

SW Engineering CSC648/848

CSC 648-04 Team 04

Member	Role
Naisarg Halvadiya	Team Lead
Shail Patel	Backend Lead
Dylan Nguyen	Scrum Master I
James Dixon	Scrum Master II
Pankuri Khare	Frontend Lead
Riken Kapadia	GitHub Master

EduBridge: LMS

Executive Summary:

EduBridge is a learning/educational platform, that is made to change the landscape of online education. EduBridge serves as a link between educators and students, it will serve efficient and effective transfer of knowledge and resources. What makes EduBridge different is not just its role in quality education, but also its system which is designed to have active participation and reward both the instructors and the students for their contributions to the learning community.

In EduBridge's system, instructors will be rewarded points for uploading educational artifacts such as lecture videos, notes, and assignments. This point system is designed to reward the effort instructors put into creating and sharing quality educational content. As instructors gain points, they will unlock new levels which will include advanced analytics and increased visibility for courses, and also will be able to feature their content and make it noticeable on EduBridge.

Students will gain rewards for engaging with the educational content, reading articles/notes, and watching lecture videos. These rewards will encourage engagement and can take forms, such as badges, certificates, or access to other learning resources that are not available in their current courses. This system not only motivates students to learn actively but also helps in tracking their progress.

Below are EduBridge's features:

- **Ad-free Access:** EduBridge offers an uninterrupted learning environment, free from the distractions of advertisements, allowing users to focus solely on their educational objectives.
- **Structural Organization:** Courses on EduBridge are organized, making it easier for students to follow and for instructors to organize their teaching materials.
- **Offline Accessibility:** EduBridge enables users to download videos and access them offline, ensuring learning is never interrupted by connection issues.
- **Search Functionality:** Users can quickly find specific topics, courses, or resources, making navigation and knowledge more efficient on the platform.
- **Personalized Recommendations:** EduBridge will have a system that suggests courses, materials, and topics based on the users' interests, past activities, and learning patterns.
- **Unrestricted Access:** Unlike traditional platforms, EduBridge offers unrestricted access to content outside users' current subscriptions or enrollments, motivating curiosity and continuous learning.

By adding these features, EduBridge is not just an educational platform but a learning community. With our team of students and educators, we are committed to not only enhancing educational outcomes but also building a supportive, engaging, and growing learning environment.

Personas and User Stories:

Learners would broadly belong to the following two categories:

The Committed Student

- Characteristics: This persona represents students who are dedicated to their studies and seek to maximize their learning outcomes. They are typically very active in their coursework, often busy with their studies and other commitments including family issues or part-time jobs.
- Requirements: They need a platform that allows quick access to course materials and efficient study management. Ability to easily find, organize, and review resources to make the best use of their limited study time.

The Visual Learner

- Characteristics: This persona prefers learning visually such as videos, diagrams, and infographics. They may struggle with traditional text-heavy content and benefit greatly from materials that are visually engaging and illustrative.
- Requirements: They need a platform that is effective in presenting visual content and the ability to easily access and navigate through the materials. The platform should support diverse media formats and also support the viewing of visual learning.

The following category is for the instructor:

The Dynamic Instructor

- Characteristics: Educators who are passionate about teaching and using technology to enhance the learning experience. They aim to help student needs and learning styles and

are always looking for other ways to improve their teaching methods and present their teaching materials.

- Requirements: They need a flexible platform that allows easy organization and sharing of course content. They also will be able to use tools, allowing interactive teaching and the ability to gauge student engagement/understanding through feedback.

While creating the user stories, various metrics were taken into consideration to empathize more with the users.

Blended Learning Emphasis:

Definition: The extent to which the instructor utilizes a mix of online and traditional in-person teaching methods.

Rating Indicators: Use of online resources, incorporation of e-learning into syllabi, and frequency of blended learning sessions.

Critical Thinking Focus:

Definition: The priority given to developing students' critical thinking and problem-solving skills.

