Classync - Virtual Classroom Platform

Use Case Report

Group - 33

Course: Software Engineering

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Contents

1. Overview

1.1 Summary

This report documents the use cases for Sprint 1, Sprint 2, Sprint 3, Sprint 4, and Sprint 5 of the Virtual Classroom Platform. Sprint 1 covers authentication and AI assistance features, Sprint 2 focuses on homepage and classroom functionality, Sprint 3 adds chat, assignments, and announcements modules, Sprint 4 introduces notification system and advanced AI learning tools, and Sprint 5 introduces whiteboard/PDF annotation, analytics dashboards, and group management.

1.2 Scope

The use cases covered in this report are based on the following modules:

- **Sprint 1 - Authentication Module:** UC-AUTH-01 through UC-AUTH-06

- **Sprint 1 - AI Bubble Assistant Module:** UC-AI-01 through UC-AI-02

- **Sprint 2 - Homepage Module:** UC-HOME-01 through UC-HOME-05

- **Sprint 2 - Classroom Module:** UC-CLASS-01 through UC-CLASS-07

- **Sprint 3 - Chat Space Module:** UC-CHAT-01 through UC-CHAT-04

- **Sprint 3 - Assignments Module:** UC-ASS-01 through UC-ASS-13

- **Sprint 3 - Announcement Module:** UC-ANN-01 through UC-ANN-08

- **Sprint 4 - Notification System Module:** UC-N01 through UC-N05

- **Sprint 4 - AI Learning Assistant: Quiz Generator Module:** UC-Q01 through UC-Q05

- **Sprint 4 - AI Learning Assistant: Tutor Chatbot Module:** UC-C01 through UC-C04

- **Sprint 5 - Whiteboard & PDF Annotation Module:** UC-W01 through UC-W05

- **Sprint 5 - Instructor Analytics Dashboard Module:** UC-IA01 through UC-IA05

- **Sprint 5 - Student Progress Dashboard Module:** UC-SP01 through UC-SP04

- **Sprint 5 - Group Management System Module:** UC-GRP01 through UC-GRP07

2. Sprint 1 - Authentication Use Cases

2.1 UC-AUTH-01: User Registration

UC-AUTH-01: User Registration

Actor: New User (Student / Instructor) **Pre-condition:** User is not registered.

Main Flow:

1. User enters email, password, and (if instructor) verification password.

2. System validates info.

3. System creates account in Firebase + MongoDB.

4. User is logged in and redirected to dashboard.

Alternate Flow:

- Email exists → show "Email already in use".

- Invalid instructor password → show "Invalid verification password".

- Offline → show "You are offline".

Post-condition: Account is created.

2.2 UC-AUTH-02: User Login

UC-AUTH-02: User Login

Actor: Registered User **Main Flow:**

1. User enters email + password.

2. System validates credentials.

3. System checks email verification.

4. User sees correct role-based dashboard.

Alternate Flow:

- Wrong password → error.

- Email not registered → error.

- Email not verified → show verification prompt.

- Network error → "Check connection".

2.3 UC-AUTH-03: Reset Password

UC-AUTH-03: Reset Password

Actor: User **Main Flow:**

1. User clicks "Forgot Password".

2. Enters email.

3. System sends reset link.

4. User resets password and logs in again.

Alternate Flow:

- Email not found.

- Invalid email format.

- Mail sending error → "Unable to send email".

2.4 UC-AUTH-04: Update Username

UC-AUTH-04: Update Username

Actor: Logged-in User **Main Flow:**

1. User opens "Change Username" dialog.

2. Enters new username.

3. System updates username.

Alternate Flow:

- Username not updated correctly on all cards.

2.5 UC-AUTH-05: Role-Based Access Control

UC-AUTH-05: Role-Based Access Control

Actor: Instructor **Main Flow:**

1. User selects "Instructor" during registration.

2. Enters instructor verification password.

3. System validates and assigns instructor role.

4. Instructor gets access to instructor-only features.

Alternate Flow:

- Wrong password → error.

2.6 UC-AUTH-06: Logout

UC-AUTH-06: Logout

Actor: Logged-in User **Main Flow:**

1. User clicks "Logout" in menu.

2. System clears session + local storage.

3. User is redirected to homepage.

Alternate Flow:

- Logout fails → show retry option.

