📄 Phase 6: User Interface Development – CampusConnect

Objective: Enhance the CampusConnect app’s usability by implementing a comprehensive dashboard, custom record pages, search & enrollment features, and utility bar functionalities using Lightning Web Components (LWCs) and Salesforce Lightning features.

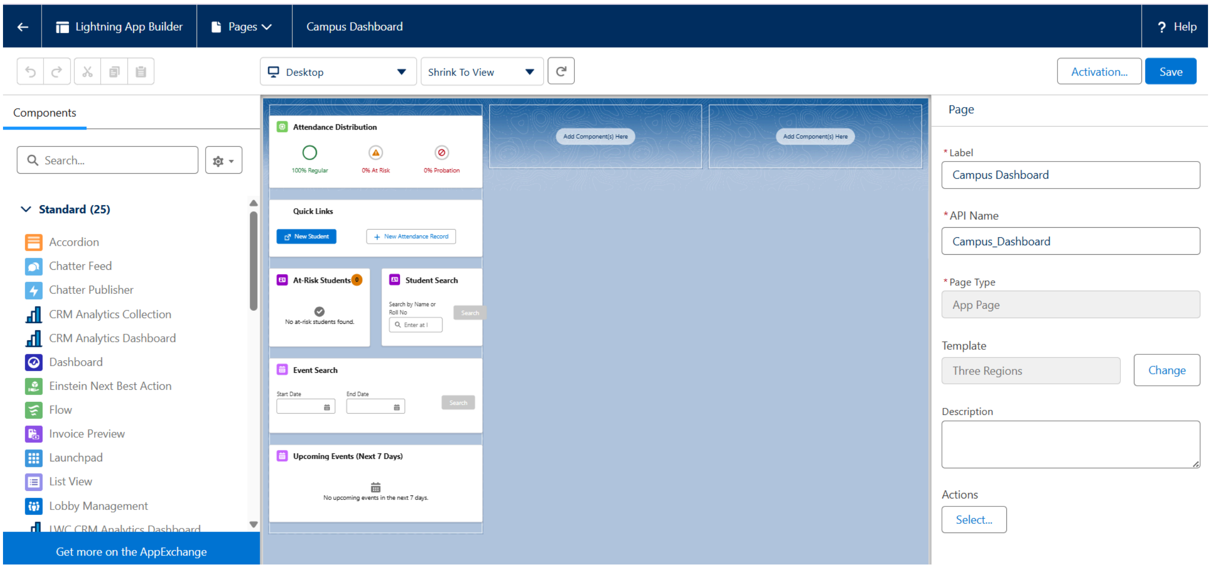
1. Lightning App Builder

The Lightning App Builder was used to design custom pages for CampusConnect, including App Pages, Home Pages, and Record Pages. It provided a drag-and-drop interface to organize components and define layouts efficiently.

- **App Pages:** Campus Dashboard – consolidates student selection, event enrollment, attendance distribution, and upcoming events.

- **Home Pages:** Campus Home – custom landing page displaying tasks, recent records, and quick metrics.

- **Record Pages:** Student and Event record pages – display detailed object information with related lists and custom components.



