Group 3 Requirement Analysis
ASL DuoLingo
GitHub Repo: https://github.com/mikehansonn/3704group3
We used Lucidchart for part 2 and 3:
https://lucid.app/lucidchart/07e479b7-84ed-4e5f-b47f-7d74f5946fd5/edit?viewport_loc=-2692%2C-210%2C3012%2C1428%2C0_0&invitationId=inv_3cdb052a-a4ac-4613-bc5f-1ba68d79e6fe

1. **Fully Dressed Use Cases**

   Use Case UC1: Manage Dictionary of ASL
   Primary Actor: Administrator
   Stakeholders and interests:
   - Administrator: Wants to efficiently manage the dictionary to ensure accuracy and accessibility for users.
   - Students/Instructors: Want an accurate ASL dictionary to improve learning and teaching experiences.

   Preconditions:
   - Administrator must be logged in with appropriate permissions.
   - The dictionary platform must be operational.

   Success guarantee:
   - The ASL dictionary is updated, curated, and available for students and instructors.

   Main success scenario:
   1. Administrator accesses the ASL dictionary management system.
   2. Administrator adds, edits, or removes ASL signs and associated descriptions.
   3. System validates the updates.
   4. The dictionary is updated in real-time.
   5. Administrator receives confirmation of successful changes.

   Extensions:
   - 2a. If the sign already exists, the system prompts for confirmation to overwrite or edit the entry.
   - 4a. If there is a validation error (e.g., missing fields), the system displays an error message and requests correction.

   Special requirements:
   - The dictionary must support multimedia entries (e.g., videos, images).
   - Data entries should comply with accessibility standards for ASL content.

   Technology and data variation list:
   - Variations could include different file formats for multimedia (e.g., MP4 for videos, JPG for images).

   Frequency of Occurrence:
   - Occasionally, as needed by the Administrator.

   Use Case UC2: Login/Signup

Primary Actor:
Student, Instructor, Administrator
Stakeholders and Interests:

- Student: Wants to securely log in or create an account to access course materials and track progress.
- Instructor: Needs to log in to create lesson modules, track students' progress, and manage course content.
- Administrator: Manages the system and user accounts, ensuring correct permissions and system integrity.

Preconditions:

- The user has access to the login/signup page.
- The system must have the capability to differentiate user roles (student, instructor, administrator).

Success Guarantee:

- The user is successfully logged in, or a new account is created with the correct role assigned (Student, Instructor, Administrator).

Main Success Scenario:

1. The user opens the application.
2. The user clicks on "Login" or "Signup".
3. The user enters valid credentials (for login) or personal information (for signup).
4. The system authenticates the user (for login) or creates a new account (for signup).
5. The user is granted access based on their role (Student, Instructor, Administrator).

Extensions:

- 3a. Invalid credentials during login:
  3a1. System prompts the user to re-enter valid credentials.
- 3b. Username already exists during signup:
  3b1. System prompts the user to choose a different username.

Special Requirements:

- Secure authentication must be implemented (e.g., using OAuth2 or JWT).
- Passwords should be encrypted and stored securely.

Technology and Data Variations List:

- Login can be handled via email and password, or third-party authentication (Google, Facebook, etc.).

Use Case UC3: Lesson Modules

Primary Actor:
Student, Instructor, Administrator
Stakeholders and Interests:

- Student: Wants access to the lesson modules to view course content.
- Instructor: Needs the ability to create and manage lesson modules.
- Administrator: Oversees the content and permissions associated with lesson modules.

Preconditions:

- The user must be logged in.
- Lesson modules must be created and available in the system.

Success Guarantee:

- The user can view, edit, or manage lesson modules based on their role (Student, Instructor, Administrator).

Main Success Scenario:

1. The user navigates to the "Lesson Modules" section.
2. The system identifies the user's role.
3. Student: The student can view available lessons.
   Instructor: The instructor can create, edit, or delete lesson modules.
   Administrator: The administrator can manage lesson permissions and oversee all modules.
4. The lesson content is successfully accessed or modified.