3. Sprint 1 - AI Bubble Assistant Use Cases

3.1 UC-AI-01: Quick Educational AI Assistance

UC-AI-01: Quick Educational AI Assistance

Actor: Any User **Main Flow:**

1. User clicks AI-bubble.

2. Chat window opens.

3. User enters a question.

4. AI responds quickly with relevant educational answer.

Alternate Flow:

- AI cannot respond offline.

- Server down → error message.

3.2 UC-AI-02: Education-only Response Filtering

UC-AI-02: Education-only Response Filtering

Actor: Any User **Main Flow:**

1. User enters a prompt.

2. System filters question through domain rules.

3. AI responds only if query is educational.

Alternate Flow:

- If irrelevant (e.g., sports, news), AI politely rejects.

4. Sprint 2 - Homepage Use Cases

4.1 UC-HOME-01: View Personalized Dashboard

UC-HOME-01: View Personalized Dashboard

Actor: Logged-in User (Student/Instructor) **Pre-condition:** User is authenticated.

Main Flow:

1. User opens homepage.

2. System loads enrolled courses, upcoming assignments, and quick actions.

3. System displays course cards.

Alternate Flow:

- If data fails to load → system shows error message + retry.

Post-condition: Dashboard is shown.

4.2 UC-HOME-02: Access Quick Navigation Buttons

UC-HOME-02: Access Quick Navigation Buttons

Actor: Logged-in User **Main Flow:**

1. Homepage shows navigation buttons (My Courses, Analytics/My Progress, AI Tools).

2. User clicks any button.

3. System redirects to selected section.

Alternate Flow:

- If role mismatch → button hidden.

4.3 UC-HOME-03: View & Manage My Courses

UC-HOME-03: View & Manage My Courses

Actor: Student/Instructor **Main Flow:**

1. User opens homepage.

2. System displays course cards with title, instructor, progress.

3. User clicks a card → enters corresponding classroom.

Alternate Flow:

- Missing data → placeholders shown.

- Navigation error → error toast.

4.4 UC-HOME-04: Create / Join a Course

UC-HOME-04: Create / Join a Course

Actor: Instructor / Student **Main Flow – Instructor:**

1. Click "Create Course".

2. Fill form → submit.

3. System creates course + refreshes list.

Main Flow – Student:

1. Click "Join Course".

2. Enter class code → submit.

3. System enrolls student + refreshes list.

4.5 UC-HOME-05: Unenroll from a Course (Student)

UC-HOME-05: Unenroll from a Course (Student)

Actor: Student **Main Flow:**

1. Student clicks "Unenroll".

2. Confirmation dialog appears.

3. Student confirms → system removes enrollment.

4. Course removed from homepage.

Alternate Flow:

- Error → retry toast.

- Student cancels → no action.

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5. Sprint 2 - Classroom Page Use Cases

5.1 UC-CLASS-01: View Class Stream

UC-CLASS-01: View Class Stream

Actor: Student or Instructor **Main Flow:**

1. User enters a classroom.

2. System loads posts from local DB.

3. Posts appear in newest-first order.

Alternate Flow:

- Loading error → "Could not load posts" shown.

5.2 UC-CLASS-02: Create a Post (Instructor Only)

UC-CLASS-02: Create a Post (Instructor Only)

Actor: Instructor **Main Flow:**

1. Instructor clicks "Create Post".

2. Writes content → clicks "Post".

3. System saves post → shows it at top of stream.

Alternate Flow:

- Save error → error message.

5.3 UC-CLASS-03: Copy Class Code from Post

UC-CLASS-03: Copy Class Code from Post

Actor: Any user **Main Flow:**

1. User clicks "Copy Code".

2. System copies code to clipboard.

3. Shows "Copied!" confirmation.

Alternate Flow:

- Copy fails → show error message.

5.4 UC-CLASS-04: View Professor Information

UC-CLASS-04: View Professor Information

Actor: Student / Instructor **Main Flow:**

1. User opens classroom header.

2. System displays instructor name.

Alternate Flow:

- Load fails → generic name or placeholder.

5.5 UC-CLASS-05: View Class People List

UC-CLASS-05: View Class People List

Actor: Any user **Main Flow:**

1. User clicks "People" tab.

2. System loads list of students + instructor.

3. Instructor displayed first.

Alternate Flow:

• Loading error → error message.

