-01-08
    22:07:22', '09-01-2024 03:59:45 AM'),
71 (5, 'ENG101', 'BASIC ENGLISH', 3, '2', 25, '2024-01-08
    22:07:50', '09-01-2024 03:59:56 AM'),

```

```

72 (6, 'ENG201', 'ENGLISH LANGUAGE A-Z', 3, '3', 25, '
    2024-01-08 22:09:12', '09-01-2024 04:00:06 AM'),
73 (7, 'BBA101', 'BASICS OF BBA', 4, '5', 40, '2024-01-08
    22:09:41', '09-01-2024 04:00:18 AM'),
74 (8, 'BBA201', 'ADVANCE OF BBA', 4, '7', 40, '2024-01-08
    22:09:58', '09-01-2024 04:00:27 AM'),
75 (9, 'CSE301', 'OBJECT ORIENTED PROGRAMMING', 1, '4', 40,
    '2024-01-08 22:19:37', NULL),
76 (10, 'CSE301', 'OBJECT ORIENTED PROGRAMMING', 1, '4',
    40, '2024-01-08 22:21:06', NULL);
77
78 --
    -----
79
80 --
81 -- Table structure for table 'courseenrolls'
82 --
83
84 CREATE TABLE 'courseenrolls' (
85     'id' int(11) NOT NULL,
86     'studentRegno' varchar(255) DEFAULT NULL,
87     'pincode' varchar(255) DEFAULT NULL,
88     'session' int(11) DEFAULT NULL,
89     'department' int(11) DEFAULT NULL,
90     'level' int(11) DEFAULT NULL,
91     'semester' int(11) DEFAULT NULL,
92     'course' int(11) DEFAULT NULL,
93     'enrollDate' timestamp NULL DEFAULT current_timestamp
    ())
94 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
    latin1_swedish_ci;
95
96 --
97 -- Dumping data for table 'courseenrolls'
98 --
99
100 INSERT INTO 'courseenrolls' ('id', 'studentRegno', '
    pincode', 'session', 'department', 'level', 'semester
    ', 'course', 'enrollDate') VALUES
101 (1, '213002039', '420612', 1, 1, 1, 1, 1, '2024-01-08
    22:51:20'),
102 (2, '213002039', '420612', 1, 1, 1, 1, 2, '2024-01-08
    22:51:46'),
103 (3, '213002039', '420612', 1, 3, 1, 1, 5, '2024-01-08
    22:52:03'),
104 (4, '213002001', '902353', 1, 3, 1, 1, 5, '2024-01-08
    22:54:42'),

```

```

105 (5, '213002001', '902353', 1, 3, 1, 1, 6, '2024-01-08
    22:54:56'),
106 (6, '213002001', '902353', 1, 4, 1, 1, 7, '2024-01-08
    22:55:09');
107
108 --
    -----

109
110 --
111 -- Table structure for table 'department'
112 --
113
114 CREATE TABLE 'department' (
115     'id' int(11) NOT NULL,
116     'department' varchar(255) DEFAULT NULL,
117     'creationDate' timestamp NULL DEFAULT
        current_timestamp()
118 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
    latin1_swedish_ci;
119
120 --
121 -- Dumping data for table 'department'
122 --
123
124 INSERT INTO 'department' ('id', 'department', '
    creationDate') VALUES
125 (1, 'CSE', '2024-01-08 22:04:20'),
126 (2, 'EEE', '2024-01-08 22:04:23'),
127 (3, 'ENGLISH', '2024-01-08 22:04:29'),
128 (4, 'BBA', '2024-01-08 22:04:34');
129
130 --
    -----

131
132 --
133 -- Table structure for table 'level'
134 --
135
136 CREATE TABLE 'level' (
137     'id' int(11) NOT NULL,
138     'level' varchar(255) DEFAULT NULL,
139     'creationDate' timestamp NULL DEFAULT
        current_timestamp()
140 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
    latin1_swedish_ci;
141

```

```

142 --
143 -- Dumping data for table 'level'
144 --
145
146 INSERT INTO 'level' ('id', 'level', 'creationDate')
147     VALUES
148 (1, '1', '2024-01-06 18:00:07'),
149 (2, '2', '2024-01-06 18:00:15');
150
151
152 --
153 -- Table structure for table 'news'
154 --
155
156 CREATE TABLE 'news' (
157     'id' int(11) NOT NULL,
158     'newstitle' varchar(255) DEFAULT NULL,
159     'newsDescription' mediumtext DEFAULT NULL,
160     'postingDate' timestamp NULL DEFAULT current_timestamp
161     ()
162 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
163     latin1_swedish_ci;
164
165 --
166 -- Dumping data for table 'news'
167 --
168
169 INSERT INTO 'news' ('id', 'newstitle', 'newsDescription
    ', 'postingDate') VALUES
(1, 'Conducting Classes Online from 01 January 2024', '
    This is for the information for all Faculty Members,
    Administrative Staff, and Students of Green
    University of Bangladesh that the classes scheduled
    from 01 to 10 January 2024 will be conducted online.
    However, the Fall 2023 examinations will be held in
    person at the campus. A separate notice regarding the
    examination schedule will be circulated by the
    Office of the Controller of Examinations.\r\n\r\nAll
    concerned have been requested to take necessary steps
    accordingly.', '2024-01-08 22:48:29'),
(2, 'Final Examinations, Fall 2023', 'This is to notify
    all students, faculty members and related
    administrative officers that the Final Examinations
    of Fall 2023 for all the academic programs of Green
    University of Bangladesh will be held in-person in

```