Extensions:

- 2a. No lessons available:
  2a1. The system displays a message: "No lessons available at this time."
- 3a. Unauthorized access:
  3a1. The system prevents the user from accessing unauthorized lesson modules and prompts a message.

Special Requirements:

- Lessons may contain multimedia (e.g., videos, PDFs) that need specific rendering capabilities.

Technology and Data Variations List:

- The lesson modules may be hosted via an external Learning Management System (LMS).

Use Case UC4: Video Demonstration

Primary Actor:
Student, Instructor
Stakeholders and Interests:

- Student: Needs access to video demonstrations to understand the lesson material.
- Instructor: Must upload, edit, and manage video content for lessons.

Preconditions:

- The user must be logged in.
- Video content must be uploaded and available within a lesson module.

Success Guarantee:

- The video is successfully viewed by the student or uploaded by the instructor.

Main Success Scenario:

1. The user navigates to a lesson module that contains a video demonstration.
2. The system checks user permissions.
3. The user clicks on the video.
4. The video is streamed or played for the user.

5. If the instructor, they can upload a new video or update the existing one.

Extensions:

- 4a. Video fails to load:
  4a1. The system displays an error message and suggests reloading or troubleshooting options.

Special Requirements:

- Video content must support adaptive streaming (e.g., different resolutions based on network speed).
- Video format must be compatible across devices (e.g., MP4, WebM).

Technology and Data Variations List:

- Videos may be hosted on an external service (e.g., YouTube, Vimeo).

Use Case UC5: Progress Tracking

Primary Actor:
Student, Instructor, Administrator
Stakeholders and Interests:

- Student: Needs to see their progress in courses and lessons.
- Instructor: Must track student progress and performance.
- Administrator: Oversees the system and ensures data accuracy and reporting capabilities.

Preconditions:

- The user must be logged in.
- Progress tracking data must be available in the system.

Success Guarantee:

- The user is able to view or manage progress tracking reports based on their role.

Main Success Scenario:

1. The user navigates to the "Progress Tracking" section.
2. The system identifies the user's role.
3. Student: The student views their progress report (e.g., completed lessons, grades).
   Instructor: The instructor views student progress or generates reports.
   Administrator: The administrator manages progress tracking data or generates system-wide reports.
4. The relevant progress data is successfully displayed or managed.

Extensions:

- 3a. No progress data available:
  3a1. The system displays a message: "No progress data available."

Special Requirements:

- The system should support generating graphical progress reports (e.g., charts, tables).

Technology and Data Variations List:

- Data can be stored in a relational database (e.g., PostgreSQL) or a NoSQL database (e.g., MongoDB).

Use Case UC6: Manage Dictionary of English

Primary Actor: Administrator
Stakeholders and interests:

- Administrator: Wants to ensure that the English dictionary is comprehensive and aligned with the ASL dictionary for comparison.
- Students/Instructors: Want a reliable source of English terms linked with their ASL equivalents.

Preconditions:

- Administrator must be logged in with appropriate permissions.
- The dictionary platform must be functional.

Success guarantee:

- The English dictionary is accurately maintained and linked to the ASL dictionary.

Main success scenario:

1. Administrator accesses the English dictionary management system.
2. Administrator adds, edits, or removes English words and their descriptions.
3. System validates the updates.
4. The English dictionary is updated in real-time.
5. Administrator receives confirmation of successful changes.

Extensions:

- 2a. If the word already exists, the system prompts for confirmation to overwrite or edit the entry.
- 4a. If there is a validation error, the system displays an error message and requests correction.

Special requirements:

- The dictionary should allow for linking with ASL entries.
- It should support multiple meanings and context-based descriptions.

Technology and data variation list:

- Variations include different input formats for text (e.g., plain text, rich text).

Frequency of Occurrence:

- Occasionally, as needed by the Administrator.

