Lyceum Learning Platform - Comprehensive User Guide

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Lyceum Learning Platform - Comprehensive User Guide

1. Introduction to Lyceum

- **What is Lyceum?**
  Lyceum is an advanced, AI-powered personal learning platform designed to help you master any subject. It combines robust test generation capabilities (TestGen Suite) with structured courses, AI-assisted study tools, a collaborative chat environment, and personalized progress tracking. Whether you're preparing for exams, looking to deepen your understanding of complex topics, or exploring new areas of knowledge, Lyceum provides the tools and resources to enhance your learning journey. The platform features a professional, academic aesthetic with a touch of historic and gamified elements to make learning engaging and effective.

- **Who is this Guide For?**
  This guide is intended for all users of the Lyceum platform, including:

  - **Students/Learners:** To understand how to create an account, navigate the platform, use the TestGen suite, enroll in and complete courses, utilize AI study aids, manage their profile, and interact with community features.

  - **Administrators:** To learn about the specialized Admin Panel for managing users, course content, platform settings, and other administrative tasks. Sections specific to administrators are clearly marked.

- **Key Features Overview**

  - **TestGen Suite:** Create customized tests from subject-specific question banks or your own materials. Track your performance and mastery over different chapters.

  - **Courses Platform:** Enroll in structured courses with lessons, video lectures, PDF materials, transcriptions, assignments, and exams.

  - **AI-Powered Tools:** Get AI explanations for questions, study material snippets, PDF content, and AI-generated formula sheets and chapter summaries. Improve your notes with AI assistance.

  - **AI Chat Studio:** Engage in focused conversations with the Lyceum AI (Lyra) on various topics or for general assistance.

  - **Personalized Dashboards:** Track your progress in TestGen and enrolled courses with detailed statistics and charts.

  - **Notes & Documents:** Create, manage, and (experimentally) share notes and documents related to your courses.

  - **Global Chat (Experimental):** Connect with other Lyceum users for discussion and help.

- **Leaderboard & Credits:** Earn credits for platform engagement and see how you rank among other learners.

- **Music & Sounds Player (Experimental):** Enhance your study environment with background music, ambient sounds, or binaural beats.

- **Customizable Interface:** Personalize your Lyceum experience with theme selection and background customization.

- **Admin Panel (Admin Only):** Comprehensive tools for platform management.

2. Getting Started

- **Accessing Lyceum:**
  Lyceum is a web-based application. You can access it using a modern web browser (like Chrome, Firefox, Edge, Safari) by navigating to its designated URL (e.g., your-lyceum-domain.com or localhost if running locally).

- **Creating Your Account (Sign Up):**
  If you are a new user, you'll need to create an account.
  1. Navigate to the Lyceum login page. By default, the "Login" tab is active.
  2. Click the "**Sign Up**" button/tab to switch to the registration form.
  3. Fill in the required information:
     - **Username:** Choose a unique username (3-20 characters, letters, numbers, or underscores only). This will be your public identifier (e.g., for mentions in chat).
     - **Email:** Enter a valid email address. This will be used for account verification, password resets, and important communications.
     - **Password:** Create a strong password (minimum 6 characters).
  4. Click the "**Sign Up**" button.
  5. Upon successful registration, you may be automatically logged in, or you might need to verify your email address depending on the platform's configuration. You will then be guided through the Initial Onboarding process.

- **Logging In:**
  If you already have an account:
  1. Navigate to the Lyceum login page. Ensure the "Login" tab is active.
  2. Enter your registered **Email or Username** in the first field.
  3. Enter your **Password** in the second field.
  4. Click the "**Login**" button.
  5. **Sign In with Google:** Alternatively, you can click the "**Sign In with Google**" button if you prefer to use your Google account. This will redirect you to Google for

authentication and then back to Lyceum. If it's your first time using Google Sign-In with Lyceum, a Lyceum account linked to your Google email will be created.

- **Password Reset:**
  If you've forgotten your password:

  1. On the Login form, click the "**Forgot Password?**" link.

  2. A prompt will appear asking for the email address associated with your account.

  3. Enter your email address and click "OK" or "Submit".

  4. A password reset link will be sent to your email address. Follow the instructions in the email to create a new password.

- **Initial Onboarding (First-time Setup):**
  After your first successful login (either via sign-up or first Google Sign-In), you will be presented with the Onboarding screen.

  1. **Welcome Message:** You'll see a welcome message and an explanation of the setup step.

  2. **Select Initial Subject (for TestGen):**

     - A list of available global subjects for the TestGen suite will be displayed (e.g., "Fundamentals of Physics," "Artin Abstract Algebra").

     - Click on the subject you primarily want to use for generating practice tests. This will be set as your initial active subject.

     - Note: You can change this active subject and manage other subjects later via "Manage Subjects" in the sidebar.

  3. **OR Browse Courses:**

     - Alternatively, you can click the "**Browse Courses**" button to skip selecting an initial TestGen subject and go directly to the course catalog.

  4. **Completion:**

     - If you select a TestGen subject, the system will finalize your setup, and you'll be taken to the Home Dashboard.

     - If you choose to browse courses, you'll be taken to the course listing page.

  This onboarding step helps tailor your initial Lyceum experience.

3. Navigating Lyceum: The Main Interface

Once you've logged in and completed any initial onboarding, you'll be presented with the main Lyceum application interface. Understanding its layout is key to using the platform effectively.

- **The Sidebar (Navigation Panel):**
  Located on the left side of the screen (on desktop views), the sidebar is your primary navigation tool. It dynamically changes based on whether you are in the general platform view or within a specific course.

  - **Standard Navigation (sidebar-standard-nav):**
    This is the default sidebar view when you are not actively inside a specific course. It provides access to global features and dashboards. Key links typically include:

    - **Home:** Takes you to your main Home Dashboard, showing an overview of your TestGen and Course activities.

    - **TestGen Dashboard (Dropdown Menu):**

      - **Generate Test:** Opens the interface to create new practice tests for your active TestGen subject.

      - **Studied Chapters:** Allows you to mark which chapters of your active TestGen subject you have studied.

      - **Exams Dashboard (TestGen):** View history and manage results for your TestGen exams (both online and PDF).

      - **Progress (TestGen):** See detailed performance charts for your active TestGen subject.

      - **Manage Subjects:** Select your active TestGen subject or add/edit subject definitions (if admin).

      - **Import / Export:** Manage your TestGen data backups.

    - **Browse Courses:** Takes you to the catalog of all available structured courses you can enroll in or view.

    - **My Courses:** Displays a list of all courses you are currently enrolled in or viewing.

    - **Music & Sounds (Experimental):** Opens the Music & Sounds Center for background audio. (Visibility depends on Experimental Features settings).

    - **Leaderboard:** Shows the platform-wide leaderboard based on user credits.

    - **Marketplace (Coming Soon / Experimental):** A planned area for using earned credits. (Visibility depends on Experimental Features settings).

    - **(Divider)**

- **Your Profile:** Access and manage your user profile information.

- **Inbox:** View messages from administrators or system notifications.

- **Settings:** Configure your account, appearance, AI preferences, and experimental features.

- **Global Chat (Experimental):** Opens the global chat modal for real-time communication with other users. (Visibility depends on Experimental Features settings).

- **AI Chat Studio:** Access the dedicated interface for conversational AI with Lyra.

- **Admin Panel (Admin Only):** If you are an administrator, this link provides access to platform management tools.

- **Log Out:** Signs you out of your Lyceum account.

Sidebar Dropdowns: Some items, like "TestGen Dashboard," are dropdown menus. Clicking them reveals sub-links. An arrow icon indicates a dropdown, and it will rotate when the dropdown is open. If a child link within a dropdown is the active page, the parent dropdown toggle will also be highlighted.

Active Link: The currently active page or section is highlighted in the sidebar (e.g., with a different background color or bolder text) to help you orient yourself.

- **Course-Specific Navigation (sidebar-course-nav):**
  When you enter a specific course (from "My Courses" or by enrolling), the sidebar changes to provide navigation relevant to that course:

  - **Course Dashboard:** Takes you to the main overview page for the currently active course.

  - **Next Lesson:** A quick link to jump to the study material for the chapter the system determines is your next target.

  - **Study Material:** Opens the full content menu (chapter list) for the active course, allowing you to access all lectures, PDFs, and transcriptions.

  - **Notes & Documents:** Access your personal notes and uploaded documents for each chapter of the active course.

  - **Assignments & Exams:** View and access all quizzes, assignments, and exams specific to the active course.

  - **Course Progress:** View your detailed performance, grades, and certificate eligibility for the active course.

  - **(Divider)**

  - **Back to My Courses:** Exits the current course view and returns you to the list of all your enrolled courses, switching the sidebar back to Standard Navigation.

- **Theme Toggle (Bottom of Sidebar):**
  At the bottom of the sidebar, you'll find a button with a sun or moon icon.

    - Clicking this button toggles the interface between **Light Mode** and **Dark Mode**.

    - Your preference is saved locally in your browser.

    - This also affects the appearance of certain dynamically loaded elements like charts and diagrams.