```

the campus from 15 January to 27 January, 2024.\r\n\r
\nStudents are advised to download their admit cards
from student portal https://studentportal.green.edu.
bd/ clearing all the dues to attend the Final
Examinations. A digital copy of admit card will be
available online from 10 January, 2024. Students are
instructed to bring a printed copy of the admit card
to appear at the examinations. Without accounts
clearance the admit card cannot be downloaded.
Students are not allowed to get entry into the
examination hall without admit card and student ID
card.\r\n', '2024-01-08 22:50:31');
170
171 --
-----

172
173 --
174 -- Table structure for table 'semester'
175 --
176
177 CREATE TABLE 'semester' (
178   'id' int(11) NOT NULL,
179   'semester' varchar(255) DEFAULT NULL,
180   'creationDate' timestamp NULL DEFAULT
        current_timestamp(),
181   'updatetime' varchar(255) DEFAULT NULL
182 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
        latin1_swedish_ci;
183
184 --
185 -- Dumping data for table 'semester'
186 --
187
188 INSERT INTO 'semester' ('id', 'semester', 'creationDate
        ', 'updatetime') VALUES
189 (1, 'F24', '2024-01-08 22:04:13', NULL);
190
191 --
-----

192
193 --
194 -- Table structure for table 'session'
195 --
196
197 CREATE TABLE 'session' (
198   'id' int(11) NOT NULL,

```

```

199     'session' varchar(255) DEFAULT NULL,
200     'creationDate' timestamp NULL DEFAULT
        current_timestamp()
201 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
        latin1_swedish_ci;
202
203 --
204 -- Dumping data for table 'session'
205 --
206
207 INSERT INTO 'session' ('id', 'session', 'creationDate')
        VALUES
208 (1, '2024', '2024-01-08 22:03:58');
209
210 --
        -----
211
212 --
213 -- Table structure for table 'students'
214 --
215
216 CREATE TABLE 'students' (
217     'StudentRegno' varchar(255) NOT NULL,
218     'studentPhoto' varchar(255) DEFAULT NULL,
219     'password' varchar(255) DEFAULT NULL,
220     'studentName' varchar(255) DEFAULT NULL,
221     'pincode' varchar(255) DEFAULT NULL,
222     'session' varchar(255) DEFAULT NULL,
223     'department' varchar(255) DEFAULT NULL,
224     'semester' varchar(255) DEFAULT NULL,
225     'cgpa' decimal(10,2) DEFAULT NULL,
226     'creationdate' timestamp NULL DEFAULT
        current_timestamp(),
227     'updationDate' varchar(255) DEFAULT NULL,
228     'department_id' int(11) DEFAULT NULL
229 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
        latin1_swedish_ci;
230
231 --
232 -- Dumping data for table 'students'
233 --
234
235 INSERT INTO 'students' ('StudentRegno', 'studentPhoto',
        'password', 'studentName', 'pincode', 'session', '
        department', 'semester', 'cgpa', 'creationdate', '
        updationDate', 'department_id') VALUES

```

```

236 ('213002001', '1690859777566.jpeg', '
      a8f06e42d38d1ab011f52e665ae1e892', 'RAPRU', '902353',
      NULL, '3', NULL, 3.59, '2024-01-08 22:39:43', NULL,
      NULL),
237 ('213002028', NULL, '567b85d7b3da2b4e2f7ec385e6634380',
      'MD ARAFAT', '753078', NULL, '1', NULL, NULL, '
      2024-01-08 22:38:59', NULL, NULL),
238 ('213002039', '1620601529288.jpeg', '08
      c69ad7fa85673e117d5be41ef15a57', 'MD SAIFUL ISLAM
      RIMON', '420612', NULL, '1', NULL, 2.80, '2024-01-08
      22:10:44', NULL, NULL),
239 ('213002144', NULL, '44d66c99e27772bd3f2654d0d3260fed',
      'MD SAYDUR', '156052', NULL, '2', NULL, NULL, '
      2024-01-08 22:39:25', NULL, NULL),
240 ('213002145', NULL, '170cc8a8c28a7d1fa80a74cab39626df',
      'MD RAYHAN', '278444', NULL, '4', NULL, NULL, '
      2024-01-08 22:40:22', NULL, NULL);

241
242 --
      -----

243
244 --
245 -- Table structure for table 'userlog'
246 --
247
248 CREATE TABLE 'userlog' (
249   'id' int(11) NOT NULL,
250   'studentRegno' varchar(255) DEFAULT NULL,
251   'userip' binary(16) DEFAULT NULL,
252   'loginTime' timestamp NULL DEFAULT current_timestamp()
      ,
253   'logout' varchar(255) DEFAULT NULL,
254   'status' int(11) DEFAULT NULL
255 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=
      latin1_swedish_ci;

256
257 --
258 -- Dumping data for table 'userlog'
259 --
260
261 INSERT INTO 'userlog' ('id', 'studentRegno', 'userip', '
      loginTime', 'logout', 'status') VALUES
262 (1, '213002039', 0x3a3a3100000000000000000000000000, '
      2024-01-08 22:50:48', '09-01-2024 04:22:51 AM', 1),
263 (2, '213002001', 0x3a3a3100000000000000000000000000, '
      2024-01-08 22:53:00', '09-01-2024 04:25:20 AM', 1),

```