Rating Indicators: Integration of critical analysis tasks, frequency of open-ended questions, and use of problem-based learning scenarios.

Practical Application:

Definition: The degree to which coursework emphasizes practical, hands-on experiences and real-world applications.

Rating Indicators: Number of practical projects assigned, partnerships with industry for case studies, and real-world issue analysis within the curriculum.

Use of Digital Tools:

Definition: The frequency and diversity of digital tools and multimedia resources used in teaching and student assignments.

Rating Indicators: Variety of digital tools employed, level of integration of technology in assignments, and encouragement of student use of digital tools.

Application of Learning:

Definition: The importance for the student of being able to apply theoretical knowledge to practical, real-world contexts.

Rating Indicators: Involvement in project-based learning, engagement in simulation activities, and participation in case study discussions.

Multimedia Content Use:

Definition: The student's preference for engaging with learning material presented through various multimedia formats.

Rating Indicators: Frequency of accessing video lectures, podcasts, interactive modules, and other multimedia resources for learning.

Digital Literacy:

Definition: The student's proficiency and ease with using digital platforms and tools as a part of their learning process.

Rating Indicators: Navigation ease on digital platforms, utilization of e-learning tools, and participation in online assessments

User Story 1: Sambhavi Sharma

Demographics:

- Age: 20
- Location: Bangalore, India
- Occupation: University Student (Major in Business Administration)
- Education: Undergraduate, Second Year

Biography:

Shambhavi is a proactive undergraduate student at a top university in Bangalore, known for her active participation in academic clubs and student-run businesses. She is working towards a Business Administration degree with a focus on innovation and strategic planning. Tech-savvy and collaborative, Shambhavi leverages online tools to enhance her studies and is often the initiator of group discussions and projects.

Metrics:

- Uses Technology: ★★★★★
- Multimedia Content Use: ★★★★★
- Application of Learning: ★★★★★
- Digital Literacy: ★★★★★

Wants/Needs:

- Desires a centralized platform for streamlined access to course materials, enabling efficient management of her academic and extracurricular commitments.
- Emphasizes the need for a video download option to allow for offline study, catering to her busy schedule and enabling learning on the go.
- Looks for a platform with robust interactive tools to apply business concepts practically through simulations and engaging case studies.
- Wants to connect with like-minded peers for in-depth discussions and collaborative learning opportunities, beyond the confines of the classroom.

Frustrations:

- Struggles with fragmented systems that do not provide an integrated academic experience, making it challenging to consolidate resources and information.
- Feels that static content delivery methods do not actively engage her in the learning process, limiting her ability to interact with the material dynamically.
- Encounters difficulties in finding a community or forum where she can have meaningful, focused discussions on business topics after class hours.

User Story 2: Amit Jha

Demographics:

- Age: 36
- Location: Delhi, India
- Occupation: Associate Professor (Economics)
- Education: Ph.D. in Economics

Biography:

Mr. Jha is an accomplished associate professor of economics at a leading university in Chennai, recognized for his decade-long contribution to education and policy research. His reputation for integrating technology into his pedagogy has made economic theories more digestible for

students. Engaged in various economic forums, Mr. Jha is passionate about creating an interactive learning environment that transcends traditional lecture methods.

Metrics:

- Blended Learning Emphasis: ★★★★★
- Critical Thinking Focus: ★★★★★
- Practical Application: ★★★★★
- Use of Digital Tools: ★★★★★

Wants/Needs:

- Seeks a dynamic LMS capable of delivering a blended learning experience that actively engages students both during and outside of lectures.
- Needs the ability to frequently and effortlessly update course materials and to provide students with interactive and multimedia-rich content.

Frustrations:

- Encounters challenges with LMS platforms that are not user-friendly, requiring a steep learning curve for both instructors and students.
- Questions the capacity of virtual platforms to foster the depth of discussion and debate achieved in a physical classroom.
- Experiences occasional difficulties with obtaining efficient technical assistance for resolving platform-related issues, impacting his teaching schedule.