Use Case UC7: Administer Placement Test for Proficiency Level

Primary Actor: Student
Stakeholders and interests:

- Student: Wants an accurate assessment of ASL proficiency to start at the appropriate level.
- Instructor: Wants reliable test results to guide teaching strategies for students.

Preconditions:

- The student is registered in the system.
- The placement test is available and accessible.

Success guarantee:

- The system accurately assesses the student's ASL proficiency and places them in the correct starting level.

Main success scenario:

1. Students access the placement test interface.
2. Students complete the ASL proficiency test.
3. System analyzes the student's responses.
4. The system provides the student's proficiency level based on test results.
5. The student is automatically assigned to the appropriate level.

Extensions:

- 2a. If the student exits before completing the test, the system saves their progress.
- 3a. If technical issues occur, the system notifies the student and allows retaking the test.

Special requirements:

- The test should adapt to the student's performance (adaptive testing).
- The test must be available in multiple languages and be accessible to students with disabilities.

Technology and data variation list:

- Variations in test formats (e.g., multiple choice, fill-in-the-blank).
- Different scoring algorithms might be used to assess proficiency.

Frequency of Occurrence:

- Upon initial registration of new students or when a retest is required.

Use Case UC8: Provide Reviews/Summaries for Lessons

Primary Actor: Student, Instructor

Stakeholders and interests:

- Student: Wants an easy way to review previous lessons and summaries to reinforce learning.
- Instructor: Wants to ensure students have reliable summaries to track learning progress.

Preconditions:

- The student/instructor is logged into the system.
- Lessons and summaries are available in the system.

Success guarantee:

- The system provides accurate and complete reviews and summaries of lessons.

Main success scenario:

1. Student/Instructor accesses the review or summary section for a specific lesson.
2. The system retrieves and displays the relevant lesson content.
3. The user reads through the review/summary and can interact (e.g., ask questions, mark for follow-up).
4. The system logs the student's interactions (e.g., completed a review).
5. Student/Instructor receives confirmation of completion or progress.

Extensions:

- 2a. If no summary is available, the system notifies the user and suggests contacting support.
- 3a. If the review contains errors or incomplete information, the system allows feedback submission.

Special requirements:

- Must include interactive features like quizzes, flashcards, and videos.
- Summaries should support offline viewing and printing options.

Technology and data variation list:

- Variations in the type of review material (e.g., text, video, audio).
- Data format options like downloadable PDFs or printable versions.

Frequency of Occurrence:

- Frequently, after each lesson or module.

Use Case UC9: Manage Notifications

Primary Actor: Student, Instructor, Administrator

Stakeholders and interests:

- Student/Instructor/Administrator: Want to receive timely notifications for important events (e.g., new lesson, reminders, deadlines) without being overwhelmed.
- Organization: Ensures users are consistently informed to promote engagement with the platform.

Preconditions:

- Users are logged into the app.
- Notifications settings must be configured (e.g., email, push, or in-app notifications).

Success guarantee:

- Users receive relevant and timely notifications based on their preferences and role.

Main success scenario:

1. User logs into the app and navigates to the notification settings.
2. Users set their preferred notification methods (e.g., push notifications, email).
3. The system generates notifications for new content, deadlines, or other events.
4. The system delivers notifications based on user preferences (in-app, email, or mobile).
5. User receives and interacts with notifications (e.g., marking them as read, acting on them).
6. The system updates the notification status.

Extensions:

- 2a. If a user hasn't configured notifications, the system uses default settings.
- 4a. If the user is offline, the system stores the notification and delivers it when they return.

Special requirements:

- Notifications must support multimedia (e.g., links, images, embedded video).
- Users should be able to customize the types of notifications they receive (e.g., lesson reminders, system updates).

Technology and data variation list:

- Variations in notification delivery channels (e.g., email, push notifications).
- Different user interfaces for managing notification settings (e.g., mobile vs. desktop).

Frequency of Occurrence:

- Frequently, based on system events and user activity.