Page

* Label: Campus Dashboard

* API Name: Campus_Dashboard

* Page Type: App Page

Template: Three Regions

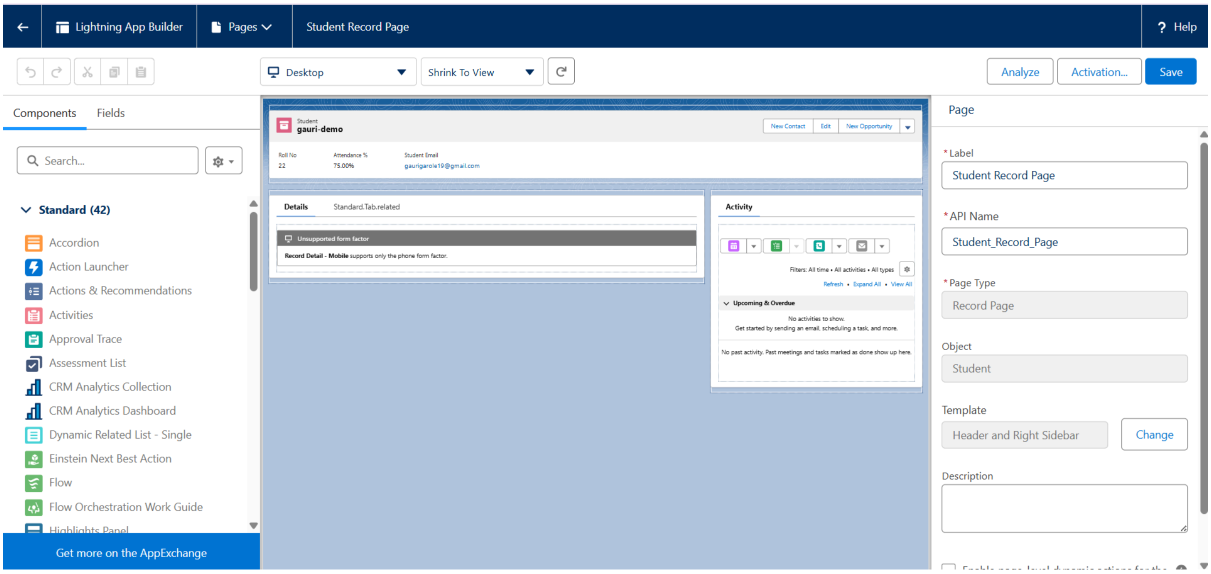
2. Record Pages

Custom record pages were implemented to enhance the Student and Event object views within CampusConnect:

- **Student Record Page:** Highlights student information, attendance statistics, at-risk indicators, and associated courses and events.

- **Event Record Page:** Highlights event details, enrolled students, attendance tracking, and interactive enrollment via LWCs.

Both record pages were activated as **App Default** for CampusConnect, ensuring that all records opened through the app use the custom layout.



Student
gauri-demo

Roll No: 22
Attendance %: 75.00%
Student Email: gaurigarole19@gmail.com

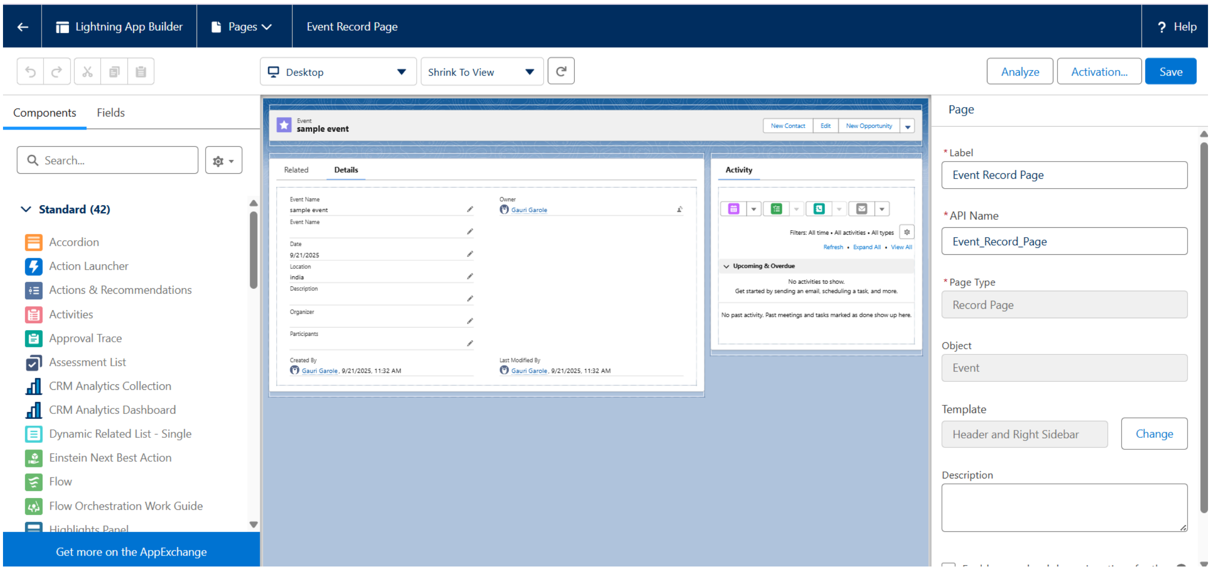
Unsupported form factor
Record Detail - Mobile supports only the phone form factor.