5.6 UC-CLASS-06: View Class Assignments

UC-CLASS-06: View Class Assignments

Actor: Student **Main Flow:**

1. User clicks "Assignments" tab.

2. System shows assignment list with due dates.

Alternate Flow:

• No assignments → show "No assignments yet".

5.7 UC-CLASS-07: Navigate Between Courses from Classroom

UC-CLASS-07: Navigate Between Courses from Classroom

Actor: Any user **Main Flow:**

1. User opens left sidebar course list.

2. Selects another course.

3. System navigates directly to selected course page.

Alternate Flow:

• If sidebar missing → user must return to homepage.

6. Sprint 3 - Chat Space Use Cases

6.1 UC-CHAT-01: Send Message in Classroom Chat

UC-CHAT-01: Send Message in Classroom Chat

Actor: Student / Faculty **Main Flow:**

1. User types a message in chat.

2. Clicks "Send".

3. Message appears instantly in their chat window and in all users' windows.

Alternate Flow:

- Message not displayed → chat fails to update.

6.2 UC-CHAT-02: View Sender Name & Message Order

UC-CHAT-02: View Sender Name & Message Order

Actor: Student / Faculty **Main Flow:**

1. User opens chat space.

2. Each message displays sender name + correct chronological order.

Alternate Flow:

- Names missing or messages out of order.

6.3 UC-CHAT-03: Auto-Scroll to Latest Message

UC-CHAT-03: Auto-Scroll to Latest Message

Actor: Student / Faculty **Main Flow:**

1. User enters chat.

2. System auto-scrolls to bottom to show most recent message.

Alternate Flow:

- Chat loads statically and does not scroll.

6.4 UC-CHAT-04: View Complete Chat History

UC-CHAT-04: View Complete Chat History

Actor: Student / Faculty **Main Flow:**

1. User opens chat.

2. System loads all messages sent before their login.

Alternate Flow:

- User sees empty space even though messages exist.

7. Sprint 3 - Assignments Use Cases

7.1 UC-ASS-01: Create Assignment (Instructor)

UC-ASS-01: Create Assignment (Instructor)

Actor: Instructor **Main Flow:**

1. Instructor enters title, description, deadline, attachments (optional).

2. Clicks "Create Assignment".

3. Assignment saved + shown in list with success toast.

Alternate Flow:

- Missing fields or file ¿10MB → show error.

7.2 UC-ASS-02: Submit Assignment (Student)

UC-ASS-02: Submit Assignment (Student)

Actor: Student **Main Flow:**

1. User selects file from device.

2. Clicks "Submit".

3. System uploads file and marks submission successful.

Alternate Flow:

- Upload error.

7.3   UC-ASS-03: View Student Submissions (Instructor)

UC-ASS-03: View Student Submissions (Instructor)

Actor: Instructor **Main Flow:**

1. Instructor clicks "View Submissions".

2. System shows list with student names, submission time, file links, grading status.

Alternate Flow:

- Submissions fail to load.

7.4   UC-ASS-04: Get Deadline Reminder (Student)

UC-ASS-04: Get Deadline Reminder (Student)

Actor: Student **Main Flow:**

1. System automatically checks assignments due in 24 hours.

2. Student receives reminder.

Alternate Flow:

- Reminder too late or missing.

7.5   UC-ASS-05: Grade Student Submission

UC-ASS-05: Grade Student Submission

Actor: Instructor **Main Flow:**

1. Instructor enters grade, max score, feedback.

2. Clicks "Save Grade".

3. Student gets real-time notification + submission updated.

Alternate Flow:

- Invalid or empty grade.

7.6   UC-ASS-06: Export Assignment Report

UC-ASS-06: Export Assignment Report

Actor: Instructor **Main Flow:**

1. Instructor exports submissions to CSV/XLSX.

2. System generates file successfully.

Alternate Flow:

- Export error.

7.7   UC-ASS-07: View Assignments by Priority (Student)

UC-ASS-07: View Assignments by Priority (Student)

Actor: Student **Main Flow:**

1. User opens Assignments page.

2. Assignments appear under tabs: Pending, Submitted, Overdue.

Alternate Flow:

- Wrong or empty results despite existing assignments.