Use Case UC10: Track Daily Mission Streak

Primary Actor: Student
Stakeholders and interests:

- Student: Wants to track daily learning activities and maintain a streak for motivation.
- Instructor: Can use streak data to track student engagement and progress.
- Organization: Promotes user retention through gamified elements like streaks.

Preconditions:

- Students are logged into the app.
- A daily mission or learning task must be assigned.

Success guarantee:

- The system accurately tracks and updates the student's daily streak based on their activity.

Main success scenario:

1. Students log into the app and view their current streak status.
2. The system assigns a daily mission based on the student's learning path.
3. Student completes the daily mission.
4. The system records the mission completion and updates the streak count.
5. The streak is displayed on the student's dashboard and profile.
6. If the streak is maintained for multiple days, rewards or badges are granted.

Extensions:

- 3a. If the student does not complete the mission for the day, the system notifies them of the streak break.
- 4a. If a technical issue prevents mission completion, the system offers a grace period for submission.

Special requirements:

- Streaks should be reset if the daily mission is not completed.
- The system should offer rewards (e.g., badges, avatars) to encourage streak continuation.

Technology and data variation list:

- Variations in streak reward systems (e.g., virtual badges, avatar upgrades).

Frequency of Occurrence:

- Daily, as students engage with the app.

Use Case UC11: Avatar Customization

Primary Actor: Student, Instructor
Stakeholders and interests:

- Student/Instructor: Wants to personalize their avatar to express themselves and make learning more engaging.

- Organization: Provides a more immersive and enjoyable experience to boost engagement and retention.

Preconditions:

- User is logged into the app.
- The avatar customization feature must be unlocked or available.

Success guarantee:

- Users can fully customize their avatars, and the changes are reflected in their profile and interactions.

Main success scenario:

1. User navigates to the avatar customization screen.
2. User selects different customization options (e.g., clothing, hairstyles, accessories).
3. The system displays a preview of the customized avatar.
4. Users confirm their choices.
5. The system saves the avatar and updates the user's profile.
6. The customized avatar is visible in various parts of the app (e.g., dashboard, leaderboard).

Extensions:

- 2a. If the user doesn't have access to premium options, the system prompts for upgrades or in-app purchases.
- 4a. If the customization fails to save, the system notifies the user and suggests retrying.

Special requirements:

- The system must support a wide range of customization options (e.g., skin tones, outfits).
- Avatars should be visible across all devices and platforms with consistent quality.

Technology and data variation list:

- Different image rendering engines depending on platform (e.g., mobile vs. web).
- Variations in avatar items based on the user's progress or role.

Frequency of Occurrence:

- Occasionally, as users customize their avatars based on personal preferences or progress.

Use Case UC12: App Color Customization

Primary Actor: Student, Instructor, Administrator

Stakeholders and interests:

- User: Wants to personalize the app's color theme to make it visually appealing and tailored to their preferences.
- Organization: Provides customization options to improve user satisfaction and comfort, especially for long-term use.

Preconditions:

- User is logged into the app.
- The app's color customization feature must be available.

Success guarantee:

- The app's color theme is customizable, and changes are applied without impacting functionality or performance.

Main success scenario:

1. User navigates to the color customization settings.
2. User selects a preferred color scheme or theme from a list of options.
3. The system previews the selected color theme across the app interface.
4. User confirms the selection.
5. The system applies the new color scheme across all screens.
6. The system saves the preferences, and the color scheme remains consistent in future sessions.

Extensions:

- 2a. If the selected color scheme causes accessibility issues (e.g., poor contrast), the system warns the user.
- 5a. If the customization fails, the system retains the default color scheme and prompts for retry.

Special requirements:

- The app should support dark mode and high-contrast themes for accessibility.
- Color schemes must maintain readability and comply with accessibility standards (e.g., WCAG).

Technology and data variation list:

- Variations in theme rendering based on device types (e.g., mobile, tablet, desktop).

Frequency of Occurrence:

- Occasionally, as users change color themes based on their preferences or needs.