Filters: All time • All activities • All types

No activities to show.
Get started by sending an email, scheduling a task, and more.

No past activity. Past meetings and tasks marked as done show up here.

* Label: Student Record Page
* API Name: Student_Record_Page
* Page Type: Record Page
Object: Student
Template: Header and Right Sidebar
Description:



Event
sample event

Event Name: sample event
Event Name:
Date: 9/21/2025
Location: india
Description:
Organizer:
Participants:
Owner: Gauri Garole
Created By: Gauri Garole, 9/21/2025, 11:32 AM
Last Modified By: Gauri Garole, 9/21/2025, 11:32 AM

Filters: All time • All activities • All types

No activities to show.
Get started by sending an email, scheduling a task, and more.

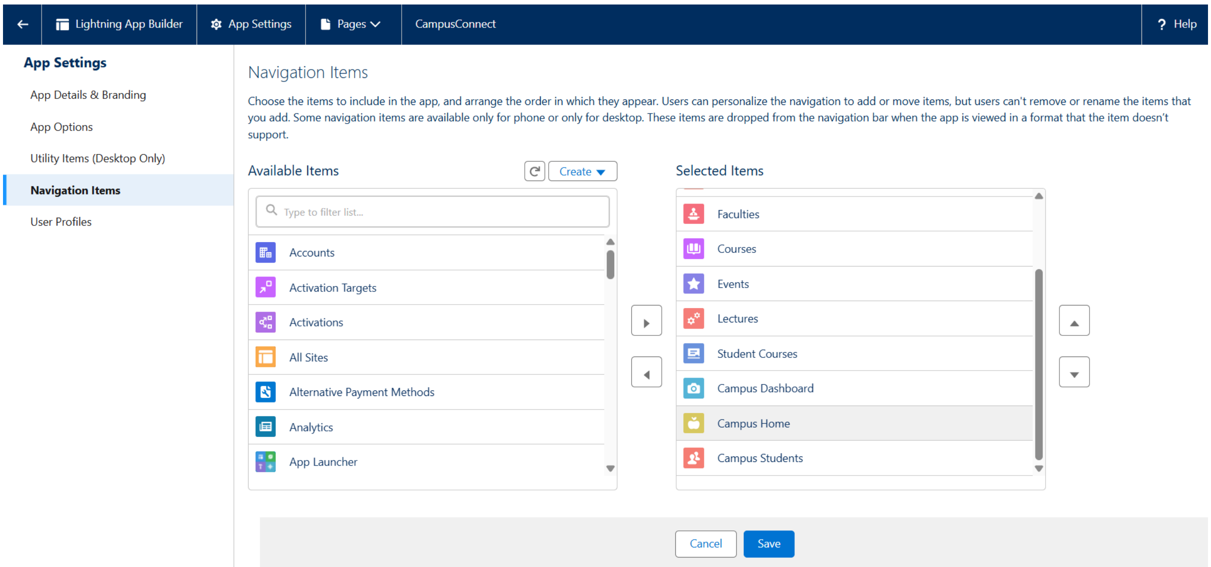
No past activity. Past meetings and tasks marked as done show up here.