User Story 3: Emma Johnson

Demographics:

- Age: 22
- Location: Austin, Texas, USA

- Occupation: Graduate Student (Master's in Environmental Science)
- Education: B.Sc. in Environmental Studies

Biography:

Emma is an astute graduate student at the University of Texas, deeply invested in the study of climate change and its impact on policy and conservation efforts. Her academic success is fueled by a learning environment that emphasizes experiential learning and critical engagement with current environmental issues. Emma values innovative learning platforms that not only provide rich content but also foster meaningful connections with educators who practice what they teach.

Metrics:

- Learning Style Preference (Experiential Application): ★ ★ ★ ★ ★
- Interest in Interactive Learning: ★ ★ ★ ★ ★
- Preference for Technology-Integrated Learning: ★ ★ ★ ★ ★
- Desire for Mentorship and Personal Engagement: ★ ★ ★ ★ ★

Wants/Needs:

- Aspires to use a platform that intuitively connects her with instructors known for their applied teaching methods in environmental science.
- Seeks advanced simulation tools and resources within the LMS that mirror real-time environmental management and sustainability challenges.

Frustrations:

- Previously struggled to find courses that integrate theoretical knowledge with practical, field-based applications.

- Felt a gap in digital learning experiences that lacked personal touch and direct instructor feedback.
- Experienced difficulty in aligning her active learning preferences with educators who are adept at delivering dynamic, application-focused instruction.

User Story 4: Michael Thompson

Demographics:

- Age: 45
- Location: Seattle, Washington, USA
- Occupation: Professor (English Literature)
- Education: Ph.D. in English Literature

Biography:

Dr. Michael Thompson is a distinguished professor of English literature at the University of Washington. He has dedicated over 20 years to academia, fostering a love for the classics while embracing modern narratives. Michael is highly regarded for his innovative teaching style that intertwines literary analysis with cultural studies. He is always exploring new technologies to create a more interactive classroom, whether in person or online, and places high value on discussion and debate.

Metrics:

- Teaching Style Adaptability (Blending Traditional and Digital): ★★★★★
- Emphasis on Discussion-Based Learning: ★★★★★
- Incorporation of Multidisciplinary Approaches: ★★★★★
- Engagement with Digital and Multimedia Resources: ★★★★★

Wants/Needs:

- Seeks an LMS that facilitates rich, discussion-based learning environments where literary works can be explored and debated.
- Desires a platform where he can match with students who share a keen interest in exploring literature beyond the surface level.
- Looks for integrative tools within the LMS to bring literature to life through multimedia resources, including video, audio, and interactive texts.

Frustrations:

- Often finds that online platforms limit the depth of discussion and personal engagement he strives for in his traditional classroom setting.
- Struggles with rigid LMSs that do not allow for the organic, fluid nature of literary discussion and debate.
- Encounters challenges when trying to pair with students who prefer a more dynamic and integrative approach to literature, mirroring his teaching philosophy.

Data Definitions:

- User: This is a general term for anyone who accesses the EduBridge platform. Users can be categorized into specific roles, each with different privileges.
- Student: A type of user who accesses EduBridge. They will be able to upload content as well as view content.
- Instructor: A type of User who creates, manages, and uploads educational content on EduBridge. Instructors will be able to upload materials and interact with students.
- Administrator: A type of User responsible for the overall management of the platform. Administrators have the highest level of control and access which includes, user management, settings, etc.
- Course: Includes a series of materials such as videos and notes.
- Artifact: Artifacts can include lecture notes, reading materials, videos, or links.
- Discussion Forum: A platform feature that allows Users, students, and instructors, to interact with each other, asking questions, sharing insights, and discussing materials.
- Feedback: Comments from students or instructors for course materials. Feedback can be used to improve educational content and teaching methods.