```

264 (3, '213002039', 0x3a3a3100000000000000000000000000, '
      2024-01-08 22:57:19', NULL, 1),
265 (4, '213002039', 0x3a3a3100000000000000000000000000, '
      2024-01-08 22:59:00', '09-01-2024 04:30:30 AM', 1);
266
267 --
268 -- Indexes for dumped tables
269 --
270
271 --
272 -- Indexes for table 'admin'
273 --
274 ALTER TABLE 'admin'
275     ADD PRIMARY KEY ('id');
276
277 --
278 -- Indexes for table 'course'
279 --
280 ALTER TABLE 'course'
281     ADD PRIMARY KEY ('id');
282
283 --
284 -- Indexes for table 'courseenrolls'
285 --
286 ALTER TABLE 'courseenrolls'
287     ADD PRIMARY KEY ('id'),
288     ADD KEY 'course' ('course'),
289     ADD KEY 'studentRegno' ('studentRegno'),
290     ADD KEY 'department' ('department'),
291     ADD KEY 'session' ('session'),
292     ADD KEY 'level' ('level'),
293     ADD KEY 'semester' ('semester');
294
295 --
296 -- Indexes for table 'department'
297 --
298 ALTER TABLE 'department'
299     ADD PRIMARY KEY ('id');
300
301 --
302 -- Indexes for table 'level'
303 --
304 ALTER TABLE 'level'
305     ADD PRIMARY KEY ('id');
306
307 --
308 -- Indexes for table 'news'
309 --

```

```

310 ALTER TABLE 'news'
311     ADD PRIMARY KEY ('id');
312
313 --
314 -- Indexes for table 'semester'
315 --
316 ALTER TABLE 'semester'
317     ADD PRIMARY KEY ('id');
318
319 --
320 -- Indexes for table 'session'
321 --
322 ALTER TABLE 'session'
323     ADD PRIMARY KEY ('id');
324
325 --
326 -- Indexes for table 'students'
327 --
328 ALTER TABLE 'students'
329     ADD PRIMARY KEY ('StudentRegno'),
330     ADD KEY 'department_id' ('department_id'),
331     ADD KEY 'department' ('department');
332
333 --
334 -- Indexes for table 'userlog'
335 --
336 ALTER TABLE 'userlog'
337     ADD PRIMARY KEY ('id');
338
339 --
340 -- AUTO_INCREMENT for dumped tables
341 --
342
343 --
344 -- AUTO_INCREMENT for table 'admin'
345 --
346 ALTER TABLE 'admin'
347     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
348         AUTO_INCREMENT=3;
349
350 --
351 -- AUTO_INCREMENT for table 'course'
352 --
353 ALTER TABLE 'course'
354     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
355         AUTO_INCREMENT=11;

```

```

356 -- AUTO_INCREMENT for table 'courseenrolls'
357 --
358 ALTER TABLE 'courseenrolls'
359     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
        AUTO_INCREMENT=7;
360
361 --
362 -- AUTO_INCREMENT for table 'department'
363 --
364 ALTER TABLE 'department'
365     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
        AUTO_INCREMENT=5;
366
367 --
368 -- AUTO_INCREMENT for table 'level'
369 --
370 ALTER TABLE 'level'
371     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
        AUTO_INCREMENT=3;
372
373 --
374 -- AUTO_INCREMENT for table 'news'
375 --
376 ALTER TABLE 'news'
377     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
        AUTO_INCREMENT=3;
378
379 --
380 -- AUTO_INCREMENT for table 'semester'
381 --
382 ALTER TABLE 'semester'
383     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
        AUTO_INCREMENT=2;
384
385 --
386 -- AUTO_INCREMENT for table 'session'
387 --
388 ALTER TABLE 'session'
389     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
        AUTO_INCREMENT=2;
390
391 --
392 -- AUTO_INCREMENT for table 'userlog'
393 --
394 ALTER TABLE 'userlog'
395     MODIFY 'id' int(11) NOT NULL AUTO_INCREMENT,
        AUTO_INCREMENT=5;
396

```