- **Main Content Area (main-content):**
  This is the largest part of the screen, located to the right of the sidebar. It's where the content for the selected page or feature is displayed. This could be:

  - Your Home Dashboard.

  - The TestGen configuration forms.

  - An online test interface.

  - A course's study materials (videos, PDFs).

  - Your profile settings.

  - The Admin Panel.

  - And so on.

  Content in this area is often displayed within "Content Cards," which are styled containers with a frosted glass effect (if background opacity is set to less than 100%) for better visual organization.

- **Header Bar & User Section (Top of Main Content Area):**

  - **Mobile Menu Button (Hamburger Icon):** On smaller screens (mobile/tablet), the sidebar is hidden by default. This button (usually three horizontal lines) appears in the top-left to toggle the sidebar's visibility. A small red dot (ping) may appear on this button if you have unread inbox messages.

  - **Lyceum Title (Mobile):** On mobile, the "Lyceum" title is displayed centrally in the header when the sidebar is closed.

  - **User Section (Desktop):** On larger screens, your user information is typically displayed in the top-right of the main content area. This includes:

    - Your profile picture (avatar).

    - Your display name.

    - An admin icon (a small shield or gear) if you have administrator privileges.

  - **Subject Info (Desktop, for TestGen):** When the TestGen suite is active, this area (below the User Section or to its left, depending on layout updates) shows the name of your currently selected TestGen subject and the number of chapters it contains.

- **Mobile Navigation:**

  - As mentioned, on smaller screens, the sidebar is initially hidden. Use the **Mobile Menu Button** to open it.

  - When the sidebar is open on mobile, an **overlay** covers the main content area. Clicking this overlay will close the sidebar.

  - The sidebar links function the same way on mobile; clicking a link will navigate you and usually close the mobile sidebar.

- **Background & Opacity Customization (via Settings -> Appearance):**
  Lyceum allows you to personalize the visual experience:

  - **App Background:** You can change the overall background of the application. This is the layer seen behind the main content and sidebar.

    - Choose from predefined images.

    - Upload your own custom image (up to 3MB).

    - Select a solid background color.

    - Reset to the default theme background.

  - **Card Opacity:** You can adjust the transparency of the "Content Cards" and other semi-transparent UI elements.

    - A slider allows you to set the opacity from slightly transparent (e.g., 10%) to fully opaque (100%).

    - Lower opacity creates a "frosted glass" effect, allowing the app background to show through.
      Your appearance preferences are saved locally in your browser.

This covers the primary navigational elements and the overall structure of the Lyceum interface. The next sections will delve into the specific functionalities accessible through these elements.

4. Home Dashboard

The Home Dashboard is your central landing page after logging into Lyceum. It provides a quick overview of your current activities and easy access to key areas of the platform.

- **Overview:**
    - **Welcome Message:** Greets you by your display name.
    - The dashboard is designed to give you a snapshot of your progress and engagement in both the TestGen suite and the Courses platform.

- **Test Generation Snapshot:**
    This section provides a summary related to your TestGen activities.
    - **Active Subject:** If you have an active TestGen subject selected (e.g., "Artin Abstract Algebra"), its name will be displayed prominently.
        - If no subject is active, a message will prompt you to select or manage subjects, with a button linking to the "Manage Subjects" page.
    - **Key Statistics (for the active subject):**
        - **Chapters Loaded:** The total number of chapters defined in the Markdown file for your active subject.
        - **Chapters Marked as Studied:** The number of chapters you have manually marked as "studied" via the "Manage Studied Chapters" section. This affects which chapters are included when you choose to "Test Studied Chapters Only."
        - **Exams Pending:** The number of PDF exams you have generated for this subject but have not yet entered the results for.
        - **Recent Exam:** Details of your most recently completed exam for this subject, typically showing the date and your score (e.g., "Last Exam: 2023-10-27 (35/42 - 83%)").
    - **Quick Action Button:** A button like "**Go to TestGen Dashboard**" or "**Select or Manage Subjects**" provides direct access to the main TestGen suite management page.

- **Courses Snapshot:**
    This section summarizes your engagement with the structured courses.
    - **Enrollment Status:** Displays the number of courses you are currently enrolled in (e.g., "3 Courses Enrolled").
        - If you are not enrolled in any courses, a message will indicate this, with a button prompting you to "**Browse Courses**."
    - **Today's Focus (Full Enrollment Mode):** If you are fully enrolled in an active course, this area will highlight a suggested objective for the day based on your progress and

selected learning pace (e.g., "Today's Focus: Study Chapter 5: Force and Motion—II" or "Today's Focus: Complete Assignment 3").

- **Next Task Button (Full Enrollment Mode):** If a specific "next task" is identified (like starting a specific assignment or studying the next chapter), a button will appear to take you directly to that activity (e.g., "Start Assignment 3," "Go to Chapter 5 Material").

- **Quick Action Button:** A button like "**Go to My Courses**" provides direct access to your list of enrolled courses.

The Home Dashboard aims to be a dynamic and helpful starting point, guiding you to relevant sections based on your current learning activities.

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5. TestGen Suite: Personalized Test Generation

The TestGen Suite is a powerful feature allowing you to create customized practice tests based on specific subjects and chapters.

- **TestGen Dashboard:**
  This is the main hub for the TestGen suite. You can access it from the "Home Dashboard" or directly via the "TestGen Dashboard" -> "Generate Test" link in the sidebar. From here, you initiate the test generation process.

- **Managing Subjects (for TestGen):**
  The TestGen suite operates on "subjects" which are typically defined by Markdown files containing questions.

    - **Accessing:** Click "Manage Subjects" under the "TestGen Dashboard" dropdown in the sidebar.

    - **Functionality:**

        - **List Available Subjects:** Displays all global subject definitions (e.g., "Fundamentals of Physics," "Artin Abstract Algebra"). If you are an admin, you may see subjects with different statuses (pending, approved, rejected). Non-admins will only see 'approved' subjects.

        - **Select Active Subject:** Click the "Select" button (often a checkmark icon) next to a subject to make it your current active subject for TestGen. The currently active subject is usually highlighted.

        - **View Subject Details:** The list shows the subject name, and for admins, creator information and status.

        - **Add New Global Subject / Suggest Subject:**

            - Admins can directly add new global subject definitions by providing a name, resource directory name (for file paths), and filenames for MCQ and optional problem Markdown files, along with default test parameters.

            - Non-admins can "suggest" a new global subject by providing similar information. This suggestion then goes into a 'pending' state for admin review.

        - **Edit Global Subject Definition (Admin/Creator of Pending):** Admins (or the original creator if the subject is still 'pending') can edit the details of a global subject definition, such as its name, associated filenames, directory, and default test parameters.

        - **Approve/Reject/Delete Global Subjects (Admin):**

- Admins can approve 'pending' or 'reported' subjects to make them globally available.

- Admins can reject 'pending' subjects or revoke approval ('reject' an 'approved' one).

- Admins can delete global subject definitions (with some restrictions, e.g., not deleting the last one easily).

- **Understanding Subject Details:** Each subject typically has:

  - **Name:** e.g., "Artin Abstract Algebra."

  - **Resource Directory Name:** A folder name (e.g., artin_algebra) under the main courses directory on the server where its resource files are stored.

  - **MCQ Markdown Filename:** The name of the .md file within courses/[Resource Directory Name]/Problems/ (or your configured SUBJECT_RESOURCE_FOLDER) that contains the multiple-choice questions for this subject. This file also defines chapter titles and total question counts per chapter.

  - **Optional Problem Filenames:** Similar filenames for text-based problems, lecture-based problems, or lecture-based MCQs if they are in separate files.

  - **Default Test Parameters:** Max questions per test, default MCQ/Problem ratio, default test duration. These are used as starting points when you configure a new test.

- **Managing Studied Chapters:**
  This feature allows you to tell Lyceum which chapters of your currently active TestGen subject you have already studied or mastered. This information is used by the "Test Studied Chapters Only" generation option.

  - **Accessing:** Click "Studied Chapters" under the "TestGen Dashboard" dropdown in the sidebar.

  - **Interface:** You'll see a list of all chapters defined for your active subject (derived from its MCQ Markdown file), each with a checkbox.

    - Chapter names and total question counts for each chapter are displayed.

  - **Functionality:**

    - Check the box next to a chapter to mark it as "studied."

    - Uncheck the box to mark it as "not studied."

    - Changes are typically saved automatically when you check/uncheck.

  - **Impact:** When you later choose "Test Studied Chapters Only," Lyceum will only select questions from the chapters you've marked here.

- **Generating a New Test:**
  This is the core of the TestGen suite.

  - **Navigate:** Go to the "TestGen Dashboard" -> "Generate Test."

  - **Choose Scope:**

    - **Test Studied Chapters Only:** Lyceum will use the chapters you've marked in "Manage Studied Chapters" for the active subject. If no chapters are marked studied, you'll be prompted to manage them.

    - **Test Specific Chapters:** You will be presented with a list of all chapters (with available question counts) for the active subject. Check the boxes next to the chapters you want to include in this test. Click "Continue."