7.8   UC-ASS-08: Submit Before Deadline

UC-ASS-08: Submit Before Deadline

Actor: Student **Main Flow:**

1. Student uploads valid file (¡10MB).

2. Submission timestamp saved + success toast appears.

Alternate Flow:

- File too large.

- Deadline passed → submit disabled.

7.9 UC-ASS-09: View Grades & Feedback (Student)

UC-ASS-09: View Grades & Feedback (Student)

Actor: Student **Main Flow:**

1. Student opens "Submitted" tab.

2. Sees grade, feedback, submission date, "Graded" badge.

Alternate Flow:

- Grade not visible or no notification received.

7.10 UC-ASS-10: View Assignment Status

UC-ASS-10: View Assignment Status

Actor: Student **Main Flow:**

1. System segregates assignments → Submitted / Overdue.

Alternate Flow:

- Wrong or incomplete segregation.

7.11 UC-ASS-11: Edit Assignment Deadline

UC-ASS-11: Edit Assignment Deadline

Actor: Instructor **Main Flow:**

1. Instructor edits deadline.

2. System updates and saves new deadline.

Alternate Flow:

- Reset error.

7.12 UC-ASS-12: Create Assignments for All Courses (Admin Page)

UC-ASS-12: Create Assignments for All Courses (Admin Page)

Actor: Instructor (via Admin Dashboard) **Main Flow:**

1. Instructor opens admin assignment creator.

2. Creates assignments for multiple courses from one page.

Alternate Flow:

- Some courses not visible.

- Creation fails for specific courses.

7.13 UC-ASS-13: Delete Assignment/Course

UC-ASS-13: Delete Assignment/Course

Actor: Instructor **Main Flow:**

1. Instructor selects assignment/course.

2. System deletes and removes it from UI.

Alternate Flow:

- Deletion fails.

8. Sprint 3 - Announcement Use Cases

8.1 UC-ANN-01: Create Announcement Post

UC-ANN-01: Create Announcement Post

Actor: Instructor **Main Flow:**

1. Instructor fills post content (text/materials/poll).

2. Creates post.

3. Post appears at top of stream.

Alternate Flow:

- Post not created.

8.2 UC-ANN-02: Edit Announcement

UC-ANN-02: Edit Announcement

Actor: Instructor **Main Flow:**

1. Instructor selects edit.

2. Updates title/content/links/poll/flags.

3. Update visible instantly to all users.

Alternate Flow:

- Edits not reflected / unauthorized edit allowed.

8.3 UC-ANN-03: Delete Announcement

UC-ANN-03: Delete Announcement

Actor: Instructor **Main Flow:**

1. Instructor clicks delete.

2. Announcement removed for all users.

Alternate Flow:

- Post still visible.

- Unauthorized deletion occurs.

8.4 UC-ANN-04: Upload Files in Announcement

UC-ANN-04: Upload Files in Announcement

Actor: Instructor **Main Flow:**

1. Instructor attaches PDFs/DOCs/TXT.

2. Files upload to Drive.

3. Students can open/download.

Alternate Flow:

- File upload fails or link broken.

8.5 UC-ANN-05: Mark Announcement Priority

UC-ANN-05: Mark Announcement Priority

Actor: Instructor **Main Flow:**

1. Instructor marks announcement Important/Urgent.

2. Badge appears visually in stream.

Alternate Flow:

- Badge missing or flag not saved.

8.6 UC-ANN-06: Pin Announcement to Top

UC-ANN-06: Pin Announcement to Top

Actor: Instructor **Main Flow:**

1. Instructor toggles "Pin".

2. Post appears above all others with "Pinned" label.

Alternate Flow:

- Pinned not shown at top.

8.7 UC-ANN-07: Create Poll in Announcement

UC-ANN-07: Create Poll in Announcement

Actor: Instructor **Main Flow:**

1. Instructor adds poll (question + 2–6 options).

2. Students vote → system shows live percentages.

Alternate Flow:

- Votes not recorded / poll not saved.

8.8 UC-ANN-08: Search Posts in Stream

UC-ANN-08: Search Posts in Stream

Actor: Any User **Main Flow:**

1. User enters search text.

2. Stream filters posts and shows matches.

Alternate Flow:

- Post not found even though it exists.