```

397 --
398 -- Constraints for dumped tables
399 --
400
401 --
402 -- Constraints for table 'courseenrolls'
403 --
404 ALTER TABLE 'courseenrolls'
405     ADD CONSTRAINT 'courseenrolls_ibfk_1' FOREIGN KEY ('
         course') REFERENCES 'course' ('id'),
406     ADD CONSTRAINT 'courseenrolls_ibfk_2' FOREIGN KEY ('
         studentRegno') REFERENCES 'students' ('StudentRegno
         '),
407     ADD CONSTRAINT 'courseenrolls_ibfk_3' FOREIGN KEY ('
         department') REFERENCES 'department' ('id'),
408     ADD CONSTRAINT 'courseenrolls_ibfk_4' FOREIGN KEY ('
         session') REFERENCES 'session' ('id'),
409     ADD CONSTRAINT 'courseenrolls_ibfk_5' FOREIGN KEY ('
         level') REFERENCES 'level' ('id'),
410     ADD CONSTRAINT 'courseenrolls_ibfk_6' FOREIGN KEY ('
         semester') REFERENCES 'semester' ('id');
411
412 --
413 -- Constraints for table 'students'
414 --
415 ALTER TABLE 'students'
416     ADD CONSTRAINT 'students_ibfk_1' FOREIGN KEY ('
         department_id') REFERENCES 'department' ('id');
417 COMMIT;
418
419 /*!40101 SET CHARACTER_SET_CLIENT=
         @OLD_CHARACTER_SET_CLIENT */;
420 /*!40101 SET CHARACTER_SET_RESULTS=
         @OLD_CHARACTER_SET_RESULTS */;
421 /*!40101 SET COLLATION_CONNECTION=
         @OLD_COLLATION_CONNECTION */;

```

Database Visualization

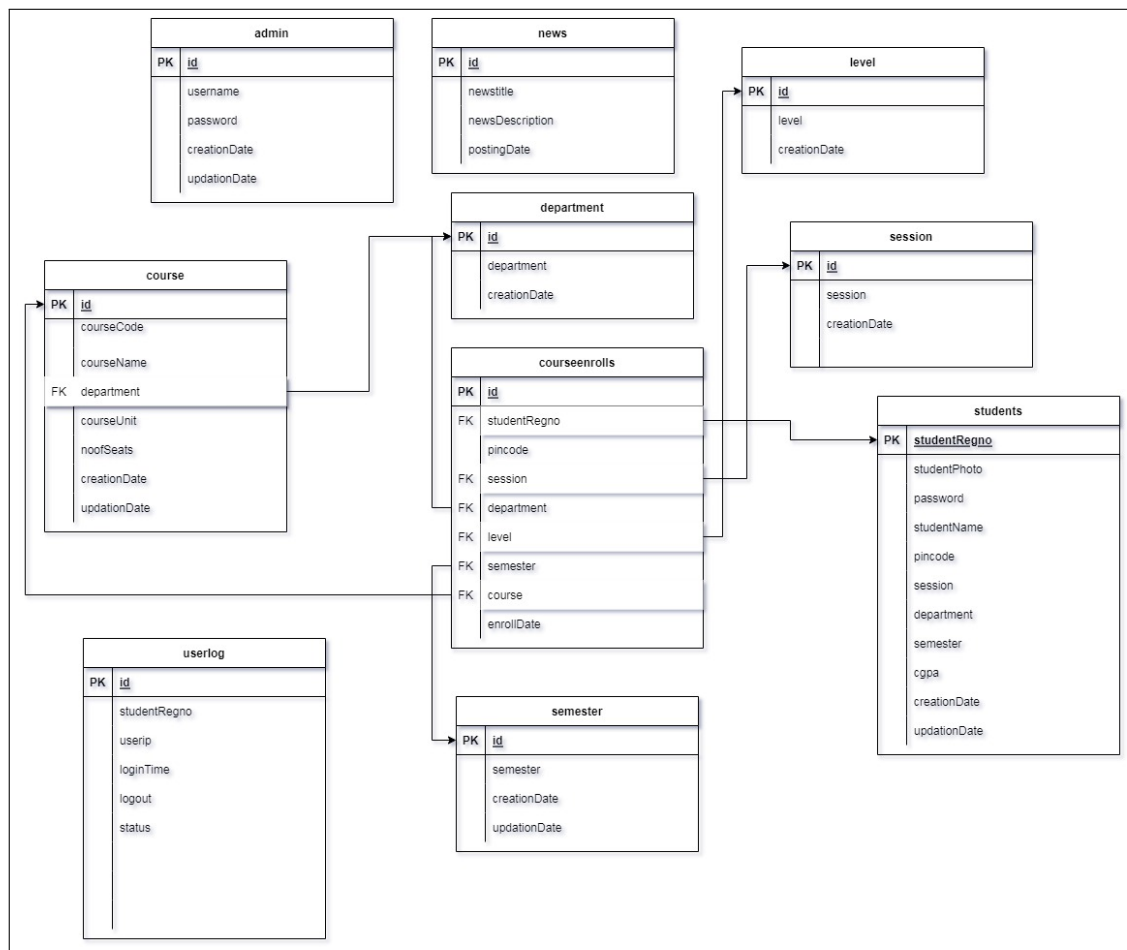


Figure 2.1: ER Diagram of the database

Chapter 3

Performance Evaluation

3.1 Simulation Environment/ Simulation Procedure

1. Web Server

- Apache or Nginx, configured to host the PHP application.

2. Database Management System

- MySQL or MariaDB to manage the application's data storage.

3. Backend Development

- PHP runtime environment for server-side scripting.

4. Front-End Technologies

- Web browsers (Chrome, Firefox, Safari, Edge) supporting HTML5, CSS3, and JavaScript.

3.2 Results Analysis/Testing

3.2.1 Home Page

After running the project, at first, user will have landing interface like this. Here we have to click based on where we are wanting to go.

The screenshot shows the 'GUB Course Registration' web application. The header includes the university logo, the title 'Green University', and a user icon. A navigation bar contains links for 'HOME', 'ADMIN LOGIN', and 'STUDENT LOGIN'. The main content area is titled 'PLEASE LOGIN TO ENTER' and features a login form with fields for 'Enter Reg no.' and 'Enter Password', followed by a 'Log Me In' button. A 'Latest News / Updates' section on the right lists 'Final Examinations, Fall 2023-2024-01-09 04:50:31'. The footer contains the copyright notice '© 2024 GUB Course Registration | By : MD SAIF UL ISLAM RAMON'.

Figure 3.1: Graphical User Interface: Home Page: Student Login

The screenshot shows the 'GUB Course Registration' web application for the admin login page. The header and navigation bar are identical to the student login page. The main content area is titled 'PLEASE LOGIN TO ENTER IN TO ADMIN PANEL' and features a login form with fields for 'Enter Username' and 'Enter Password', followed by a 'Log Me In' button. A large blue cloud graphic with the word 'Admin' is positioned to the right of the login form. The footer contains the copyright notice '© 2024 GUB Course Registration | By : MD SAIF UL ISLAM RAMON'.