Use Case UC13: Adaptive Learning Path

Primary Actor: Student

Stakeholders and interests:

- User: Wants to have a personalized learning experience targeting specifics to learn more
- Organization: The system should analyze how well the student does and how they can improve

Preconditions:

- User is logged into the app
- The app must learn about the users skills

Success guarantee:

- The app changes the future learning experience and modules based on how the student performs

Main success scenario:

1. User does some tasks or assignments.
2. The system analyzes and determines the user's weaknesses.
3. The system recommends modules and areas for the user to study.

Extensions:

- 2a. If the system cannot find any weaknesses, it will not recommend any modules and congratulate the user on proficiency.

Special requirements:

- The system should be able to determine user weaknesses.

Technology and data variation list:

- Algorithm to determine user weaknesses.

Frequency of Occurrence:

- Occasionally, as users complete a certain amount of modules for the system to be able to assess.

Use Case UC14: Add and Remove friends

Primary Actor: Student

Stakeholders and interests:

- User: Wants to connect with people they know and check the progress of those people.
- Organization: Provides social options to improve user satisfaction and comfort, especially for long-term use.

Preconditions:

- User is logged into the app.
- The app's friend feature must be available.
- User knows the friend's ID.

Success guarantee:

- The app is able to display the user's friends and their current status along with the ability to manage those friends.

Main success scenario:

7. User navigates to the friends tab.
8. User selects the add friend button.
9. The system prompts the user for a friend ID.
10. User enters the person's ID.
11. The system adds the person to the user's friends list.

Extensions:

- 2a. If the user selects a person already on the list, the system will display the friend's current status and have an option to remove the person from the list.

Special requirements:

- The app should show the progress of the user's friends and current activity, offline or online.

Technology and data variation list:

- Each friend of the user would be showing different statuses and current activities.
- List Data structure for storing friends

Frequency of Occurrence:

- Occasionally, as users add or remove friends as needed.

Use Case UC15: Badges, Points, other rewards for completing activities

Primary Actor: Student
Stakeholders and interests:

- Student: Wants to be rewarded for completing activities which boost motivation.
- Instructor: Can use rewards to retain students doing the work.
  - Organization: Promotes user retention through gamified elements.

Preconditions:

- Students are logged into the app.
- A daily mission or learning task must be assigned.
- Instructor has set a reward for the mission/task.

Success guarantee:

- The system accurately rewards the students when a task or mission is successfully completed.

Main success scenario:

1. Students log into the app.
2. Student completes the task assigned by the instructor.
3. The system records the task completion and assigns the reward.

Extensions:

- 3a. If the streak is maintained for multiple days, badges are granted.

Special requirements:

- Instructors should be able to change rewards for their individually assigned tasks.
- The reward system is tied with the streaks system.

Technology and data variation list:

- Variations in rewards given (e.g., virtual badges, avatar upgrades).

Frequency of Occurrence:

- Daily, as students engage with the app.

Use Case UC16: Progress Sharing

Primary Actor:
Student
Stakeholders and Interests:

- Student: Wants to share their progress in courses and lessons to people other than their instructors.
  - Organization: Promotes user retention through users competing.

Preconditions:

- The user must be logged in.
- Progress tracking data must be available in the system.
- The user has people to share progress with.

Success Guarantee:

- The user is able to share progress tracking reports to their friends.

Main Success Scenario:

1. The user navigates to their friends tab.
2. The user selects a friend on the list.

3. The system displays the friend's progress.

Extensions:

- 6a. No friends available, The system displays a message: "No Friends available."
- 7a. The friend the user selected has Progress Sharing disabled and no data is displayed.

Special Requirements:

- The system should only display progress information if the user has their progress tracking set to the public.

Technology and Data Variations List:

- Data can be stored in a relational database (e.g., PostgreSQL) or a NoSQL database (e.g., MongoDB).

Frequency of Occurrence:

- Occasionally, as users access friends as needed.

Use Case UC17: Quizzes

Primary Actor: Student

Stakeholders and interests:

- Student: Wants to check their learning retention.
- Instructor: Wants to see if students are actually learning.