9. Sprint 4 - Notification System Use Cases

9.1 UC-N01: View Unread Notification Count

UC-N01: View Unread Notification Count

Actor: Any User **Main Flow:**

1. User logs in → notification bell shows unread count.

2. Count updates any time items are marked read.

Alternate Flow:

- Badge shows incorrect count or does not update.

9.2 UC-N02: Mark All Notifications as Read

UC-N02: Mark All Notifications as Read

Actor: Any User **Main Flow:**

1. User clicks "Mark all as read".

2. All notifications become read.

3. Badge resets to zero instantly.

Alternate Flow:

- Some notifications remain unread.

- Badge shows stale count.

9.3 UC-N03: Receive New Assignment Notification (Student)

UC-N03: Receive New Assignment Notification (Student)

Actor: Student **Main Flow:**

1. Instructor publishes assignment.

2. System creates a notification with title.

3. Notification appears in dropdown + /notifications page.

Alternate Flow:

- Notification not created or badge not updated.

9.4 UC-N04: Receive Grading Notification (Student)

UC-N04: Receive Grading Notification (Student)

Actor: Student **Main Flow:**

1. Instructor grades or updates grade.

2. System sends notification with assignment title + score.

3. User opens notification → redirected to graded submission.

Alternate Flow:

- Notification missing or shows wrong data.

9.5 UC-N05: Instructor Receives Submission Notification

UC-N05: Instructor Receives Submission Notification

Actor: Instructor **Main Flow:**

1. Student submits assignment.

2. System generates one notification with student + assignment ID.

3. Badge increments correctly.

Alternate Flow:

- Duplicate notifications.

- Wrong metadata.

10. Sprint 4 - AI Learning Assistant: Quiz Generator Use Cases

10.1 UC-Q01: Generate Topic-Based Quiz

UC-Q01: Generate Topic-Based Quiz

Actor: Student **Main Flow:**

1. User enters topic + settings (type, grade, count).

2. System generates relevant questions + correct answers.

3. Quiz appears instantly in UI.

Alternate Flow:

- Quiz irrelevant/poorly formatted.

- Missing answer keys.

10.2 UC-Q02: Select Quiz Type (MCQ / True-False)

UC-Q02: Select Quiz Type (MCQ / True-False)

Actor: Student **Main Flow:**

1. User selects quiz type.

2. Generated quiz matches chosen format.

Alternate Flow:

- Quiz ignores selected type.

- Wrong/missing options.

10.3 UC-Q03: Apply Grade-Level Difficulty

UC-Q03: Apply Grade-Level Difficulty

Actor: Student **Main Flow:**

1. User selects grade level.

2. Quiz difficulty aligns with grade.

Alternate Flow:

- Grade selection has no effect.

- Questions too easy/hard.

10.4 UC-Q04: Choose Number of Questions

UC-Q04: Choose Number of Questions

Actor: Student **Main Flow:**

1. User selects question count.

2. Quiz contains exactly that number.

Alternate Flow:

- Extra or fewer questions.

- Selector ignored.

10.5 UC-Q05: View / Clear Quiz History

UC-Q05: View / Clear Quiz History

Actor: Student **Main Flow:**

1. User views past quizzes with topic, grade, type, timestamp.

2. User clicks "Clear History" → all items removed.

Alternate Flow:

- History incomplete/duplicate.

- Clear deletes only some entries.

11. Sprint 4 - AI Learning Assistant: Tutor Chatbot Use Cases

11.1 UC-C01: Ask Topic-Based Academic Question

> **UC-C01: Ask Topic-Based Academic Question**
>
> **Actor:** Student **Main Flow:**
>
> 1. User enters topic + detailed question.
>
> 2. AI returns structured, accurate explanation.
>
> 3. Answer appears cleanly in chat UI.
>
> **Alternate Flow:**
>
> - Off-topic or incoherent response.
>
> - Long delays / missing output.

11.2 UC-C02: Input Detailed Academic Query

> **UC-C02: Input Detailed Academic Query**
>
> **Actor:** Student **Main Flow:**
>
> 1. User writes long question.
>
> 2. System handles long text gracefully.
>
> 3. AI provides complete explanation.
>
> **Alternate Flow:**
>
> - Formatting issues / clipping.
>
> - AI answer cut off.