Figure 3.2: Graphical User Interface: Home Page: Admin Login

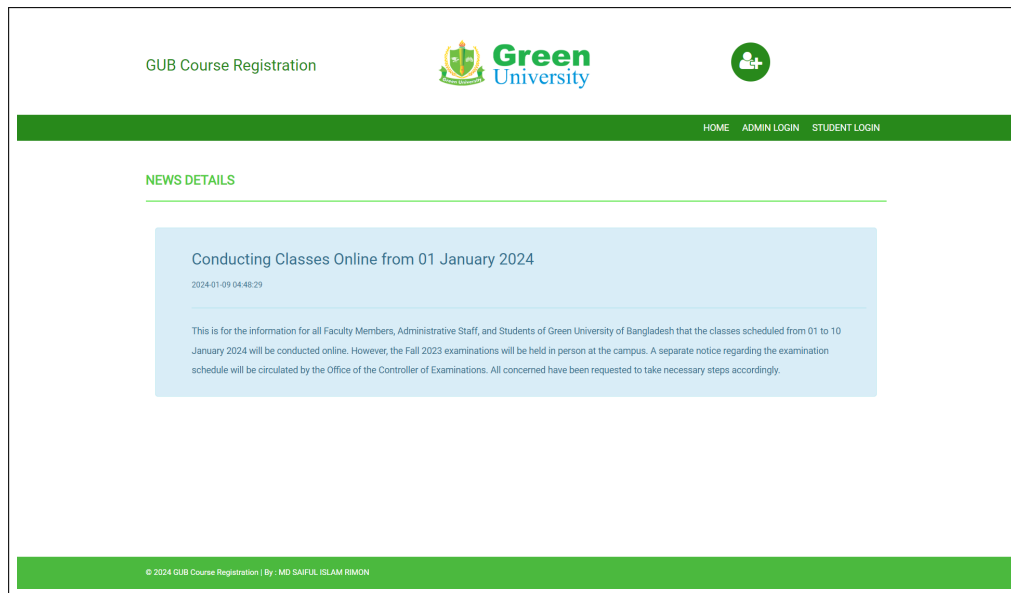




Figure 3.3: Graphical User Interface: Home Page: Notice Board

3.2.2 Admin Login

GUB Course Registration





SESSIONSEMESTERDEPARTMENTCOURSEREGISTRATIONMANAGE STUDENTSENROLL HISTORYSTUDENT LOGSNEWSLOGOUT

ADMIN CHANGE PASSWORD

Change Password

Current Password

Password

New Password

Password

Confirm Password


Password


Submit

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Figure 3.4: Graphical User Interface: Admin Login: Change Password

GUB Course Registration





SESSIONSEMESTERDEPARTMENTCOURSEREGISTRATIONMANAGE STUDENTSENROLL HISTORYSTUDENT LOGSNEWSLOGOUT

ADD SESSION

Session

Create Session

Session



Submit

Manage Session

#	Session	Creation Date	Action
1	2024	2024-01-09 04:03:58	Delete

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Figure 3.5: Graphical User Interface: Admin Login: Add Session

GUB Course Registration



SESSION
SEMESTER
DEPARTMENT
COURSE
REGISTRATION
MANAGE STUDENTS
ENROLL HISTORY
STUDENT LOGS
NEWS
LOGOUT

SEMESTER

Semester

Add Semester

semester



Submit

Manage Semester

#	Semester	Creation Date	Action
1	F24	2024-01-09 04:04:13	Delete

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Figure 3.6: Graphical User Interface: Admin Login: Add Semester

GUB Course Registration



SESSION
SEMESTER
DEPARTMENT
COURSE
REGISTRATION
MANAGE STUDENTS
ENROLL HISTORY
STUDENT LOGS
NEWS
LOGOUT

DEPARTMENT

Department

Add Department

department

Submit



Manage Session

#	department	Creation Date	Action
1	CSE	2024-01-09 04:04:20	Delete
2	EEE	2024-01-09 04:04:23	Delete
3	ENGLISH	2024-01-09 04:04:29	Delete
4	BBA	2024-01-09 04:04:34	Delete

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Figure 3.7: Graphical User Interface: Admin Login: Add Department

GUB Course Registration

SESSION
SEMESTER
DEPARTMENT
COURSE
REGISTRATION
MANAGE STUDENTS
ENROLL HISTORY
STUDENT LOGS
NEWS
LOGOUT

COURSE

Course

Course Code

Course Code

Course Name

Course Name

Department

Select Department

Course unit

Course Unit

Seat limit

Seat limit



Submit

Manage Course

#	Course Code	Course Name	Dept. No.	Course Unit	Seat limit	Creation Date	Action
1	CSE101	DISCRETE MATHEMATICS	1	5	30	2024-01-09 04:05:21	Edit Delete
2	CSE201	STRUCTURED PROGRAMMING	1	3	30	2024-01-09 04:05:54	Edit Delete
3	EEE101	FUNDAMENTAL OF EEE	2	7	30	2024-01-09 04:06:54	Edit Delete
4	EEE201	ADVANCE EEE	2	5	30	2024-01-09 04:07:22	Edit Delete
5	ENG101	BASIC ENGLISH	3	2	25	2024-01-09 04:07:50	Edit Delete
6	ENG201	ENGLISH LANGUAGE A-Z	3	3	25	2024-01-09 04:09:12	Edit Delete
7	BBA101	BASICS OF BBA	4	5	40	2024-01-09 04:09:41	Edit Delete
8	BBA201	ADVANCE OF BBA	4	7	40	2024-01-09 04:09:58	Edit Delete
9	CSE301	OBJECT ORIENTED PROGRAMMING	1	4	40	2024-01-09 04:19:37	Edit Delete
10	CSE301	OBJECT ORIENTED PROGRAMMING	1	4	40	2024-01-09 04:21:06	Edit Delete

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Figure 3.8: Graphical User Interface: Admin Login: Add Course

GUB Course Registration



SESSION SEMESTER DEPARTMENT COURSE REGISTRATION MANAGE STUDENTS ENROLL HISTORY STUDENT LOGS NEWS LOGOUT

STUDENT REGISTRATION

Student Registration

Student Name

Student Reg No

Department



Select Department

Password

Submit