  - **Configure Your Test:** After selecting the chapter scope, you'll see a configuration form:

    - **Target Total Questions in Test:** Specify the desired total number of questions for your test (e.g., 20, 42). Minimum is usually 10. The actual number generated may be less if not enough questions are available in the selected scope.

    - **Content from Main Subject Files:**

      - **MCQs from Text/Main File:** Enter the number of MCQs you want specifically from the primary MCQ file of your active subject. Shows (max N, 0 for auto).

      - **Problems from Text/Main File:** Enter the number of problems you want specifically from the primary problem file. Shows (max N, 0 for auto).

    - **Content from Lectures (If applicable for the subject):**

      - If your active TestGen subject definition includes "Lecture Resources" (each potentially with its own MCQ or Problem file), you'll see sections for each lecture.

      - For each lecture resource, you can specify the number of MCQs and/or Problems to draw from its dedicated file(s). Shows (max N, 0 for auto).

    - **Understanding "0 for auto":** If you set a count to 0 for a specific source (e.g., "Text MCQs: 0"), and your "Target Total Questions" is higher than the sum of other specific requests, the system will attempt to automatically fill the deficit from these "auto" sources, trying to respect the subject's default MCQ/Problem ratio. If all specific counts are 0, the system will fully auto-allocate up to the target total.

    - **Test Timing:**

      - **Subject Default:** Uses the default duration set for the active subject (e.g., 120 minutes).

- **Calculated:** The system estimates a duration (e.g., approx. 3 min/MCQ, 15 min/Problem).
- **Custom Duration:** Allows you to enter a specific duration in minutes (minimum 10).

- **Choose Format & Start:**
  - **Start Online Test:** Clicking this button will immediately generate the test based on your configuration and launch the online test interface.
  - **Generate PDF Test:** Clicking this will:
    - Generate two HTML files in the background (one for questions, one for questions with solutions).
    - These HTML files are then sent to the PDF generation server (running locally or on Oracle Cloud) which uses Puppeteer to convert them into PDF documents.
    - Your browser will then download the "Questions PDF" and the "Solutions PDF".
    - The exam details (ID, question allocation) will be added to your "Pending PDF Exams" list in the TestGen Exams Dashboard for you to enter your score later.
  - **Generate LaTeX Source (.tex):** (If this button is shown as a separate option)
    - Generates .tex source files for the questions and solutions, which you can compile into a PDF using a LaTeX distribution (like MiKTeX, TeX Live, or Overleaf).
    - The system will prepare the LaTeX content and trigger a download for ExamName_Questions.tex and ExamName_Solutions.tex.

- **Taking an Online Test (TestGen):**
  If you choose "Start Online Test":
  - **The Test Interface:**
    - **Header:** Displays the Exam ID/Title and a countdown **Timer**. A "Submit Now" button might appear when time is low.
    - **Question Area:** Shows the current question (text and any image).
    - **Answer Area:**
      - For MCQs: Radio buttons for options (A, B, C, D, E).
      - For Problems: A rich text input area with a **LaTeX Toolbar** for entering mathematical notation, and a live preview area that renders your LaTeX

input. You'll type raw LaTeX (e.g., $$\frac{a}{b}$$ or x^2) into a dedicated textarea, and the preview updates.

- **Navigation Footer:**
  - "**Previous**" button: Moves to the previous question (disabled on the first question).
  - "**Question X / Y**" counter.
  - "**Next**" button: Moves to the next question.
  - "**Submit Test**" button: Appears on the last question or when "Submit Now" is available.

- **Answering MCQs:** Click the radio button corresponding to your chosen option. Your selection is automatically saved.

- **Answering Problems (LaTeX Input):**
  - Use the **LaTeX Toolbar** buttons (e.g., for fractions, exponents, symbols, Greek letters, calculus operators) to insert common LaTeX snippets into the raw LaTeX input textarea.
  - Alternatively, type raw LaTeX directly into the textarea. Use $...$ for inline math and $$...$$ (or \[...\]) for display math.
  - The **Live Preview** area above the textarea will update to show how your LaTeX will be rendered. Click the preview area to focus the raw editor below it.
  - Your answer is saved as you type.

- **Navigating Questions:** Use the "Previous" and "Next" buttons.

- **Timer and Submission:**
  - Keep an eye on the timer.
  - If the timer runs out, the test will be submitted automatically.
  - You can submit earlier by navigating to the last question and clicking "Submit Test," or by clicking the "Submit Now" button if it appears.
  - A confirmation prompt will appear before final submission, often indicating if any questions are unanswered.

- **After Submission:** The system will automatically mark your test (MCQs are auto-graded, Problems are AI-graded) and then display your results, including scores, AI feedback, and options to review the exam in detail.

- **TestGen Exams Dashboard & History:**
  Access via "TestGen Dashboard" -> "Exams Dashboard" in the sidebar.

  - **Pending PDF Exams:**

- Lists PDF exams you've generated but haven't entered results for.

- Shows Exam ID, number of questions, and generation date.

- **Enter Results:** Click to open a form where you input how many questions you got wrong per chapter for both MCQs and Problems from that PDF test.

- **Delete Pending:** Removes the pending entry (use if you don't plan to take/score it).

- **Completed Exam History (New Centralized Store):**

  - This section now primarily shows exams completed online or PDF exams where results have been entered and processed into the new userExams Firestore collection.

  - Displays Exam ID, type (TestGen, Course Assignment, etc.), date completed, score, and max score.

  - **Review:** Click to view the detailed Exam Review UI for that specific completed exam (see below).

  - **Delete:** Permanently deletes the exam history record. For TestGen exams, this action typically makes the MCQs from that exam available again in your question pool.

- **Reviewing Exam Details & AI Feedback (TestGen Exams):**
  When you click "Review" for a completed online TestGen exam:

  - **Overall Summary:** Your score, percentage, pass/fail status, date, and duration.

  - **Overall AI Feedback (if generated):** Strengths, weaknesses, and study recommendations based on your performance across the whole exam.

  - **Question Breakdown:** A list of all questions from the exam.

    - **Question Display:** Shows the question text, image (if any), and options (for MCQs).

    - **Your Answer & Correct Answer:** Clearly indicated.

    - **Score Awarded:** For that specific question.

    - **AI Marking Feedback (for Problems):** Detailed feedback from the AI on your problem-solving steps, key points identified, and improvement suggestions.

    - **AI Explanation (Button):** For each question, you can click "Explain (AI)" to get a step-by-step explanation of the concepts, why the correct answer is right, and (for MCQs where you were wrong) why your answer was incorrect. This opens a small, interactive chat-like panel where you can ask follow-up questions about that specific question.

- **Report Issue (Button):** Allows you to report problems with the question content, AI marking, or AI explanation.

- **TestGen Progress Dashboard:**
Access via "TestGen Dashboard" -> "Progress (TestGen)" in the sidebar. This shows charts and statistics related to your performance on TestGen exams for the currently active TestGen subject.

    - **Difficulty Score Chart:** A bar chart showing the AI-calculated difficulty score (percentage) for each chapter, based on your historical performance. Higher bars indicate more challenging chapters for you.

    - **Consecutive Mastery Chart:** A bar chart showing how many consecutive tests you've "mastered" each chapter on (i.e., answered all questions from that chapter correctly). Higher bars indicate stronger mastery.

    - **Questions Attempted Chart:** A bar chart showing the total number of questions you've attempted from each chapter.

    - **Wrong Answers Chart:** A bar chart showing the total number of questions you've answered incorrectly from each chapter.

    - **Interpretation:** These charts help you identify which chapters you are strong in and which require more study or practice within the TestGen context.

6. Courses Platform

The Courses Platform in Lyceum provides structured learning experiences with curated content, assignments, and progress tracking.

- **Browsing Courses:**
  - **Accessing:** Click "Browse Courses" in the sidebar.
  - **Interface:**
    - **Search Bar:** Allows you to search for courses by name, major tag (e.g., "Physics"), subject tag (e.g., "Quantum Mechanics"), or keywords in the course description. Click the "Search" button to apply filters.
    - **"Add Course" / "Suggest Course" Button:**
      - **Administrators** will see "Add Course" and can directly create new global course definitions.
      - **Regular users** will see "Suggest Course" to submit a proposal for a new course, which will then go to administrators for review.
    - **Course List:** Displays available courses as cards. Each card typically shows:
      - Thumbnail image (if available).
      - Course Name.
      - Short Description.
      - Tags (Major, Subject).
      - Number of Chapters.
      - Enrollment status (e.g., "Enrolled," or an "Enroll" button).
      - For admins, the course status (e.g., "Approved," "Pending," "Reported") might be visible.
  - **Functionality:**
    - Click on a course name or a "View Details" button to see more information about that course.
    - Click "Enroll" to start the enrollment process for an approved course.
    - If already enrolled, a button like "Go to Course" will take you to that course's dashboard.