Preconditions:

- The student is registered in the system.
- The quiz is available and accessible.

Success guarantee:

- The system gives a quiz based on what the student has recently learned and accurately grades the student.

Main success scenario:

1. Students access the quiz interface.
2. Students complete the quiz given by instructors.
3. System analyzes the student's responses.
4. The system provides the student's score.

Extensions:

- 2a. If the student exits before completing the quiz, the system saves their progress.
- 3a. If technical issues occur, the system notifies the student and allows retaking the quiz.

Special requirements:

- The quiz should be picking questions on topics recently learned by the student.
- The quiz must be available in multiple languages and be accessible to students with disabilities.

Technology and data variation list:

- Variations in quiz formats (e.g., multiple choice, fill-in-the-blank).

Frequency of Occurrence:

- Occasionally, as students learn ample enough material.

Use Case UC18: Advanced ASL Proficiency Testing

Primary Actor: User

Stakeholders and Interests:

- User: Wants to test their advanced ASL skills for certification.
- App Owner: Wants to offer a certified test to validate proficiency and encourage continued app use.
- Certification Authorities: Can rely on the proficiency test results as proof of the user's ASL capabilities.

Preconditions:

- The user is logged in.
- The user has completed the prerequisite lessons or modules to unlock the advanced proficiency test.

Success Guarantee:

- The system evaluates the user's ASL proficiency and provides feedback and certification if passed.

Main Success Scenario:

1. The user accesses the Advanced ASL Proficiency Testing from the app menu.
2. The system explains the test format, including different question types.
3. The user completes the test by responding to each question.
4. The system evaluates the user's responses and calculates the final score.
5. The system presents the test results, including feedback.
6. The system awards a proficiency certificate if the user achieves a passing score.

Extensions:

- 5a: If the user fails the test, the system recommends review lessons before retesting.

Special Requirements:

- The test must include video-based signing questions and signing practice using ASL gestures.
- Certification should be shareable within the app and optionally on social media.
- The test must be certified by Certification authorities.

Technology and Data Variation List:

- The system should handle varying internet speeds to ensure smooth video streaming for signing questions.

Frequency of Occurrence:

- Users may attempt the test after completion of advanced lessons or modules.

Use Case UC19: Voice to ASL translation

Primary Actor: User

Stakeholders and Interests:

- User: Wants to translate spoken words into ASL for learning or communication.
- Hearing-Impaired Users: Can rely on this feature to understand spoken language through sign language.
- App Owner: Provides a tool to enhance accessibility and improve user experience.

Preconditions:

- The user is logged in.
- The device has a working microphone.

Success Guarantee:

- The system accurately translates spoken words into ASL in real-time.

Main Success Scenario:

1. The user accesses the Voice to Sign Translation feature in the app.
2. The system prompts the user to speak into the microphone.
3. The user speaks a sentence.
4. The system processes the speech and translates it into corresponding ASL signs.
5. The system displays an animated avatar demonstrating the ASL translation.
6. The user reviews the translation and can replay it if needed.

Extensions:

- 4a: If the system does not recognize the input, it prompts the user to repeat.
- 5a: The user can slow down or speed up the demonstration for better understanding.

Special Requirements:

- The translation must handle a variety of speech inputs, including different accents and languages.
- The ASL signs should be accurate and displayed via animated avatars.

Technology and Data Variation List:

- Device microphone
- Background noise may affect speech recognition accuracy.
- Device performance may impact the smoothness of the avatar demonstration.

Frequency of Occurrence:

- Whenever the user wants to translate speech into ASL.

Use Case UC20: User Reminders

Primary Actor: User

Stakeholders and Interests:

- User: Wants to receive notifications to continue lessons and maintain daily streaks.
- App Owner: Wants to encourage user engagement and consistent app usage to improve user retention.

Preconditions:

- The user is logged in.
- The user has reminders enabled in app settings.