* Label: Event Record Page
* API Name: Event_Record_Page
* Page Type: Record Page
Object: Event
Template: Header and Right Sidebar
Description:

3. Navigation & Tabs

The CampusConnect app was organized with intuitive navigation:

- Navigation order: `Home → Students → Attendance Records → Faculties → Courses → Events → Lectures → StudentCourse__c`.
- **Campus Dashboard** added as a Lightning Page Tab.
- **Utility Bar:** Quick access to Attendance creation (`attendanceQuickCreateLWC`) and Notes/Help (`quickNotesLWC`).



Navigation Items

Choose the items to include in the app, and arrange the order in which they appear. Users can personalize the navigation to add or move items, but users can't remove or rename the items that you add. Some navigation items are available only for phone or only for desktop. These items are dropped from the navigation bar when the app is viewed in a format that the item doesn't support.

Available Items

- Accounts
- Activation Targets
- Activations
- All Sites
- Alternative Payment Methods
- Analytics
- App Launcher

Selected Items

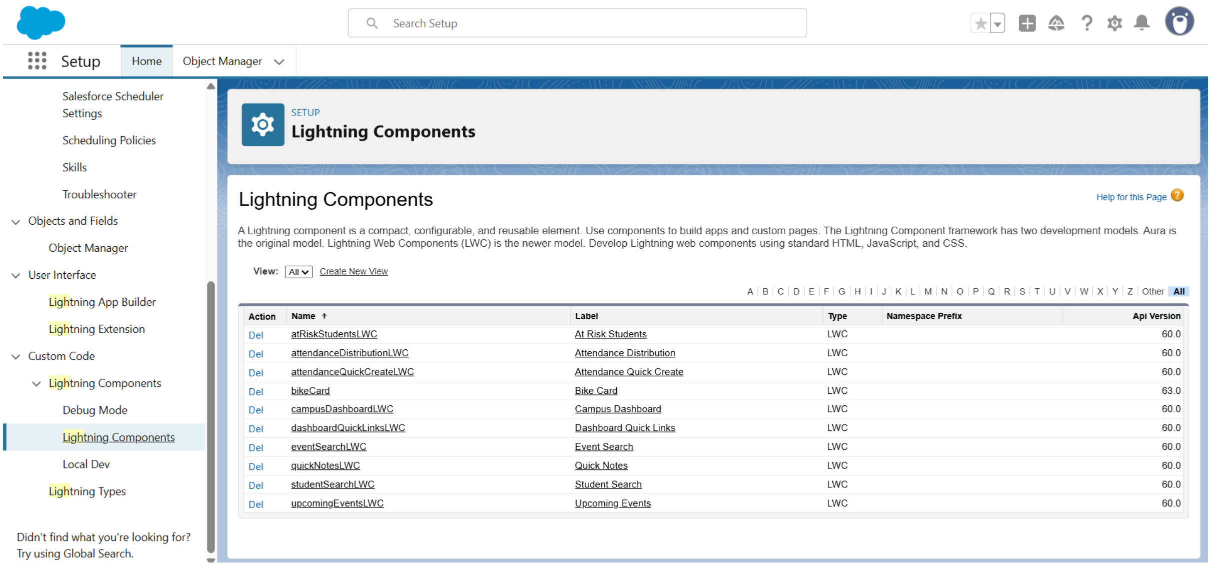
- Faculties
- Courses
- Events
- Lectures
- Student Courses
- Campus Dashboard
- Campus Home
- Campus Students

4. Lightning Web Components (LWCs)

Several LWCs were developed to provide interactive and dynamic functionality:

Component	Purpose
`studentSearchLWC`	Search and select students by name/roll number; status indicators; row actions
`atRiskStudentsLWC`	Display at-risk students in card format
`eventSearchLWC`	Search events by date or name; enroll selected students; sortable columns
`upcomingEventsLWC`	Display scheduled events in the next 7 days
`attendanceDistributionLWC`	Show attendance distribution using progress rings
`campusDashboardLWC`	Coordinates student selection and event enrollment
`dashboardQuickLinksLWC`	Quick access to create new students or attendance records

