

Smart Campus Portal

Term Project Report



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*Anood Tayyeba Imtiaz (01-135232-010) and
Tayyaab Zahoor (01-135232-070)
Course: Web Systems and Technologies*

Contents

1. Executive Summary	1
2. Introduction	1
3. Methodology and Design.....	2
4. Implementation Details.....	2
5. Testing and Validation.....	3
6. Screenshots & Walk-through.....	4
7. Discussion.....	6
8. Conclusion & Future Work.....	6

1. Executive Summary

This report describes the design and development of the Smart Campus Portal, a web-based system for university automation. The portal allows three types of users—students, faculty, and administrators—to log in and use services specific to their roles. Key features include course registration, assignment submission and grading, announcements, and administrative user and course management. The portal uses ASP.NET Web Forms, LINQ-to-SQL, Bootstrap, and jQuery to deliver a simple and responsive user experience.

2. Introduction

Universities often use multiple systems to handle student records, courses, and administrative tasks. This can make it hard for students and staff to find information. The Smart Campus Portal aims to solve this by providing one platform where:

- Students can view their profile, register for courses, submit assignments, and check grades and fees.
- Faculty can upload course content, grade work, send announcements, and view attendance.
- Administrators can manage users, manage courses, and generate simple reports.

3. Methodology and Design

Technology Choices:

- Frontend: HTML5, CSS3, Bootstrap 5, JavaScript, jQuery.
- Backend: ASP.NET Web Forms (C#), LINQ-to-SQL for data access.
- Database: SQL Server with tables for Users, Students, Faculty, Courses, Assignments, Submissions, Grades, Announcements, and Attendance.

System Structure:

- Presentation Layer: ASPX pages with code-behind files for each role's dashboard and shared user controls for navigation.
- Business Logic: C# methods handle login, session management, and CRUD operations.
- Data Layer: A .dbml file defines a DataClassesDataContext for LINQ-to-SQL mapping.
- Session Management: Uses ASP.NET Session to track logged-in user and role.

4. Implementation Details

User Authentication & Role Management:

- Login page lets users select their role (Student, Faculty, Admin) and enter credentials.
- On successful login, the system stores UserID and Role in session and redirects to the correct dashboard.
- Each page checks session values in Page_Load to prevent unauthorized access.

Student Portal:

- Profile & Academic Record: Displays user details and simulated grade report.
- Course Registration: Shows a list of courses with checkboxes. Students can select courses and submit.
- Assignments & Grades: Students upload files for assignments and view graded marks.
- Fees: A simple table shows fee details and payment status.

Faculty Portal:

- Course Content & Assignments: Faculty can upload files and set due dates.

- Grading: Faculty view student submissions and enter marks.
- Announcements: Faculty can post messages that appear on student dashboards.
- Attendance Reports: A grid lists students and allows marking attendance for a date.

Admin Panel:

- Manage Users: Admin can add or remove students and faculty via forms and view lists.
- Manage Courses: Admin can create, update, or delete courses using a data grid.
- Reports: A summary tab shows basic counts of users, courses, and registrations.

5. Testing and Validation

Functional Testing:

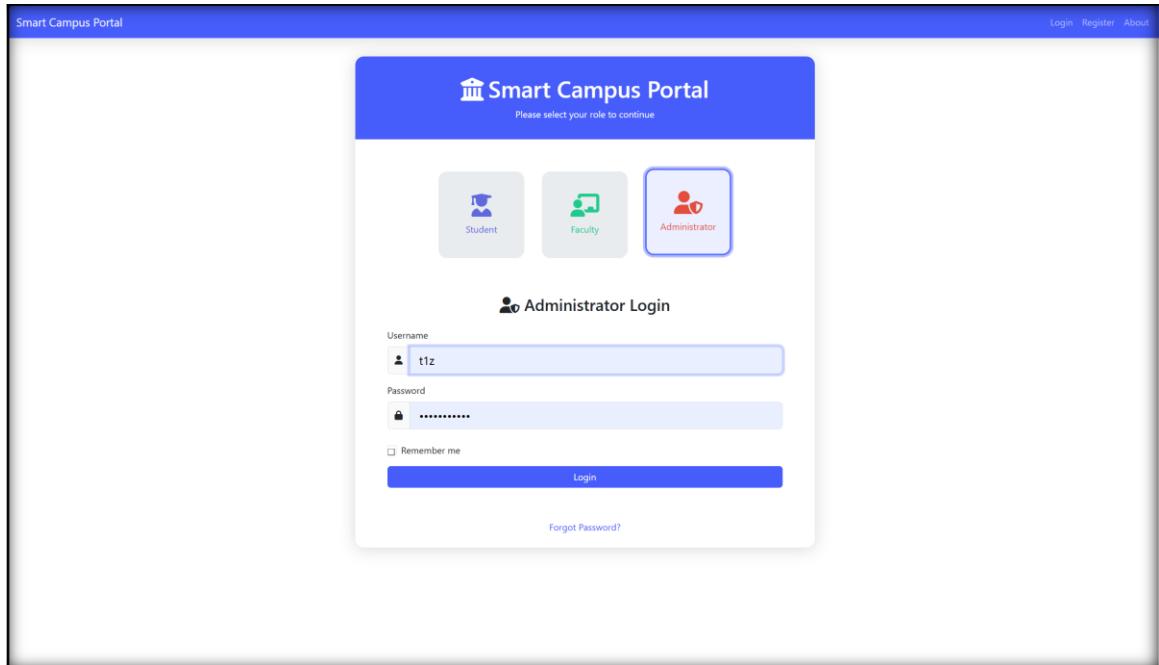
- Verified login for each role and proper redirection.
- Tested course registration workflow and data persistence.
- Uploaded and retrieved assignment files; checked file type validation.
- Graded submissions and confirmed grade display on student side.