11.3   UC-C03: View & Clear Chat History

> **UC-C03: View & Clear Chat History**
>
> **Actor:** Student **Main Flow:**
>
> 1. User opens history → sees past Q&A pairs.
>
> 2. User selects "Clear History".
>
> 3. UI resets to empty session.
>
> **Alternate Flow:**
>
> - Missing/incorrect order.
>
> - Clear fails to remove old data.

11.4   UC-C04: Reliable AI Answer Generation

> **UC-C04: Reliable AI Answer Generation**
>
> **Actor:** Student **Main Flow:**
>
> 1. User submits question.
>
> 2. Submit button disables to prevent duplicates.
>
> 3. AI responds within acceptable time.
>
> 4. Chat UI stays responsive.
>
> **Alternate Flow:**
>
> - Duplicate answers.
>
> - Chat freezes/unresponsive.

12. Sprint 5 - Whiteboard & PDF Annotation Use Cases

12.1 UC-W01: Open PDF in Whiteboard

UC-W01: Open PDF in Whiteboard

Actor: Instructor **Pre-condition:** User is inside a course. **Main Flow:**

1. Instructor uploads a PDF file.

2. System validates file type and loads it inside the whiteboard.

3. Whiteboard tools (pen/highlighter/eraser) become available.

Post-condition: PDF is ready for annotation.

12.2 UC-W02: Annotate Using Tools

UC-W02: Annotate Using Tools

Actor: Instructor **Main Flow:**

1. Instructor selects Pen, Highlighter, or Eraser.

2. User interacts with the canvas to draw or erase.

3. System applies the annotation changes instantly.

Post-condition: Changes are visible on the canvas.

12.3   UC-W03: Undo / Clear Annotations

UC-W03: Undo / Clear Annotations

Actor: Instructor **Main Flow:**

1. Instructor clicks Undo → last annotation removed.

2. Instructor selects Clear All → canvas annotations reset.

3. System re-renders the whiteboard.

Post-condition: Annotation state updated.

12.4   UC-W04: Navigate PDF Pages

UC-W04: Navigate PDF Pages

Actor: Instructor **Main Flow:**

1. Instructor clicks Next/Previous to switch PDF pages.

2. System loads the requested page.

3. Previous annotations are cleared for the new page.

Post-condition: Correct page displayed.

12.5   UC-W05: Manage Notes (Type / Copy / Download)

UC-W05: Manage Notes (Type / Copy / Download)

Actor: Instructor **Main Flow:**

1. Instructor types notes in the note panel.

2. Instructor chooses Copy or Download.

3. System copies text to clipboard or exports notes as PDF.

Post-condition: Notes saved externally.

13. Sprint 5 - Instructor Analytics Dashboard Use Cases

13.1 UC-IA01: View Instructor Analytics Summary

UC-IA01: View Instructor Analytics Summary

Actor: Instructor **Main Flow:**

1. Instructor opens the analytics dashboard.

2. System displays counts of courses, students, and performance metrics.

3. Dashboard updates with the latest data.

Post-condition: Summary visible.

13.2 UC-IA02: Visualize Course Performance

UC-IA02: Visualize Course Performance

Actor: Instructor **Main Flow:**

1. System renders a bar chart of completion rate per course.

2. Instructor views performance across all courses.

3. Tooltips show extra information (late submissions).

Post-condition: Instructor understands course performance.

13.3 UC-IA03: View Submission Health (Donut Chart)

UC-IA03: View Submission Health (Donut Chart)

Actor: Instructor **Main Flow:**

1. System calculates on-time, late, pending, and missing submissions.

2. A donut chart visualizes these percentages.

3. Instructor reviews student engagement.

Post-condition: Submission health displayed.

13.4 UC-IA04: Analyze Assignment Performance

UC-IA04: Analyze Assignment Performance

Actor: Instructor **Main Flow:**

1. Instructor selects an assignment.

2. System loads statistics (submitted/on-time/late/missing).

3. Metrics update instantly.

Post-condition: Assignment insights shown.

13.5 UC-IA05: View Assignment Leaderboard

UC-IA05: View Assignment Leaderboard

Actor: Instructor **Main Flow:**

1. Instructor opens the leaderboard table.

2. System displays assignment name, completion %, late counts, and grade average.

3. Instructor scrolls if needed (mobile support).

Post-condition: Leaderboard available.