- **Viewing Course Details:**
  Clicking on a course from the "Browse Courses" list will take you to its detail page.
  - **Information Displayed:**
    - Full Course Name and Description.
    - Creator Name and Creation Date.
    - Major and Subject Tags.
    - Total Number of Chapters.
    - List of Chapter Titles (often expandable or scrollable).
    - **Prerequisites:** A list of Subject Tags for other courses or knowledge areas recommended before starting this course.
    - **Corequisites:** A list of Subject Tags for courses ideally taken concurrently.
    - YouTube Playlist URL(s) associated with the course (if any).
    - Resource directory name (for admins).
    - Status (Approved, Pending, Reported - visible to admins).
  - **Actions:**
    - **Enroll Button:** If you are not enrolled and the course is "approved."
    - **Go to Course Dashboard Button:** If you are already enrolled.
    - **Report Course Button (Non-Admin, Approved Courses only, except FoP):** Allows you to report issues with an approved course to administrators. You'll be asked for a reason.
    - **Admin Actions (Admin Only):** Buttons to Edit the course definition, Approve pending/reported courses, Reject pending courses, or Delete rejected/reported courses. (The "Fundamentals of Physics" default course has special handling and cannot be easily rejected/deleted by admins if it's the primary).
- **Enrolling in a Course & Setting Your Pace:**
  When you click "Enroll" for an approved course:
  - **Enrollment Mode:**
    - **Full Enrollment:** This is the standard mode. You'll engage with all course activities, including assignments and exams. Your progress will be tracked, and you can earn a certificate upon successful completion.
    - **Viewer Mode:** This mode gives you access to all the course's study materials (videos, PDFs, transcriptions) and your personal notes for that course. However, assignments, exams, progress tracking, and certificate eligibility are disabled. This is useful if you just want to review content without formal assessment.

- **Learning Pace (for Full Enrollment only):**
    - **Compact Pace:** Aims to complete the course faster (e.g., 125% of the standard calculated pace).
    - **Mediocre Pace (Default):** A balanced pace. For the first week, a default rate is assumed. After your first week of activity (studying chapters, completing skip exams), the system calculates your actual "mediocre" pace based on how many chapters you effectively covered. This becomes your baseline.
    - **Lenient Pace:** A more relaxed pace (e.g., 75% of the standard calculated pace).
    - **Custom Pace:** You can set a target number of total days you want to take to complete the course (minimum 7 days). The system will then calculate a daily chapter target based on this.
- **Confirmation:** Click "**Enroll & Start Learning**."
- The system saves your enrollment, sets your initial progress data, and takes you to the Course-Specific Dashboard. You'll also earn some credits for enrolling.

- **My Courses Dashboard:**
Access by clicking "My Courses" in the sidebar.
    - Displays a list of all courses you are currently enrolled in (either in Full or Viewer mode).
    - Each course card shows:
        - Course Name.
        - Current Status (e.g., "Enrolled," "Completed," "Failed," "Viewer").
        - Current Grade (if applicable and calculated).
        - A progress bar indicating your overall chapter study completion percentage.
        - Attendance percentage.
    - **Actions:**
        - Clicking the course name or an "Enter Course" / "View Materials" button navigates you to that course's specific dashboard.
        - A "View Progress" button might take you to the detailed progress page for that course.

- **Course-Specific Dashboard:**
This is your main hub for an individual course you are enrolled in. Accessed by selecting a course from "My Courses" or after enrolling. The sidebar will switch to "Course-Specific Navigation."
    - **Cover Image:** A large banner image for the course is displayed at the top.

- **Course Title:** The name of the course.

- **Unenroll Button:** Allows you to unenroll from the course (progress will be deleted).

- **Today's Objective (Full Enrollment Mode):**

    - Based on your selected pace, days enrolled, and progress, Lyceum suggests what you should focus on today (e.g., "Study Chapter X," "Complete Assignment Y," "Prepare for Midcourse Exam").

    - A direct action button (e.g., "Start Assignment Y") may appear to take you to the suggested task.

- **Viewer Mode Indicator:** If in viewer mode, a clear message indicates that assignments and progress tracking are disabled.

- **Quick Links (Cards/Buttons):**

    - **Study Material (All Chapters):** Takes you to the Course Content Menu, listing all chapters for accessing videos, PDFs, and transcriptions.

    - **Next Lesson:** A quick link to the study material for the chapter the system determines is your next target.

    - **Assignments & Exams (Full Enrollment Mode):** View and access all available assignments and exams for the course.

    - **Notes & Documents:** Access your notes and uploaded documents, organized by chapter for this course.

    - **Detailed Progress (Full Enrollment Mode):** View charts, score breakdowns, and your certificate if eligible.

- **Unenrolling from a Course:**

    - Navigate to the **Course-Specific Dashboard** for the course you wish to leave.

    - Click the "**Unenroll**" button (usually located near the course title or in a settings area for the course).

    - A confirmation prompt will appear, warning you that unenrolling will **permanently delete all your progress** for this course.

    - Confirm to unenroll. You will be returned to the "My Courses" dashboard or "Browse Courses."

- **Study Material (ui_course_study_material.js related functionalities):**
  Accessed via "Study Material" or "Next Lesson" from the course dashboard, or by clicking on a chapter in the Course Content Menu.

    - **Chapter Navigation:** If multiple videos/parts are associated with a chapter, "Previous" and "Next" buttons allow navigation between them.

- **Video Player (YouTube):**
  - Embedded YouTube player for lecture videos.
  - Standard YouTube controls are available.
  - **Progress Tracking (Full Enrollment):** Lyceum tracks how much of each video you've watched. Watching a significant portion (e.g., 90%) contributes to marking the video component of a chapter as "studied." This progress is saved periodically and when you navigate away or the video ends.
- **Video Transcription:**
  - If an SRT (subtitle) file is available for the video, its content is displayed below the player.
  - **Interactive Highlighting:** As the video plays, the corresponding line in the transcription is highlighted.
  - **Click to Seek:** Clicking on a line in the transcription will seek the video to that point.
  - **Expand/Collapse:** Toggle to show the full transcription or just the currently spoken lines.
- **PDF Viewer:**
  - If a PDF document is associated with the chapter, it's displayed in an embedded PDF viewer.
  - **Controls:** Navigate pages ("Previous," "Next"), see current page/total pages.
  - **Progress Tracking (Full Enrollment):** Your current page in the PDF is saved, contributing to chapter study progress.
- **AI Tools for Study Material:**
  - **Explain Selection (Transcription):** Select a portion of the video transcription text and click an "Explain Selection" button. Lyceum's AI (Lyra) will provide an explanation of the selected text, using the full transcription as context.
  - **Ask AI (About Transcription):** Click a button to ask Lyra a question specifically about the content of the current video's transcription.
  - **Ask AI (About PDF Page):** While viewing a PDF, click a button to "Ask AI (Page)." This sends an image (snapshot) of the current PDF page view along with your typed question to Lyra for an explanation or answer based on the visible content.
  - **Ask AI (About Full PDF Document):** Click a button to "Ask AI (Doc)." This will (attempt to) extract all text from the current chapter's PDF, send it with your

question to Lyra, and Lyra will answer based on the entire document's content. Note: This may be slow or hit limits for very large PDFs.

- **AI Explanation Panel:** Explanations and answers from Lyra appear in a floating panel, allowing for follow-up questions to continue the discussion about that specific piece of material.

- **Chapter Formula Sheet (AI Generated):**

  - Click a "Formulas" button. Lyra will analyze the content of the current chapter (from PDF text and transcriptions) and generate a concise formula sheet.

  - The generated sheet is displayed and can be saved to your user-specific notes for that chapter.

  - You can regenerate it or download it as a PDF.

- **Chapter Summary (AI Generated):**

  - Click a "Summary" button. Lyra will analyze the chapter's content and generate a comprehensive summary.

  - The summary is displayed and can be saved to your notes.

  - You can regenerate it or download it as a PDF.

- **Skip Exam (Testing out of a Chapter - Full Enrollment Mode):**

  - If a chapter has not yet been marked as "studied" through progress or a previous skip exam pass, a "**Take Skip Exam**" button appears.

  - This exam typically consists of multiple-choice questions drawn from the course's related TestGen subject for that specific chapter.

  - The number of questions and duration are configured by course exam defaults.

  - Passing this exam (e.g., scoring above 70-75%) will automatically mark the chapter as "studied," and you'll earn a small credit bonus.

  - Your last skip exam attempt score for each chapter is recorded.

- **Assignments & Exams (Course-Specific):**
  Accessed via the "Assignments & Exams" link in the course-specific sidebar. This page lists all structured assessments for the course.

  - **Types of Activities:**

    - **Daily Assignments:** Typically shorter, focused on the content of a specific "day" or chapter. Become available as you progress through the course.

    - **Weekly Exams:** Cover material from a week's worth of content. Become available at the end of each study week.

- **Midcourse Exams:** Larger exams covering multiple sections or quarters of the course. Available after completing the prerequisite chapters for that midcourse.
- **Final Exams:** Comprehensive exams covering all course material. Available after all chapters are studied. Multiple attempts might be allowed by course configuration.

