

CampusConnect – Student Attendance & Engagement Hub

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Project Overview

CampusConnect is a **Salesforce-based platform** designed to streamline **student attendance tracking, course management, and campus event monitoring**. The platform ensures **data-driven decision-making, secure access control, and real-time visibility** for faculty and administrators.

Problem Statement

Universities often struggle with:

- Manually tracking student attendance and course enrollments.
- Identifying students at risk due to low attendance.
- Generating actionable reports for academic planning.
- Ensuring secure and consistent data access across users.

These challenges can result in **inefficient administrative processes, missed student interventions, and inaccurate reporting**.

Solution Overview

CampusConnect addresses these challenges through:

1. **Centralized Data Management**
 - Objects for Students, Events, Courses, and Attendance.
 - Bulk data import via **Data Import Wizard** and **Data Loader**.

- Duplicate prevention rules to maintain **data integrity**.

2. Automation & Integration

- Apex triggers for auto-verifying students and updating attendance.
- Platform events to notify faculty of **at-risk students**.
- Integration with external systems via **Named Credentials** and REST callouts.

3. Interactive Dashboards & Reports

- Attendance Distribution and At-Risk Student tracking.
- Dynamic dashboards filtered by user role.
- Custom reports combining student, attendance, and course data.

4. User-Friendly Interface

- **Dynamic Forms** and **Progress Rings** for attendance.
- Quick actions for marking attendance or emailing students.
- Related List - Single components for filtered views (e.g., recent attendance).

5. Security & Compliance

- Field-level security to hide sensitive data (e.g., ID proofs).
- Session timeout and IP range restrictions.
- Audit trail to monitor changes.
- Sharing settings to control access (e.g., Students: Public Read/Write; Bookings: Private).

6. Deployment & Backup

- Managed via **VS Code & SFDX** for professional deployments.
 - Automated weekly backup with restore capabilities.
 - Unmanaged package strategy for practice deployment.
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System Design

Data Model:

- **Student:** Roll No, Email, Attendance %, Courses Enrolled.
- **Event:** Event Name, Start/End Dates, Location.
- **Attendance:** Student Lookup, Event Lookup, Status (Present/Absent).
- **Course:** Course Name, Credits, Linked Students.

Architecture Overview:

[External Systems/API] → [Named Credentials & REST Callouts] → [Apex Services & Triggers] → [Salesforce Objects & LWC Components] → [Dashboard & Reports] → [Faculty/Admin Users]

Key Automation:

- StudentVerificationService → Async verification
- AtRiskStudentEventPublisher → Publish risk notifications
- AttendanceIntegrationTrigger → Auto-update attendance status

Security & Access Control:

- Profiles & Roles: Faculty vs Admin vs Student
 - Sharing Rules & Overrides
 - Field-Level Security & Session Settings
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User Guide

Accessing CampusConnect:

1. Open **CampusConnect App** in Salesforce Lightning.
2. Use **Student Search** to find a student by Name or Roll No.

3. View **Student Record Page** to see:
 - Attendance %, Courses Enrolled, Related Attendance Records
 - Alerts for students at risk (<75% attendance)
 4. Use **Quick Actions**:
 - Mark Attendance
 - Send Email to student
 5. **Campus Dashboard**:
 - Monitor Attendance Distribution
 - Track At-Risk Students and Upcoming Events
 6. **Reports & Dashboards**:
 - Run custom reports for student, attendance, and courses.
 - Dynamic dashboards display only the relevant data per user.
 7. **Data Import**:
 - Use **Data Import Wizard** for student records.
 - Use **Data Loader** for bulk Events & Attendance.
 8. **Backup & Restore**:
 - Run automated weekly backup via provided scripts.
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Benefits

- **Efficiency:** Centralized student and attendance management reduces manual work.
- **Insightful Monitoring:** Dashboards and reports allow faculty to track student engagement.
- **Proactive Intervention:** Identify at-risk students early using real-time alerts.

- **Data Integrity:** Duplicate rules prevent incorrect entries.
 - **Security & Compliance:** Controlled access ensures confidential student data protection.
 - **Scalable Deployment:** Fully compatible with Salesforce deployment best practices using SFDX.
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Conclusion

CampusConnect delivers a **robust, user-friendly, and secure platform** for managing student attendance and engagement. It integrates **automation, reporting, dashboards, and secure data management**, enabling universities to make informed decisions and proactively address student performance challenges.