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Figure 3.9: Graphical User Interface: Admin Login: Add & Manage Student

GUB Course Registration



SESSION SEMESTER DEPARTMENT COURSE REGISTRATION MANAGE STUDENTS ENROLL HISTORY STUDENT LOGS NEWS LOGOUT

ENROLL HISTORY

#	Student Name	Student Reg no	Course Name	Dept.	Semester	Enrollment Date	Action
1	MD SAIFUL ISLAM RIMON	213002039	DISCRETE MATHEMATICS	CSE	F24	2024-01-09 04:51:20	Print
2	MD SAIFUL ISLAM RIMON	213002039	STRUCTURED PROGRAMMING	CSE	F24	2024-01-09 04:51:46	Print
3	MD SAIFUL ISLAM RIMON	213002039	BASIC ENGLISH	ENGLISH	F24	2024-01-09 04:52:03	Print
4	RAPRU	213002001	BASIC ENGLISH	ENGLISH	F24	2024-01-09 04:54:42	Print
5	RAPRU	213002001	ENGLISH LANGUAGE A-Z	ENGLISH	F24	2024-01-09 04:54:56	Print
6	RAPRU	213002001	BASICS OF BBA	BBA	F24	2024-01-09 04:55:09	Print

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Figure 3.10: Graphical User Interface: Admin Login: Student's Enroll History

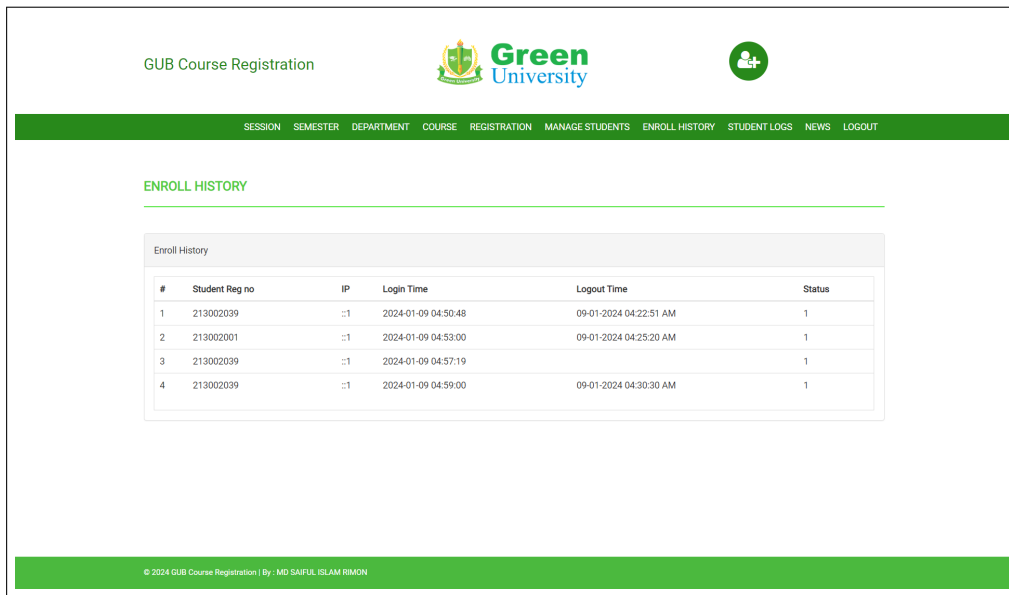


Figure 3.11: Graphical User Interface: Admin Login: Student's Login History

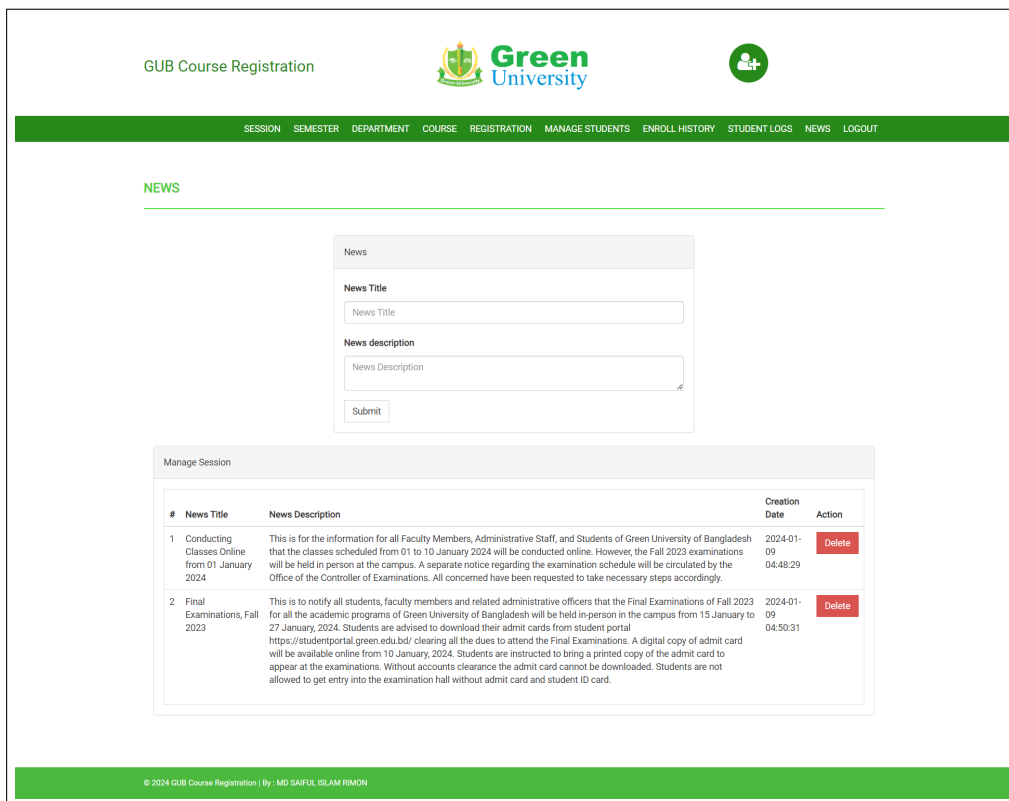




Figure 3.12: Graphical User Interface: Admin Login: Add Notice

3.2.3 Student Login

The screenshot displays the 'GUB Course Registration' web application. At the top, a green header bar contains the text 'Welcome: MD SAFUL ISLAM RIMON' and 'Last Login: 1 at 2024-01-09 04:50:48'. Below this, a navigation bar includes the 'GUB Course Registration' title, the 'Green University' logo, and a user profile icon. A secondary green navigation bar lists links: 'ENROLL FOR COURSE', 'ENROLL HISTORY', 'MY PROFILE', 'CHANGE PASSWORD', and 'LOGOUT'. The main content area is titled 'STUDENT CHANGE PASSWORD'. It features a form with three password input fields labeled 'Current Password', 'New Password', and 'Confirm Password', each with a 'Password' placeholder. A 'Submit' button is located at the bottom of the form. The footer of the page shows the copyright notice: '© 2024 GUB Course Registration | By: MD SAFUL ISLAM RIMON'.

Figure 3.13: Graphical User Interface: Student Login: Change Password

Welcome: MD SAIFUL ISLAM RIMON
Last Login:-1 at 2024-01-09 04:57:19

GUB Course Registration



ENROLL FOR COURSE
ENROLL HISTORY
MY PROFILE
CHANGE PASSWORD
LOGOUT


COURSE ENROLL

Course Enroll

Student Name
MD SAIFUL ISLAM RIMON

Student Reg No
213002039

Pincode
420612

Student Photo


Session
Select Session

Department
Select Department

Level
Select Level

Semester
Select Semester



Course
Select Course

Enroll

© 2024 GUB Course Registration | By: MD SAIFUL ISLAM RIMON

Figure 3.14: Graphical User Interface: Student Login: Course Enroll




Welcome: MD SAIFUL ISLAM RIMON
Last Login:-1 at 2024-01-09 04:57:19

GUB Course Registration



ENROLL FOR COURSE
ENROLL HISTORY
MY PROFILE
CHANGE PASSWORD
LOGOUT

ENROLL HISTORY



Enroll History

#	Course Name	Session	Department	Level	Semester	Enrollment Date	Action
1	DISCRETE MATHEMATICS	2024	CSE	1	F24	2024-01-09 04:51:20	 Print
2	STRUCTURED PROGRAMMING	2024	CSE	1	F24	2024-01-09 04:51:46	 Print
3	BASIC ENGLISH	2024	ENGLISH	1	F24	2024-01-09 04:52:03	 Print

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Figure 3.15: Graphical User Interface: Student Login: Enroll History

Welcome: MD SAIFUL ISLAM RIMON
Last Login:-1 at 2024-01-09 04:57:19

GUB Course Registration