- **Interface:**
  - Lists activities by type.
  - For each activity, it shows:
    - Name/ID (e.g., "Assignment 3 (Day 3)," "Weekly Exam 2," "Midcourse 1").
    - Status: "Available," "Completed (Score: XX%)," "Locked (Study Chapter Y first)," "Locked (Available on Date Z)."
  - A "**Start**" button appears for available activities.
- **Taking Activities:** Clicking "Start" launches an online test interface similar to the TestGen online test, with a timer and configured question types (MCQs, Problems).
- **Results:** After submission, results are displayed, and scores are recorded in your course progress.
- **Deleting Results (Admin Testing Aid):** Admins might have an option to delete a user's attempt for a specific activity (for testing purposes).

- **Course Progress Details:**
  Accessed via the "Detailed Progress" link in the course-specific sidebar.
  - **Overall Grade & Performance:**
    - Displays your current calculated **Total Mark** (percentage).
    - Shows your current **Letter Grade** (A+, A, B, C, F) based on the total mark.
    - Displays your **Attendance Score** (percentage), calculated based on daily activity completion.
    - Shows your **Current Pace** (chapters/day) and your **Base Mediocre Pace** (if calculated).
  - **Performance Charts:**
    - **Assignment Scores Chart:** A line chart showing your scores (%) over time for daily assignments.
    - **Weekly Exam Scores Chart:** A bar chart showing your scores (%) for weekly exams.
    - **Midcourse Exam Scores Chart:** A bar chart for midcourse exam scores.

- **Last Skip Exam Attempt Chart:** A line chart showing your last attempt score (%) for skip exams per chapter.
- **Score Breakdown Table:** A table itemizing how different components contribute to your total mark, showing average scores for assignments, weekly exams, etc., and the weight of each component.
- **Course Certificate (If Eligible):**
  - If your course status is "Completed" and your final grade is passing (not "F"), a certificate preview section appears.
  - **Preview Canvas:** Shows a visual preview of your personalized certificate, including your name, course name, grade, and completion date, rendered onto a grade-specific template image.
  - **Regenerate Preview:** A button to re-render the canvas preview if needed.
  - **Download PNG:** Download the certificate as a PNG image file.
  - **Download PDF:** Download the certificate as a PDF document.
- **Notes & Documents (Per Course, Per Chapter):**
  Accessed via the "Notes & Documents" link in the course-specific sidebar. This opens a panel where you manage your personal notes and any files you've uploaded, organized by the chapters of the currently active course.
  - **Chapter List Menu:** Initially, you might see a list of all chapters in the course. Clicking a chapter takes you to its dedicated notes panel.
  - **Notes Panel (for a specific chapter):**
    - **Quick Access:** Buttons for "Formula Sheet" and "Chapter Summary" (AI-generated, specific to this chapter). Clicking these will load or generate the content in a display area within the panel.
    - **Your Notes Section:**
      - **List of Your Notes:** Shows all notes you've created or files you've uploaded for this chapter, with title, type, and timestamp.
      - **Actions per Note:**
        - **View:** Opens a modal to view the full content of the note or file details.
        - **Edit (for Text/LaTeX notes or extracted text from files):** Opens an editor modal.
        - **Delete:** Removes your note/file record.
        - **AI Tools (View Modal - User Notes):**

- **Review Note (AI):** For text notes, sends the note content and related chapter material to Lyra for feedback on accuracy, completeness, and suggestions. The review is saved as a new "AI Review" type note.

- **OCR & LaTeX (AI) (for Images):** For uploaded image files, uses AI Vision to extract text and math, then converts it into LaTeX, replacing the image note's content.

- **Download .tex / PDF:** For LaTeX notes, download as .tex. For Text, LaTeX, or AI Review notes, download as a styled PDF.

- **Preview/Print LaTeX:** For LaTeX notes, opens a new tab with the rendered LaTeX for printing.

- **Add Note Button:** Opens a modal to create a new text-based note. You provide a title and content. The system auto-detects if content is likely LaTeX upon saving.

- **Upload File Button:** Allows you to upload files (PDF, TXT, MD, TEX, JPG, PNG) to associate with this chapter.

  - Text-based files (.txt, .md, .tex) have their content extracted and stored as editable text notes (type changes to TEXT or LATEX).

  - PDF files have their text extracted (if possible) and stored as an editable text note. The original filename is kept.

  - Image files are stored as "FILE" type notes with a placeholder content string and potentially a Data URI for AI Vision processing.

- **Shared Notes Section (Future/Experimental):**

  - A planned area to view notes shared by other users for this chapter (if they explicitly share them).

  - An option to "Share" one of your own notes (functionality may be limited).

7. AI Chat Studio

The AI Chat Studio provides a dedicated interface for direct, conversational interaction with Lyceum's AI assistant, Lyra. This is separate from the contextual AI tools found within study materials (like "Explain Selection"). Here, you can ask broader questions, get general help, brainstorm ideas, or explore topics in a more free-form way.

- **Interface Overview:**
  When you navigate to the AI Chat Studio (usually via a "AI Chat Studio" link in the main sidebar):

  - **Sessions Sidebar (ai-chat-sessions-sidebar):**

    - Located on the left (on desktop).

    - **New Chat Button:** Allows you to start a fresh conversation with Lyra.

    - **Chat History List:** Displays a list of your previous chat sessions. Each item typically shows the session name (which you can set or is auto-generated) and is ordered by the last modified time. Clicking a session loads it into the main chat area. Active session is highlighted.

    - **Delete Session Button:** Appears when hovering over a session in the list, allowing you to delete that specific chat history.

  - **Main Chat Area (ai-main-chat-area):**

    - **Chat Header (ai-chat-header):** Displays the name of the currently active chat session (e.g., "Chat with Lyra - Brainstorming" or "AI Chat Studio" if no session is active).

    - **Messages Container (ai-chat-studio-messages-container):** This is where the conversation unfolds.

      - Your messages and Lyra's responses are displayed chronologically.

      - User messages are typically aligned to one side (e.g., right, styled in primary color).

      - Lyra's (model) messages are aligned to the other side (e.g., left, styled in a neutral/secondary color).

      - Each message bubble shows the sender ("You" or "Lyra") and a timestamp.

      - Lyra's responses can include formatted text (bold, italics, lists, code blocks) and LaTeX for mathematical expressions.

- A "Copy" button appears on Lyra's messages for easy copying of its response.
  - **Input Area (ai-chat-input-area):**
    - Located at the bottom of the main chat area.
    - **Textarea (ai-chat-studio-input):** A multi-line input field where you type your messages to Lyra. It auto-resizes as you type (up to a certain maximum height). Placeholder text prompts "Ask Lyra anything...".
    - **Send Button:** A button (often with a paper plane icon) to submit your typed message. Pressing "Enter" (without Shift) also sends the message. "Shift+Enter" creates a new line in the textarea.

- **Starting a New Chat:**
  - Click the "**New Chat**" button in the Sessions Sidebar.
  - You may be prompted to enter a name for this new chat session (e.g., "Calculus Questions," "Essay Outline"). If you don't provide a name, a default one like "Chat [Number]" will be used.
  - A new, empty chat session is created and becomes the active chat.
  - The system typically sends an initial system prompt (invisible to you but guiding Lyra's persona, e.g., "You are Lyra, a helpful AI assistant...") and Lyra responds with a greeting like "Okay, I'm ready to help! How can I assist you today?".
  - The new session will appear at the top of your Chat History list.

- **Sending Messages & Using LaTeX:**
  - Type your question or prompt into the **textarea** at the bottom of the chat interface.
  - **LaTeX for Math:** If you need to include mathematical notation, you can use LaTeX syntax directly in your message:
    - For inline math (math within a sentence), enclose your LaTeX code in single dollar signs: What is the value of $x^2 + y^2 = z^2$?
    - For display math (math on its own line, centered), enclose your LaTeX code in double dollar signs $$...$$ or brackets \[...\]:

      ```
      Can you explain this formula:
      $$ \int_{a}^{b} f(x) dx = F(b) - F(a) $$
      ```

  - Press **Enter** or click the **Send Button**.
  - Your message will appear in the chat log.

- Lyra will process your request, and its response will appear below your message. This may take a few moments ("Lyra is thinking...").
- Lyra's responses will also render any LaTeX it uses.
- **Managing Chat Sessions:**
  - **Switching Sessions:** Click on any session name in the "Chat History" list in the sidebar. The main chat area will update to show the messages from that selected session. The input area will be ready for you to continue that specific conversation.
  - **Session Naming:** When a new chat is created, if you named it, that name is used. The system might allow renaming sessions later (functionality not explicitly detailed but common).
  - **Deleting a Session:**
    - Hover over the chat session you wish to delete in the "Chat History" list.
    - A small delete icon (e.g., an 'X' or trash can) will appear.
    - Click the delete icon.
    - A confirmation prompt will ask: "Are you sure you want to delete the chat session '[Session Name]'? This action cannot be undone."
    - Click "OK" or "Confirm" to delete. The session will be removed from your history list and its data deleted from the database.
    - If the deleted session was the active one, the chat interface might clear or load the next most recent session.