14. Sprint 5 - Student Progress Dashboard Use Cases

14.1 UC-SP01: View Personal Progress Summary

UC-SP01: View Personal Progress Summary

Actor: Student **Main Flow:**

1. Student opens the analytics dashboard.

2. System displays course count, assignment stats, and avg grade.

3. Dashboard loads with updated backend values.

Post-condition: Personal progress visible.

14.2 UC-SP02: Visualize Completion per Course

UC-SP02: Visualize Completion per Course

Actor: Student **Main Flow:**

1. System draws bar chart with completion % for each enrolled course.

2. Student reviews progress across courses.

3. Tooltips display full course names if long.

Post-condition: Course-wise progress displayed.

14.3   UC-SP03: View Submission Status Distribution

UC-SP03: View Submission Status Distribution

Actor: Student **Main Flow:**

1. System calculates on-time, late, pending, missing submissions.

2. Donut chart renders with values & colors.

3. Student reviews submission habits.

Post-condition: Submission distribution shown.

14.4   UC-SP04: View Assignment History & Status

UC-SP04: View Assignment History & Status

Actor: Student **Main Flow:**

1. System categorizes assignments into Pending, Missing, and Submitted.

2. Student reviews categorized lists.

3. Status indicators visually differentiate tasks.

Post-condition: Assignment overview displayed.

15. Sprint 5 - Group Management System Use Cases

15.1 UC-GRP01: Create Group

UC-GRP01: Create Group

Actor: Instructor **Main Flow:**

1. Instructor clicks "Create Group" and enters a unique name.

2. System validates and creates an empty group.

3. Group appears in the course group list.

Post-condition: New group created.

15.2 UC-GRP02: Assign Students to Group

UC-GRP02: Assign Students to Group

Actor: Instructor **Main Flow:**

1. Instructor selects students from "Unassigned".

2. System moves students to selected group.

3. Updated group list is displayed.

Post-condition: Students assigned.

15.3   UC-GRP03: Student Views Their Group

UC-GRP03: Student Views Their Group

Actor: Student **Main Flow:**

1. Student opens the People tab.

2. System displays "My Group" with group name and member list.

3. Student reviews group membership.

Post-condition: Group info displayed.

15.4   UC-GRP04: Set Group Representative

UC-GRP04: Set Group Representative

Actor: Instructor **Main Flow:**

1. Instructor selects a student and clicks "Make Rep".

2. System marks the student as representative.

3. UI updates with a "Rep" badge.

Post-condition: Group rep assigned.

15.5   UC-GRP05: Create Group-Specific Assignment

UC-GRP05: Create Group-Specific Assignment

Actor: Instructor **Main Flow:**

1. Instructor selects one or more groups while creating assignment.

2. System restricts the assignment visibility to only selected groups.

3. Students see it only if they belong to the chosen groups.

Post-condition: Group-specific assignment created.

15.6 UC-GRP06: Create Group-Specific Announcement

UC-GRP06: Create Group-Specific Announcement

Actor: Instructor **Main Flow:**

1. Instructor creates a stream post and selects target groups.

2. System shows post only to selected groups.

3. Post is tagged as "Group Post".

Post-condition: Group-specific post created.

15.7 UC-GRP07: Edit or Delete Group

UC-GRP07: Edit or Delete Group

Actor: Instructor **Main Flow:**

1. Instructor edits group details or chooses to delete it.

2. System updates name/members/rep OR removes group entirely.

3. UI refreshes group list.

Post-condition: Group updated or removed.

16.   Conclusion

This comprehensive report documents all use cases for Sprint 1, Sprint 2, Sprint 3, Sprint 4, and Sprint 5 of the Virtual Classroom Platform. Sprint 1 provides foundational authentication and AI assistance features. Sprint 2 builds upon these with homepage and classroom functionality. Sprint 3 adds comprehensive chat space, assignment management, and announcement capabilities. Sprint 4 introduces a robust notification system and advanced AI learning tools including quiz generation and tutor chatbot. Sprint 5 adds whiteboard and PDF annotation capabilities, advanced analytics dashboards for both instructors and students, and a comprehensive group management system. Together, these 111 use cases provide a complete specification for development and quality assurance across all five sprints.