`attendanceQuickCreateLWC`	Utility bar form for quick attendance creation
`quickNotesLWC`	Notes and help section in utility bar



Lightning Components

Lightning Components

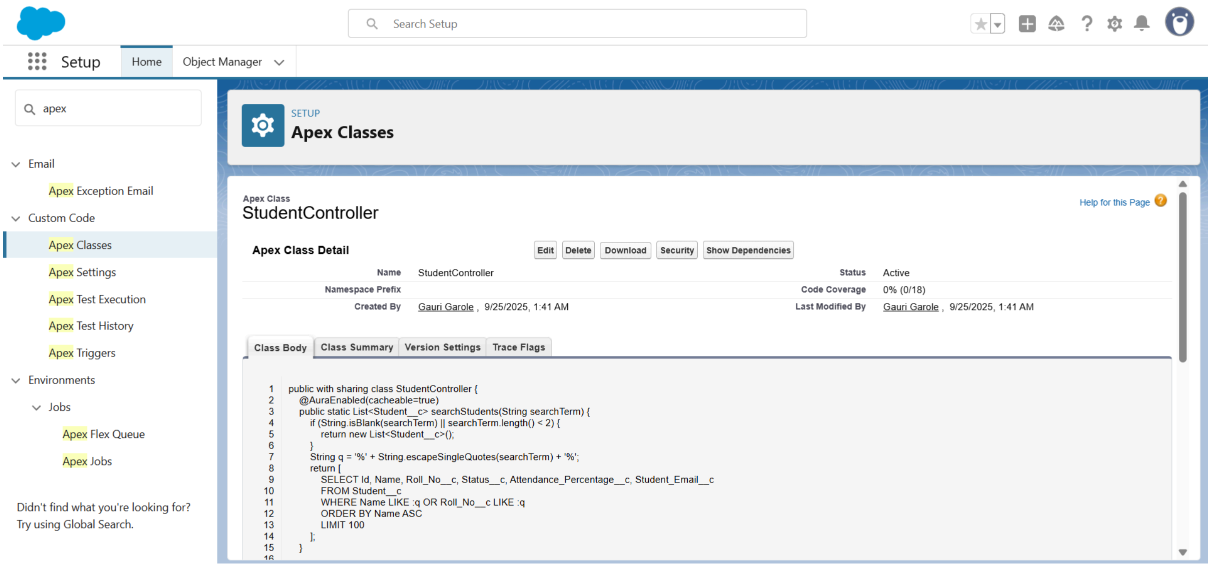
A Lightning component is a compact, configurable, and reusable element. Use components to build apps and custom pages. The Lightning Component framework has two development models. Aura is the original model. Lightning Web Components (LWC) is the newer model. Develop Lightning web components using standard HTML, JavaScript, and CSS.

Action	Name ↑	Label	Type	Namespace Prefix	Api Version
Del	atRiskStudentsLWC	At Risk Students	LWC		60.0
Del	attendanceDistributionLWC	Attendance Distribution	LWC		60.0
Del	attendanceQuickCreateLWC	Attendance Quick Create	LWC		60.0
Del	bikeCard	Bike Card	LWC		63.0
Del	campusDashboardLWC	Campus Dashboard	LWC		60.0
Del	dashboardQuickLinksLWC	Dashboard Quick Links	LWC		60.0
Del	eventSearchLWC	Event Search	LWC		60.0
Del	quickNotesLWC	Quick Notes	LWC		60.0
Del	studentSearchLWC	Student Search	LWC		60.0
Del	upcomingEventsLWC	Upcoming Events	LWC		60.0

5. Apex Integration

Apex controllers were implemented to provide server-side logic for LWCs:

- **StudentController:** Handles student search, retrieval of at-risk students, and attendance distribution data.
- **EventController:** Manages event search, upcoming events, and enrollment actions.