Key Points for AI Chat Studio:

- **Contextual Memory:** Lyra remembers the previous turns within the current active chat session. This allows for follow-up questions and contextual conversations. Each chat session is independent.
- **System Prompts:** The way Lyra behaves (its persona, the type of information it prioritizes) is initially guided by a "system prompt" associated with the AI Chat Studio. Advanced users or admins might be able to customize these prompts (see Section 9: Your Profile & Settings).
- **Rich Formatting:** Lyra can use Markdown (for bold, italics, lists, code blocks) and LaTeX (for math) in its responses, which will be rendered correctly in the chat interface.
- **Saving:** Chat sessions, including your messages and Lyra's responses, are automatically saved to your account's database as the conversation progresses.

This section provides a comprehensive overview of the AI Chat Studio, designed for flexible and interactive AI assistance.

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8. Community & Engagement

Lyceum aims to foster a learning community. These features (some experimental or upcoming) facilitate interaction and friendly competition.

- **Leaderboard:**

    - **Accessing:** Click "Leaderboard" in the main sidebar.

    - **Purpose:** Displays a ranked list of top Lyceum users based on their accumulated "Credits."

    - **Information Shown:**

        - **Rank:** The user's position on the leaderboard.

        - **User:** Displays the user's avatar (profile picture), display name, and optionally their @username.

        - **Credits:** The total number of credits the user has earned.

    - **Your Position:** If you are logged in, your entry on the leaderboard will typically be highlighted for easy identification.

    - **Earning Credits:** Credits are awarded for various activities on the platform, such as:

        - Successfully completing course assignments and exams.

        - Passing TestGen exams.

        - Enrolling in new courses.

        - Daily logins or consistent platform usage (if implemented).

        - Contributing content or suggesting new subjects (if such features are enabled and rewarded).

        - Other engagement metrics determined by the platform administrators.

    - **Goal:** The leaderboard encourages active participation and provides a fun way to see how your engagement compares to others.

- **Global Chat (Experimental):**
  (Note: This feature is marked as experimental. Its availability and functionality depend on your "Experimental Features" settings in the Settings Panel.)

    - **Accessing:** If enabled, click "Global Chat" in the main sidebar. This opens a full-screen modal overlay for the chat interface.

    - **Interface:**

- **Header:** Shows "Global Chat" and a "Close" button. It may also include a "View Pinned" button.

- **Message Area (global-chat-content):** Displays messages from all participating users in chronological order. Your messages are typically aligned to one side, and others' messages to the other. Each message shows the sender's avatar, display name, timestamp, and the message text.

- **Reply Indicator:** If you are replying to a specific message, a small indicator above the input box will show a preview of the message you're replying to.

- **Input Area:**
    - A textarea (global-chat-input) for typing your message. Supports multi-line input (Shift+Enter for new line).
    - A "Send" button. Pressing "Enter" (without Shift) also sends the message.

- **Mention Suggestions Popup:** When you type "@" followed by characters, a popup appears suggesting users or "@everyone" to mention.

- **Functionality:**

  - **Sending Messages:** Type your message and send. It will be visible to all users currently in the Global Chat.

  - **Mentions:**
      - **@username:** Type @ followed by a user's username (or start typing and select from suggestions) to notify that specific user. Their name will be highlighted in your message.
      - **@everyone:** Type @everyone to send a notification to all active users (use sparingly). This will be highlighted distinctively.
      - **@me:** If someone mentions your username or display name, it will be highlighted differently in your view.

  - **Replying to Messages:**
      - Click the "Reply" icon (often a curved arrow) on a message you want to reply to.
      - The reply indicator will appear above your input box showing the context.
      - Type your reply and send. Your message will appear with a snippet of the original message it's replying to.
      - Click the "X" on the reply indicator to cancel replying.

  - **Message Formatting:** You can use basic Markdown (like **bold**, *italic*, \ code`, ````code block```) and LaTeX (

```
inline$‘,‘inline\$`, `inline$‘,‘
```


```
displaydisplaydisplay
```


$`) in your messages. These will be rendered in the chat.

- **Real-time Updates:** New messages appear automatically without needing to refresh the page, thanks to Firestore's real-time listeners.

- **Pinning Messages (Admin Only):**

  - Administrators will see a "Pin" icon on messages.

  - Clicking it toggles the pinned status of that message. Pinned messages are usually highlighted visually (e.g., with a border or background color).

- **Viewing Pinned Messages:**

  - A "Pinned" button in the chat header allows users to see a list or view of all currently pinned messages. (Exact UI may vary).

- **Deleting Messages:**

  - **Message Owners:** You can delete your own messages. A delete icon (e.g., 'X' or trash can) will appear on your messages.

  - **Administrators:** Admins can delete any message in the chat.

  - A confirmation prompt appears before deletion.

- **Notifications:** The "Inbox" link in the main sidebar and the mobile menu button may show an indicator (e.g., a red dot or count) if you have unread messages or new mentions in Global Chat (though this specific notification linkage to Global Chat activity might be distinct from general Inbox notifications; depends on implementation).

- **Marketplace (Coming Soon / Experimental):**
  (Note: This feature is marked as experimental and "Coming Soon." Its availability depends on your "Experimental Features" settings.)

  - **Accessing:** If enabled, click "Marketplace" in the main sidebar.

  - **Purpose (Intended):** The Marketplace is a planned feature where users can potentially spend the "Credits" they earn through platform engagement.

  - **Current State:** Currently, accessing this link will likely show a placeholder page indicating the feature is under development.

  - **Information Displayed (Placeholder):**

    - A "Coming Soon" message.

    - A brief explanation that users earn credits through activities.

- Your current credit balance is displayed.
- **Future Functionality (Examples):**
  - Redeeming credits for cosmetic items (e.g., profile badges, themes).
  - Unlocking access to premium content or features (if applicable).
  - Purchasing hints or extra attempts for certain activities.
  - Gifting credits or items to other users.

9. Your Profile & Settings

This section allows you to manage your personal account information, customize your Lyceum experience, and control various platform settings.

- **Viewing Your Profile (showUserProfileDashboard):**
  - **Accessing:** Click "Your Profile" in the main sidebar.
  - **Information Displayed:**
    - **Avatar/Profile Picture:** Your current profile picture.
    - **Display Name:** The name shown publicly on the platform (e.g., in chat, leaderboards).
    - **Username (@username):** Your unique username.
    - **Email Address:** Your registered email.
    - **Credits:** Your current total of Lyceum credits.
    - **User ID (UID):** Your unique internal identifier.
    - **Completed Course Badges:** A section displaying badges for courses you have successfully completed, showing the course name, grade achieved, and completion date.
  - **Editable Fields (on this page):**
    - **Profile Picture:** Click on your avatar or a camera icon overlay to upload a new image. A cropper tool will appear to help you select the desired portion of your image for a circular avatar.
    - **Display Name:** An input field allows you to change your display name.
    - Click "**Save Display Name**" (or a similar button) to apply changes to your display name. Profile picture changes are often saved immediately after cropping and confirming.
  - **Link to Settings:** A message usually indicates that other account actions (like changing email/password, deleting account) are available in the main "Settings" panel.
- **Editing Your Profile (Display Name, Avatar via Cropper):**
  - **Changing Display Name:**
    - Go to "Your Profile."
    - Type your new desired name in the "Display Name" input field.

- Click the "Save Display Name" button.

- Your display name across the platform will be updated.

- **Changing Profile Picture (Avatar):**

  - Go to "Your Profile."

  - Click on your current avatar. A file selection dialog will open.

  - Choose an image file from your computer (JPG, PNG, GIF, WebP; usually with size limits like 3-5MB).

  - **Cropper Modal:** A modal window will appear displaying your selected image.

    - A circular or square crop overlay will be shown.

    - You can typically move the image behind the overlay and zoom in/out to select the perfect portion for your avatar.

    - The aspect ratio is usually fixed (e.g., 1:1 for a circle/square).

    - The crop box itself might be fixed in size, requiring you to move/scale the image underneath.

  - Adjust the crop as needed.

  - Click "**Crop & Use**" (or similar).

  - The system will process the cropped image, upload it, and update your avatar across the platform. The preview on your profile page will update.

- **Settings Panel (showSettingsPanel):**
  This is the main hub for all account and platform configurations. Access by clicking "Settings" in the main sidebar. It's organized into tabs:

  - **Tab Navigation:** Click on tab names like "Profile & Account," "Appearance," "Experimental Features" to switch between settings categories. The active tab is highlighted.

  - **A. Profile & Account Management Tab:**

    - **Display Name & Avatar:** Similar to the "Your Profile" page, you can view and update your display name and avatar here.

      - Click the avatar to trigger the file upload and cropping process.

      - Edit the "Display Name" field.

      - Click "**Save Name/Avatar**" to apply these specific changes.

    - **Account Management:**

      - **Username:** Displays your current @username. A "**Change Username**" button allows you to modify it.