Success Guarantee:

- The system sends reminders at the specified times to encourage the user to continue learning.

Main Success Scenario:

1. The user navigates to the app settings and enables reminders.
2. The system allows the user to set preferences for reminder frequency (e.g., daily, weekly) and time.
3. The system saves the user's reminder preferences.
4. At the specified time, the system sends a reminder notification to the user's device.
5. The user receives the notification and opens the app to continue learning.

Extensions:

- 5a: The user can choose to dismiss the reminder without opening the app.

Special Requirements:

- Reminders should be push notifications.
- Reminders should integrate with the user's daily streaks, so they are notified before breaking a streak.

Technology and Data Variation List:.

- Varying time zones may affect when reminders are received.
- Device notification settings may affect how reminders are received.

Frequency of Occurrence:

- Daily or weekly, based on the user's preferences for reminder settings.

Use Case UC21: Student Leaderboards

Primary Actor: Student

Stakeholders and Interests:

- Student: Wants built in incentives to keep practicing ASL. Wants a sense of accomplishment and goals to strive for.
- App Owner: Wants to encourage user engagement and consistent app usage to improve user retention.

Preconditions:

- The user is logged in.
- The user has taken the placement test and is enrolled in a module.

Success Guarantee:

- Users within a module are placed on a leaderboard. Starting rank depends on their score for the previous module's test. Score increases and decreases as questions are answered correctly or incorrectly.

Main Success Scenario:

1. The user creates an account and takes the placement test.
2. The user navigates to the module they're placed in.
3. The user opens the module's leaderboard.
4. The user can view the user's leaderboard position and their daily change.
5. The user can add opponents or friends by clicking their profile on the leaderboard.
6. The user gets notified when an opponent or friend passes them on the leaderboard.

Extensions:

- 5a: The user can also remove opponents or friends by clicking their profile in the opponents and friends tab.
- 6a: The user can disable these notifications within their notification settings and the leaderboard page.

Special Requirements:

- Notifications should be push notifications.
- Users have a daily question that provides extra points towards their leaderboard position.

Technology and Data Variation List:.

- User's leaderboard profile will reflect their custom avatar.
- Device notification settings may affect how reminders are received.

Frequency of Occurrence:

- Daily. A daily question is available for all users and notifications are sent when they are passed by select users.

Use Case UC22: Context-Based ASL Lessons

Primary Actor: Instructor

Stakeholders and Interests:

- Instructor: Wants an easy to manage platform for creating and distributing Context-Based ASL Lessons
- App Owner: Wants to create lesson structure that reduces uncertainty and is easy for everyone to understand.
- Student: Wants easily digestible lessons that are easy to access and track progress of.

Preconditions:

- The instructor is logged in.
- The instructor has access to a computer with the ability to record, upload, and manage videos.

Success Guarantee:

- The instructor has a feature rich content management system that allows them to upload, edit, and distribute context based ASL lessons.

Main Success Scenario:

1. The instructor signs into their instructor portal and selects the module they wish to create lessons for.
2. The instructor uploads the context-based lesson video to the platform. The instructor selects timeframes within the video to pause and have the student take a quiz.
3. The instructor creates the quiz.
4. If the student got the answer correct, the incorrect answer explanations would be skipped over.
5. If the student got the answer incorrect, the video would continue and the instructor would explain the correct answer.
6. The instructor can publish the lesson privately for review, and schedule a time for it to go public.

Extensions:

- 6a: If an administrator has not approved the lesson a day before it's set to go public, they get notified. If it still hasn't been approved with 12 hours left. then a notification is sent to that administrator's administrator.

Special Requirements:

- Reminders should be push notifications.
- The instructors would use the desktop website to edit and publish their videos, however they can be managed in the app.

Technology and Data Variation List:.

- Application will need to support multiple different video file formats.
- Device notification settings may affect how reminders are received.

Frequency of Occurrence:

- Weekly, monthly - depends on module and instructor's contract.