ENROLL FOR COURSE
ENROLL HISTORY
MY PROFILE
CHANGE PASSWORD
LOGOUT

STUDENT REGISTRATION

Student Registration

Student Name

MD SAIFUL ISLAM RIMON

Student Reg No

213002039


Pincode

420612

CGPA

2.80

Student Photo




Upload New Photo

No file chosen

© 2024 GUB Course Registration | By: MD SAIFUL ISLAM RIMON

Figure 3.16: Graphical User Interface: Student Login: Modify Student’s Profile



Reg No: 213002039
Student Name: MD SAIFUL ISLAM RIMON
Student Reg Date: 2024-01-09 04:10:44
Student Course Enroll Date: 2024-01-09 04:51:20

Course Details

Course Code	CSE101
Course Name	DISCRETE MATHEMATICS
Course unit	5

Other Details

Session	2024
Department	CSE
Level	1
CGPA	2.80
Semester	F24

Figure 3.17: Graphical User Interface: Student Login: Invoice of Course Registration

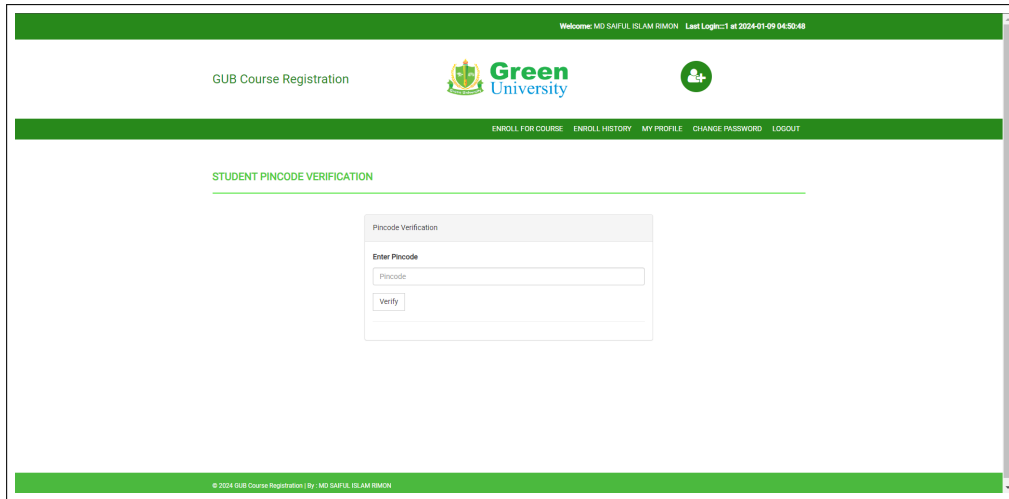


Figure 3.18: Graphical User Interface: Student Login: Pin Verification

3.3 Results Overall Discussion

The project successfully delivers a comprehensive and user-friendly Data Online Course Registration System. Its intuitive interface, combined with essential features for both students and admin, demonstrates a well-thought-out design and implementation. The project stands as a robust solution to streamline and simplify course registration and management tasks.

3.3.1 Complex Engineering Problem Discussion

The complex engineering problem presented in the project involves developing a Data Transmission Simulator using Matlab language. This task is intricate due to several factors discussed below:

1. Depth of Knowledge Required:

The development and implementation of this project necessitated a profound depth of knowledge across multiple technical domains. This included expertise in sophisticated database architecture for managing large data sets, proficiency in both front-end (Bootstrap, CSS) and back-end (PHP) development for creating a robust and user-friendly application, and a solid understanding of cybersecurity principles to ensure data protection and privacy. The project also demanded knowledge in systems integration to seamlessly connect different components of the application, ensuring a cohesive and efficient user experience.

2. Depth of Analysis Required:

The project required extensive analysis at various stages. Initially, a thorough requirement analysis was conducted to understand the needs and expectations of different stakeholders, including students, faculty, and administrative staff. This was followed by a detailed performance analysis to ensure the application could handle multiple concurrent users, especially during critical periods like course registration. Moreover, continuous usability testing was integral to the project, focusing on user interaction and interface design to ensure the application was intuitive and met the highest standards of user experience. This comprehensive analytical approach was vital in identifying and resolving potential issues, ensuring the application's reliability and effectiveness.

3. Extent of Applicable Codes:

Adherence to a wide range of applicable codes and standards was a cornerstone of this project. This included compliance with web development standards for ensuring cross-browser and cross-device compatibility, adherence to data protection regulations for maintaining user privacy and data security, and following accessibility guidelines to make the application inclusive for all users. Additionally, the project abided by software engineering best practices and ethical codes to maintain the integrity and quality of the application.

Addressing these complex problems involves a multi-disciplinary approach that combines technical knowledge with analytical skills. The success of such a project lies in the ability to translate theoretical concepts into practical, working solutions that are both efficient and user-friendly.

Chapter 4

Conclusion

4.1 Discussion

The project has been a resounding success, significantly enhancing the university's course enrollment and management processes. It has not only improved operational efficiency and data management but also positively impacted the user experience for students, faculty, and administrative staff. The application has set a benchmark for how technology can be leveraged in educational settings to facilitate better management, communication, and user engagement.

In conclusion, the University Course Enrollment and Management Web Application project stands as a shining example of how complex engineering principles can be applied to create innovative solutions in the educational sector. Its success paves the way for future initiatives to further harness the power of technology in transforming educational environments.

4.2 Limitations

1. **No Billing Facilities:** There is no provision for generating bills or invoices within the system, which could be a necessary feature for administrative purposes, especially if there are services that typically require billing.
2. **No Payment Facilities:** The system lacks the capability to process financial transactions. This implies that users are unable to make online payments for courses, materials, or other services that may be offered, potentially limiting the ease of conducting business or operations that involve monetary transactions.
3. **No Student's Result Section:** The system does not have a designated area for displaying student results. This would be a critical component for an educational platform where students need to access their academic performance records, such as grades, test scores, or progress reports.

4.3 Scope of Future Work

1. **Fixing the Limitation:** This likely refers to addressing and resolving specific deficiencies or shortcomings within the system. It implies a commitment to identify and rectify issues that hinder the system's effectiveness or its intended purpose.
2. **Enhancing Dynamicity, Make More User Flexibility:** This point emphasizes the need to make the system more dynamic and adaptable to user needs. It suggests that the system should not only accommodate but also anticipate and respond to the changing requirements of its users, thus offering greater flexibility in its use.
3. **Enhance Portability:** The focus here is on improving the system's portability, which means making it easier to access and use across different platforms and devices. This could involve optimizing the application for various operating systems, ensuring responsive design for mobile devices, or even creating a cross-platform application to allow seamless use anywhere.

References