- You'll be prompted for your new desired username.
- Usernames must be unique and follow specific format rules (e.g., 3-20 alphanumeric characters or underscores).
- Changing your username also updates your mention handle (e.g., @newUsername).
- **Email:** Displays your current email. A "**Change Email**" button allows you to update it.
  - You will likely be asked to re-enter your current password for security.
  - Enter your new desired email address.
  - A verification email will be sent to the new email address. You must click the link in that email to confirm the change. Your login email will not change until the new address is verified.
- **Change Password:** A button to initiate the password change process.
  - You'll be prompted to enter your **current password**.
  - Then, you'll be asked to enter your **new password** and confirm it.
  - Passwords must meet minimum length requirements (e.g., 6 characters).
- **Danger Zone:**
  - **Log Out Button:** Immediately logs you out of your Lyceum account.
  - **Delete My Account Button:** Initiates the account deletion process.
    - **CRITICAL:** This is a permanent action and cannot be undone.
    - You will be asked for multiple confirmations, likely including re-entering your password and typing a specific phrase (e.g., "DELETE MY ACCOUNT") to confirm.
    - Deleting your account removes all your personal data, TestGen progress, course enrollments and progress, notes, chat history, exam results, and credits from the platform.
- **B. Appearance Settings Tab:**
  - **Current Background Preview:** Shows a preview of how your current app background looks.
  - **Upload Custom Image:**
    - Allows you to choose an image file (e.g., JPG, PNG) from your computer (max 3MB).

- This image will be set as the app-wide background, visible behind semi-transparent UI elements.
- **Select Solid Color:**
  - A color picker allows you to choose any solid color for the app background.
- **Card Opacity:**
  - A slider to control the transparency of "Content Cards" and similar UI elements.
  - Ranges from mostly transparent (e.g., 10-20%) to fully opaque (100%).
  - A percentage value next to the slider shows the current opacity.
- **Predefined Backgrounds:**
  - A gallery of pre-selected background images you can apply with a single click.
- **Reset Appearance Button:** Resets your background and card opacity settings to the platform defaults.
- Note: Appearance settings are typically saved locally in your browser's localStorage.

- **C. Experimental Features Tab:**
  - Lists experimental or beta features that you can opt-in or opt-out of.
  - Each feature has a toggle switch (On/Off) and a brief description. Examples:
    - **Global Chat Feature:** Enable/disable access to the global chat.
    - **Marketplace (Coming Soon):** Enable/disable visibility of the marketplace link.
    - **Music & Sounds Player:** Enable/disable the background music and UI sound effects player.
  - Click the "**Save Feature Settings**" button to apply your choices. These settings are saved to your user profile in the database.
  - Changes to features that affect sidebar links (like Global Chat, Marketplace, Music) might require a page refresh or re-login for the sidebar to visually update.

- **D. AI Model & System Prompt Settings (Advanced Users / May be Admin-restricted):**
  (This section's availability and editability might depend on user role or platform configuration.)
  - **Model Configuration:**

- **Primary AI Model:** Select your preferred primary model for AI generation tasks (e.g., text generation, explanations) from a list of available models (e.g., different versions of Gemini).
- **Fallback AI Model:** Select a model to be used if the primary model is unavailable or fails.

- **System Prompts:**
  - System prompts are underlying instructions given to the AI to define its persona, task, and output format for specific functions (e.g., how Lyra should behave in the AI Chat Studio, how it should generate formula sheets, or how it should explain MCQ answers).
  - This section lists various AI functions used across Lyceum (e.g., "AI Chat Studio Default," "Formula Sheet Generator," "Question Explainer MCQ").
  - For each function, you can see the currently **Effective Prompt** (the one the AI will use).
  - The **Source** of the effective prompt is indicated:
    - "User Custom": You have overridden the default for this function.
    - "Global Default": An administrator has set a platform-wide default for this function, and you haven't set a custom one.
    - "Application Default": The built-in, hardcoded prompt for this function is being used.
  - **Actions per Prompt:**
    - **Edit:** Allows you to type your own custom system prompt for that specific AI function. The textarea becomes editable and highlighted.
    - **Save This Prompt:** Saves your custom prompt for that function to your user settings. This overrides any global or application defaults for your account only.
    - **Cancel Edit:** Discards any changes you made while editing.
    - **Reset This Prompt:** Clears your custom prompt for that function, causing it to revert to the Global Default (if one exists) or the Application Default.

- **Save All Settings to Cloud:** A global button at the bottom of this tab (or the entire settings panel) to save all AI model selections and all custom system prompt changes to your user profile in the database.

- **Logging Out (signOutUser):**

  - Click "Log Out" from the main sidebar (Standard Navigation) or from the "Danger Zone" in the Settings panel.

  - You will be signed out of Lyceum, and your session data will be cleared.

  - You will typically be redirected to the Login page or the public homepage.

- **Deleting Your Account (confirmSelfDeleteAccount):**
  This is a permanent and irreversible action.

  - Navigate to the "Settings" panel, then to the "Profile & Account" tab.

  - Find the "Danger Zone" section.

  - Click the "**Delete My Account**" button.

  - **First Confirmation:** A dialog will appear warning you that this action is permanent and will delete all your data (TestGen progress, course progress, notes, chat history, exam results, credits). Click "OK" to proceed or "Cancel" to stop.

  - **Second Confirmation:** If you proceed, another prompt will appear asking you to type a specific confirmation phrase (e.g., "DELETE MY ACCOUNT") into a text box. This is to ensure you understand the severity of the action.

  - **Password Re-authentication:** You will likely be asked to re-enter your current password to verify your identity before the deletion proceeds.

  - If all confirmations and re-authentication are successful, Lyceum will begin the process of deleting all your data from its databases and then delete your user authentication record.

  - You will be logged out, and your account will no longer be accessible.

10. Music & Sounds Player (Experimental)

(Note: This feature is marked as experimental. Its availability and functionality depend on your "Experimental Features" settings in the Settings Panel.)

The Music & Sounds Player allows you to enhance your study environment with background music, ambient sounds, and UI sound effects.

- **Accessing the Music & Sounds Center:**

    - If enabled in your Experimental Features settings, click "Music & Sounds" in the main sidebar (Standard Navigation).

    - This will display the "Music & Sounds Center" in the main content area.

- **Interface Overview (Music & Sounds Center):**
  The center is typically laid out in two columns:

    - **Left Column (Sources & Libraries):**

        - **Music Sources:** Buttons to connect/interact with music services (e.g., "YouTube Music," "Spotify (Soon)").

        - **Ambient Sounds:** A list of predefined ambient sound loops (e.g., "Forest Day," "Gentle Rain").

        - **Study Music (Lo-fi, Chill, etc.):** A list of predefined study music tracks or links (often YouTube videos).

        - **Binaural Beats:** A list of predefined binaural beat tracks designed for focus or relaxation.

        - **Saved Playlists:** Lists playlists you have previously created and saved.

    - **Right Column (Main Player & Playlist):**

        - **Now Playing Area:** Displays the album art, title, artist, and source of the currently playing or selected track. This area also houses the embedded YouTube player if a YouTube track is active in this main player.

        - **Playback Controls Bar:** Contains standard music player controls (see below).

        - **Current Playlist Display:** Shows the tracks in the currently active playlist.

        - **Sound Settings:** Options to manage sound preferences.

- **Music Sources:**

    - **YouTube Music:**

        - **Activation:** Click the "YouTube Music" button. Initially, it might show "Connect." After clicking, its status changes to "Active."

- **Playing Content:** When active, you'll typically be prompted to paste a YouTube video URL or a YouTube playlist URL.

    - **Single Video:** Pasting a single video URL will usually play that video or add it to the current playlist.

    - **Playlist URL:** Pasting a YouTube playlist URL will load the tracks from that playlist. You might be asked if you want to replace your current playlist or add to it.

  - Note: Full functionality requires a configured YouTube Data API Key in the platform's backend/config for fetching playlist details and video titles reliably. Without it, functionality might be limited to playing direct video IDs, and playlist names/track titles might be generic.

- **Spotify (Coming Soon):** This is a placeholder for future integration. Clicking it will likely inform you that the feature is not yet available.

- **Ambient Sounds:**

  - **Selection:** The "Ambient Sounds" card lists available sounds (e.g., "Forest Day," "Ocean Waves") with icons.

  - **Playing:** Click on a sound name/button to start playing it. The selected sound will be highlighted, and a play indicator might appear.

  - **Looping:** Ambient sounds loop automatically.

  - **Interaction with Main Music:** Playing an ambient sound can often play concurrently with the main music player (e.g., Lo-fi music with rain sounds). However, starting a main music track might stop a currently playing ambient sound, or vice-versa, depending on specific implementation choices for audio focus. The current setup allows ambient sounds to play alongside other audio sources.

  - **Stop Ambient Sound:** A dedicated "Stop Ambient Sound" button appears when an ambient sound is playing.

  - **Volume:** A separate volume slider labeled "Ambient Volume" controls the loudness of ambient sounds independently of the main music volume.

- **Study Music (Lo-fi, Chill, etc.):**

  - **Selection:** This card lists predefined study music tracks or links. These are often YouTube videos.

  - **Playing:** Click on a track name/button.

    - If it's a YouTube link, it will typically load and play in the main player area's embedded YouTube player (or the mini-player if the Music & Sounds tab isn't active).