Use Case UC23: ASL Pronunciation Practice with Gesture Recognition

Primary Actor: Student

Stakeholders and Interests:

- Student: Wants immediate feedback to ASL.
- App Owner: Wants to reduce student to instructor communication so instructors can focus time on creating lessons and tutorials

Preconditions:

- The user is logged in.
- The user has completed beginner modules to have a basic understanding of ASL.

Success Guarantee:

- The system utilizes the student's camera to analyze their hands and interprets the sign language. It then compares this to what was asked of the student to evaluate their accuracy.

Main Success Scenario:

1. The user is given a word or phrase to sign.
2. They are asked to place their device or camera such that their hands are a foot away in clear view from the camera.
3. The application counts down from 3. On go, the user starts their sign language.
4. The application converts the sign language into english and compares this to what the user was asked.
5. The user receives an evaluation and feedback.

Extensions:

- 5a: The user has the opportunity to retry if the score was less than 100%.

Special Requirements:

- The user's camera needs to record in 30fps and be 720p quality.
- The user must be in a well lit environment with no moving distractions in the background of the camera view.

Technology and Data Variation List:.

- Different camera speeds and quality will need to be forgiven during the video analysis.

Frequency of Occurrence:

- Daily. Practicing ASL will be a daily occurrence to learn quickly and efficiently.

Use Case UC24: Hand Gesture Tutorials

Primary Actor: Instructor

Stakeholders and Interests:

- Instructor: Wants an easy to manage platform for creating and distributing Hand Gesture tutorials

- App Owner: Wants to create lesson structure that reduces uncertainty and is easy for everyone to understand.
- Student: Wants easily digestible lessons that are easy to access and track progress of.

Preconditions:

- The instructor is logged in.
- The instructor has access to a computer with the ability to record, upload, and manage videos.

Success Guarantee:

- The instructor has a feature rich content management system that allows them to upload, edit, and distribute hand gesture tutorials.

Main Success Scenario:

1. The instructor signs into their instructor portal and selects the module they wish to create lessons for.
2. The instructor uploads the hand gesture tutorial video to the platform.
3. The instructor creates the quiz, which will be displayed at the end of the video.
4. If the student got the answer correct, they move on to the next tutorial.
5. If the student got the answer incorrect, then they'll be presented with a brief description of the correct answer. They will be given the option to watch the video again.
6. The instructor can publish the lesson privately for review, and schedule a time for it to go public.

Extensions:

- 6a: If an administrator has not approved the lesson a day before it's set to go public, they get notified. If it still hasn't been approved with 12 hours left. then a notification is sent to that administrator's administrator.

Special Requirements:

- Reminders should be push notifications.
- The instructors would use the desktop website to edit and publish their videos, however they can be managed in the app.

Technology and Data Variation List:.

- Applications will need to support multiple different video file formats.
- Device notification settings may affect how reminders are received.

Frequency of Occurrence:

- Weekly, monthly - depends on module and instructor's contract.

2. **Use Case Diagrams**

https://lucid.app/lucidchart/07e479b7-84ed-4e5f-b47f-7d74f5946fd5/edit?viewport_loc=-2692%2C-210%2C3012%2C1428%2C0_0&invitationId=inv_3cdb052a-a4ac-4613-bc5f-1ba68d79e6fe

3. **Conceptual Class Diagrams**

https://lucid.app/lucidchart/07e479b7-84ed-4e5f-b47f-7d74f5946fd5/edit?viewport_loc=-2692%2C-210%2C3012%2C1428%2C0_0&invitationId=inv_3cdb052a-a4ac-4613-bc5f-1ba68d79e6fe

WORK HERE ^^

4. **Supplementary Specifications**

- Performance, the app should be able to handle multiple users without latency
- Scalability, the app should be able to handle an increasing number of new users
- Accessibility, the app should follow accessibility standards.
- Usability, the app has a user-friendly interface, with clear instructions for all features.
- Security, the app should protect user data and proprietary algorithms.
- Compatibility, the app should be compatible over a wide range of devices on different operating systems and browsers.