Apex Classes

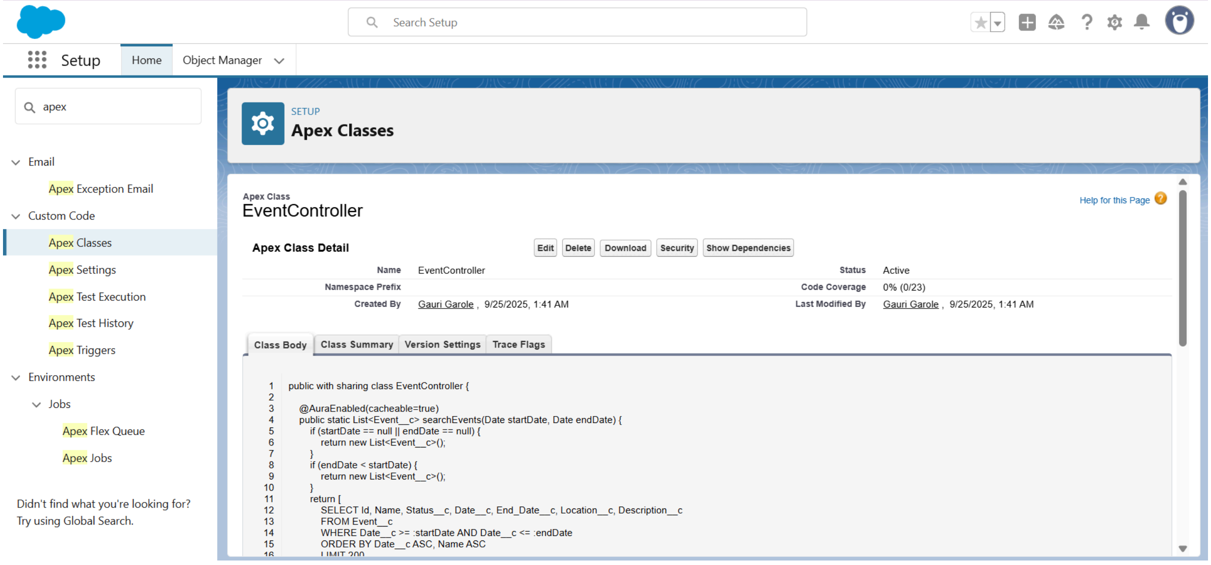
Apex Class

StudentController

Apex Class Detail

Name	StudentController	Status	Active
Namespace Prefix		Code Coverage	0% (0/18)
Created By	Gauri Garole , 9/25/2025, 1:41 AM	Last Modified By	Gauri Garole , 9/25/2025, 1:41 AM

```
public with sharing class StudentController {
    @AuraEnabled(cacheable=true)
    public static List<Student__c> searchStudents(String searchTerm) {
        if (String.isBlank(searchTerm) || searchTerm.length() < 2) {
            return new List<Student__c>();
        }
        String q = '%' + String.escapeSingleQuotes(searchTerm) + '%';
        return [
            SELECT Id, Name, Roll_No__c, Status__c, Attendance_Percentage__c, Student_Email__c
            FROM Student__c
            WHERE Name LIKE :q OR Roll_No__c LIKE :q
            ORDER BY Name ASC
            LIMIT 100
        ];
    }
```



Apex Class
EventController

Apex Class Detail

Name	EventController	Status	Active
Namespace Prefix		Code Coverage	0% (0/23)
Created By	Gauri Garole , 9/25/2025, 1:41 AM	Last Modified By	Gauri Garole , 9/25/2025, 1:41 AM

```
public with sharing class EventController {

    @AuraEnabled(cacheable=true)
    public static List<Event__c> searchEvents(Date startDate, Date endDate) {
        if (startDate == null || endDate == null) {
            return new List<Event__c>();
        }
        if (endDate < startDate) {
            return new List<Event__c>();
        }
        return [
            SELECT Id, Name, Status__c, Date__c, End_Date__c, Location__c, Description__c
            FROM Event__c
            WHERE Date__c >= :startDate AND Date__c <= :endDate
            ORDER BY Date__c ASC, Name ASC
            LIMIT 200
```