These terms and entities form the foundational language for your EduBridge application. They should be used consistently throughout all project documentation, UI/UX design, and software development to ensure clarity and cohesion across the platform. In future milestones, you will expand on these definitions with more detailed implementation details.

Initial List of Functional Requirements:

- User Creation / Management
 - ID: 01
 - Description: Users should be able to register and log in. Users shall have roles such as admin, student, instructor, and assistant.
 - Priority: High
 - Referenced Story: All
- User Authentication
 - ID: 02
 - Description: Users must be validated as having a .edu email
 - Priority: Medium
 - Referenced Story: All
- Media Delivery
 - ID: 03
 - Description: The application must be able to deliver common file types to users. Where appropriate the application must offer in-application playback, for example, the use of video players or audio players.
 - Priority: High
 - Referenced Story: User story 4
- Media download
 - ID: 04
 - Description: Users can download the video and the video will go to his/her local storage so they can have access when there is no internet connection.
 - Priority: Low

- Referenced Story: User Story 1
- Support comments / Feedback
 - ID: 05
 - Description: Users should be able to comment on uploaded media, reply to other comments, and provide feedback on content. This will act as a medium for discussions. Uploaders may see the feedback and offer support.
 - Priority: Low
 - Referenced Story: User Story 3

List of Non-Functional Requirements:

- Responsive design for various devices: We will make our app work on various devices such as laptops and tablets. Since our app targets users who mostly use laptops, we will work our designs primarily on laptops and then on smaller devices.
- Quick loading times for content: We have targeted to make the navigation through the app quick so that the users don't feel any hesitancy while surfing the app.
- Data security and privacy for user profiles: The users should have to be validated to access and upload content.
- Reliable and consistent uptime: We have targeted to make our app available all the time to our users since everything will be updated in real-time.

Competitive Analysis:

	Canvas (SFSU)	YouTube	EduBridge
User Experience	X	✓	✓
Search Functionality	X	✓	✓

Structural Organization	✓	X	✓
Access to various kinds of artifacts	✓	X	✓
Ad-Free	✓	X	✓
Download Artifacts	✓	X	✓
Unrestricted Access	X	✓	✓

High-Level System Requirements:

- HTML, CSS
- JavaScript
- React
- Material UI
- Nodejs
- Express
- MySQL
- Alfresco Community Edition
- Amazon AWS
- GitHub
- Figma

Team and Milestone Planning:

High-level tasks for the upcoming milestone:

- Create Mockups
- Create Database Schema
- Setup Database

- Setup Alfresco CMS
- Login Module Implementation

Member	Role	
Naisarg Halvadiya	Team Lead	<ul style="list-style-type: none"> ● Setup the Alfresco Community Edition on the server
Shail Patel	Backend Lead	<ul style="list-style-type: none"> ● Implement the Sign-Up and Login Functionality. Validate the user authentication using the OTP mechanism through email.
Dylan Nguyen	Scrum Master I	<ul style="list-style-type: none"> ● With James, he'll create the Database schema ● With Shail, he'll work on implementing the login module
James Dixon	Scrum Master II	<ul style="list-style-type: none"> ● With Dylan, he'll work on creating a database schema ● With Naisarg, he'll work on setting up Alfresco on the server
Pankuri Khare	Frontend Lead	<ul style="list-style-type: none"> ● With Riken, she'll focus on getting the mockups ready for the login page and the home page of the app
Riken Kapadia	GitHub Master	<ul style="list-style-type: none"> ● He'll help Pankuri design the mockups for the login page and the home page of the app

Checklist:

Task	Status
Team found a time slot to meet outside of the class	Done
Scrum Master shares meeting minutes with everyone after each meeting.	Done

Github master chosen	Done
Everyone sets up their local development environment from the team's git repo.	Done
Team decided and agreed together on using the listed SW tools and deployment server	Done
Team ready and able to use the chosen back/front-end frameworks.	Done
Team lead ensured that all team members read the final M1 and agree/understand it before submission	Done