Security and Error Handling:

- Checked that pages redirect to login if session is missing.
- Basic input validation on forms (required fields, file types).
- Handled LINQ exceptions with try-catch blocks and user-friendly messages.

6. Screenshots & Walk-through

1. Login Page:



2. Student Dashboard:

The screenshot shows the student dashboard of the Smart Campus Portal. At the top, there is a blue header bar with the text "Smart Campus Portal" on the left and "Logout About" on the right. Below the header is a blue banner with the text "Welcome, t1z". The dashboard is divided into several sections: "My Profile" (listing Username: t1z, Email: t1z, Major: Engineering, Enrolled: 2025-05-25, GPA: N/A); "My Courses" (listing a single course: H123E - Calculus, Semester: 2, Year: 1, Grade: --); "Change Password" (fields for Old Password, New Password, Confirm New Password, and a yellow "Change Password" button); "Register for Courses" (a dropdown menu labeled "... Select Section ..." and a blue "Enroll" button); and "Latest Announcements" (listing "Haris" and the date "2025-05-26").

3. Faculty Dashboard:

The screenshot shows a navigation bar with tabs: My Courses, Upload Content, Post Announcement, Attendance Report (which is selected), Enrolled Students, Assignments, Grading, and Mark Attendance. Below the navigation bar is a section titled "Attendance Report" with a dropdown menu showing "Calculus (2 1)". A table displays student attendance data:

Student	Date	Status
t1z	2025-05-26	Present

4. Admin Manage Users:

The screenshot shows the "Admin Dashboard" with a sub-header "Manage Courses, Sections, Announcements, and Users". It features three main sections: "Register Admin", "Register Faculty", and "Update Student Major".

- Register Admin:** Fields for Username, Full Name, Email, and Password, followed by a green "Register Admin" button.
- Register Faculty:** Fields for Username, Full Name, Email, Password, Department, and Position, followed by a blue "Register Faculty" button.
- Update Student Major:** A dropdown menu for "Select Student", a field for "New Major", and a yellow "Update Major" button.

The URL at the bottom of the page is <http://localhost:44155/AdminDashboard#managedUsersTab>.

5. Admin Manage Courses:

The screenshot shows the Admin Dashboard of the Smart Campus Portal. At the top, there's a blue header bar with the text "Smart Campus Portal" on the left and "Logout - Admin" on the right. Below the header is a dark blue navigation bar with the title "Admin Dashboard" and the subtitle "Manage Courses, Sections, Announcements, and Users". Underneath the navigation bar, there are four tabs: "Summary" (disabled), "Courses" (selected and highlighted in blue), "Announcements", and "Manage Users".

The main content area is divided into two sections. On the left, there's a "Create Course" form with fields for Course Code, Title, Description, Credits, and Prerequisites (with an option for "No Prerequisite"). A blue "Create Course" button is at the bottom. On the right, there's a "Create Section" form with fields for Select Course (a dropdown menu), Semester, Year, Schedule (e.g., M/W/F 10-11am), Choose Faculty (a dropdown menu), and Location. A grey "Create Section" button is at the bottom.

At the bottom left of the page, there's a URL: <http://localhost:44196/Admin/Dashboard/CoursesTab>.

7. Discussion

The project meets the main requirements by offering role-based dashboards and core features for each user type. Using ASP.NET Web Forms allowed quick page events and session handling, while LINQ-to-SQL simplified data access. Some areas were challenging, such as preserving UI state on postback and validating file uploads. These were solved with JavaScript for tabs and server-side checks for files.

8. Conclusion & Future Work

The Smart Campus Portal is a functioning proof of concept that centralizes key campus services for students, faculty, and administrators.

Future Work: We will improve the UI and add the features that don't exist, such as two-factor authentication, real-time notifications, and advanced reporting dashboards.