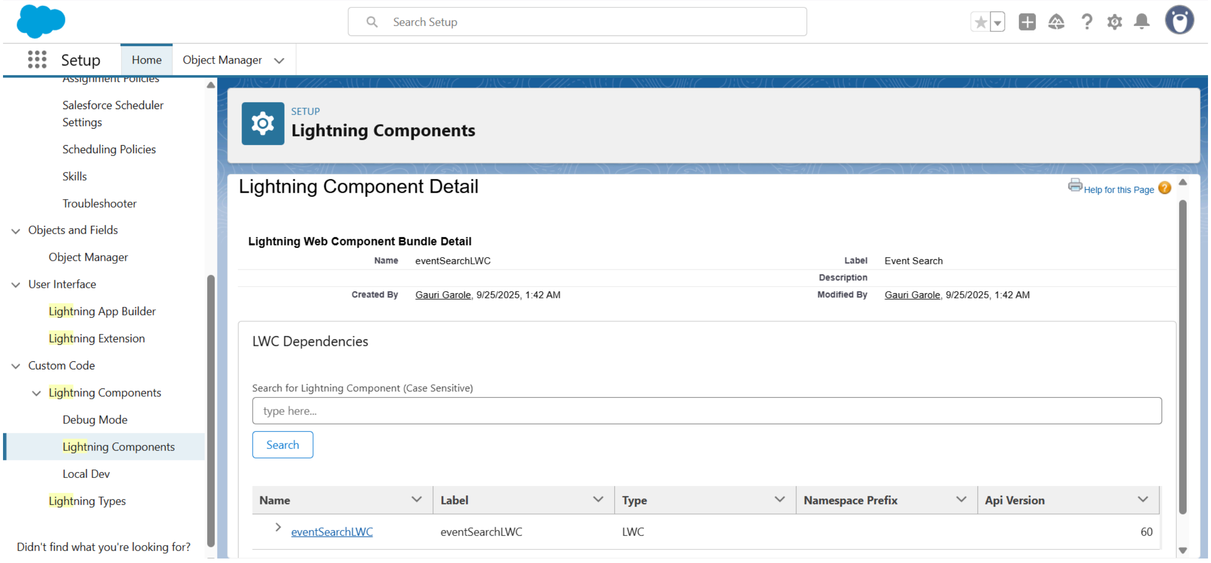
Both controllers were tested with dedicated test classes, ensuring coverage above 75%.

Key Techniques:

- **Wire Adapters:** Reactive data fetching for dynamic components (e.g., `getAtRiskStudents`).
- **Imperative Apex Calls:** Explicit data retrieval on user actions, such as searching for events (`searchEvents`) and enrolling students.

6. Event Enrollment in LWC

The `eventSearchLWC` enables users to filter events by date or name and enroll students directly from the dashboard. Enrollment creates an `Attendance__c` record and triggers navigation to the newly created record.



Lightning Component Detail

Lightning Web Component Bundle Detail

Name	eventSearchLWC	Label	Event Search
		Description	
Created By	Gauri Garole, 9/25/2025, 1:42 AM	Modified By	Gauri Garole, 9/25/2025, 1:42 AM

LWC Dependencies

Search for Lightning Component (Case Sensitive)

type here...

Name	Label	Type	Namespace Prefix	Api Version
eventSearchLWC	eventSearchLWC	LWC		60

7. Navigation Service

Navigation within LWCs was implemented using Salesforce’s NavigationMixin, allowing programmatic redirection between records and pages. Example: selecting a student and opening their attendance record automatically.

Conclusion:

Phase 6 successfully enhanced CampusConnect’s usability with a clean dashboard, intuitive navigation, interactive LWCs, and backend Apex integration. The implementation ensures efficient student and event management, with dynamic enrollment, real-time attendance visualization, and quick access to essential features.