- If it's a direct stream (e.g., an MP3 URL for a Lo-fi track hosted by Lyceum), it will play in the HTML5 audio player.

- Selecting a track here usually stops any other main music or ambient sound that was playing.

- The selected track becomes the "Current Track" and might form a single-item playlist.

- **Binaural Beats:**

    - **Selection:** Lists various binaural beat tracks (e.g., "Focus (Alpha Waves)," "Deep Study (Theta Waves)") with descriptions.

    - **Playing:** Click on a beat name/button. These are usually direct audio streams.

    - They play in the main HTML5 audio player.

    - Selecting a beat usually stops other main music or ambient sounds.

    - **Recommendation:** Use headphones for the best effect with binaural beats.

- **Main Player Controls (for Music & Binaural Beats):**
  Located in the "Now Playing" area or a dedicated playback bar.

    - **Play/Pause Button:** Toggles playback of the current main track (stream or YouTube). Icon changes to reflect state.

    - **Next Track Button:** Plays the next track in the current playlist. If shuffle is on, plays a random track. If repeat all is on and at the end of the playlist, wraps around.

    - **Previous Track Button:** Plays the previous track in the current playlist. If shuffle is on, may play another random track or the actual previous one depending on implementation.

    - **Shuffle Button:** Toggles shuffle mode for the current playlist. When active, "Next Track" plays a random song from the playlist. The button is usually highlighted when active.

    - **Repeat Button:** Cycles through repeat modes:

        - **Repeat Off (Default):** Playlist stops after the last song.

        - **Repeat All:** Playlist restarts from the beginning after the last song.

        - **Repeat One:** The current song will loop continuously.
          The button icon changes to indicate the active mode and is usually highlighted when repeat is active (all or one).

    - **Progress Slider:**

        - Visually shows the playback progress of the current track.

        - Clickable/draggable to seek to a different position in the track.

- **Time Display:** Shows current playback time and total duration of the track (e.g., 1:23 / 3:45).

- **Volume Slider ("Main Music Volume"):** Controls the volume for the main music player (streams and YouTube videos). Also affects the volume of "Study Music" and "Binaural Beats" if they use the main player.

- **Toggle Mini Player Button:** Shows or hides the "Mini Player" (floatie).

- **Current Playlist Management:**

  - **Display:** Shows the list of tracks in the currently active playlist (e.g., tracks from a loaded YouTube playlist, a selected study music category, or a user-saved playlist).

  - **Playing from Playlist:** Clicking a track in this list will start playing it.

  - **"Save Playlist" Button:** If the current playlist has tracks, this button allows you to save it.

    - You'll be prompted to enter a name for your new saved playlist.

    - The current list of tracks and the given name are saved to your browser's local storage.

- **Saved Playlists:**

  - **Display:** Shows a list of playlists you have previously saved.

  - **"Load" Button:** Loads the selected saved playlist into the "Current Playlist" area, replacing any tracks that were there. It may automatically start playing the first track.

  - **"Del" (Delete) Button:** Prompts for confirmation and then deletes the selected saved playlist from your local storage.

- **Mini Player (Floatie):**
  A small, persistent music player that can float over other parts of the Lyceum interface, allowing you to control music without being in the main Music & Sounds Center.

  - **Visibility:** Toggled by the "Mini Player" button in the main player controls or automatically shown when music starts playing if the Music & Sounds tab isn't active. Can also be closed directly from the mini player itself. Preference is saved in local storage.

  - **Content:**

    - Displays album art, title, and artist of the current track.

    - **Embedded YouTube Player (mini-youtube-player-instance-container):** If the current track is a YouTube video AND the main Music & Sounds tab is NOT the active view for YouTube playback, the video will play within this small embedded player in the floatie. This container is hidden if the track is not YouTube-based or if the main tab's YouTube player is active.

- Progress bar (clickable/draggable for seeking).

- Current time / Total duration display.

- **Controls:**

  - Close button (X).

  - Play/Pause, Next, Previous, Shuffle, Repeat buttons (mirroring main player state).

- **Synchronization:** The mini player's state (track info, play state, progress, volume) is synchronized with the main music player state.

- **Sound Settings:**

  - **Enable UI Sounds:** A checkbox to toggle UI sound effects (clicks, notifications, etc.) on or off. This preference is saved in local storage.

  - **Ambient Volume Slider:** (Often also located with Ambient Sounds) Controls the volume of ambient background sounds.

  - **Main Music Volume Slider:** (Often also located with the Main Player) Controls the volume of music tracks, study music, and binaural beats.

Interaction Notes:

- Starting a track from "Study Music," "Binaural Beats," or a loaded YouTube URL/Playlist will generally stop any currently playing ambient sound and replace the main music queue.

- Starting an "Ambient Sound" can often play concurrently with other music, but starting a new ambient sound will stop the previous one.

- The system tries to intelligently manage which YouTube player instance is active (main tab vs. mini-player) to avoid simultaneous YouTube audio.

11. Import / Export Test Data

This feature allows you to back up and restore your Test Generation data (subjects, chapter progress, studied status, and standard TestGen exam history). **It does not include data related to the structured Courses Platform (enrollments, course progress, course-specific exam results, notes).**

- **Accessing:** Click "Import / Export" under the "TestGen Dashboard" dropdown in the main sidebar.

- **Interface:** The page presents two main sections:

    - **Export Test Data:**

        - Provides a description of what data will be exported.

        - A button: "**Export My Test Data**."

    - **Import Test Data:**

        - A prominent **warning** stating that importing will **completely overwrite** your current TestGen data and that this action **cannot be undone**.

        - A button: "**Import Test Data from File...**"

- **Exporting Your TestGen Data:**

    - Click the "**Export My Test Data**" button.

    - A "Processing..." or "Exporting Data..." loading indicator will appear.

    - The system will gather all your TestGen-related data:

        - Your defined TestGen subjects (names, file paths, default settings).

        - For each subject, the progress for each chapter (total attempted, total wrong, mistake history, consecutive mastery, list of available MCQs).

        - Your list of "studied chapters" for each subject.

        - Your history of "pending PDF exams" for each subject.

        - (Note: The export currently focuses on appData.subjects which contains TestGen-specific progress. It does NOT export the global subject definitions from the /subjects Firestore collection, nor does it export course-specific progress from /userCourseProgress.)

    - This data is compiled into a JSON (JavaScript Object Notation) file.

    - Your browser will automatically download this file. The filename will typically be something like test_generator_backup_[your_email_or_uid]_[date].json.

    - Save this file in a safe place. It's your backup.

    - A success message will briefly appear on screen.

- **Importing TestGen Data:**
  This is a destructive operation for your TestGen data.

  - Click the "**Import Test Data from File...**" button.

  - A file selection dialog will open. Select the JSON backup file you previously exported from Lyceum.

  - **Crucial Confirmation:** A warning dialog will appear, emphasizing that this action will **overwrite your current TestGen data** and cannot be undone. You must confirm that you wish to proceed.

  - If you confirm:

    - A "Processing..." or "Importing Data..." loading indicator will appear.

    - The system reads the selected JSON file.

    - It validates the basic structure of the file to ensure it looks like a valid Lyceum backup.

    - **Re-sync with Markdown:** After loading the subject data from your backup file, the system will attempt to re-fetch the latest Markdown definition files (for MCQs and problems) associated with each imported subject from the server. This step ensures that chapter titles and total question counts are up-to-date with the current master files, even if your backup is older. Your progress data (attempted, wrong, available questions) for each chapter within those subjects will be preserved as much as possible but reconciled against the latest question totals. For example, if a chapter now has fewer questions than your backup recorded, your "available questions" list will be trimmed. If it has more, new questions will become available.

    - The validated and re-synced TestGen data from the file **replaces** your existing TestGen data in the Firestore database under your user account.

    - After the import, your Lyceum application state is reloaded with the new data.

    - A success message will appear, possibly indicating if data was re-synced.

    - You will likely be navigated to the TestGen Dashboard or Home Dashboard.

Important Considerations for Import/Export:

- **Scope:** This feature is specifically for the **TestGen suite's data**. It does not affect your enrollments, progress, notes, or exam history within the structured **Courses Platform**.

- **File Integrity:** Only import JSON files that were originally exported from Lyceum. Importing other JSON files may cause errors or data corruption.

- **Version Compatibility (Future):** If Lyceum undergoes major updates that change its data structure, older backup files might not be perfectly compatible with newer versions.

- **Backup Regularly:** It's good practice to export your data periodically, especially if you've made significant progress or configurations in the TestGen suite.

NOTE: This section is only relevant for users who have administrator privileges on the Lyceum platform.

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12. Admin Panel (For Administrators Only)

The Admin Panel is a restricted area of Lyceum accessible only to users with administrative rights. It provides tools to manage platform content, users, settings, and perform system operations. The visibility of certain admin functions may also depend on whether the logged-in admin is the "Primary Admin" (typically the one with the ADMIN_UID defined in the system configuration).

- **Accessing the Admin Panel:**
    - If you are logged in as an administrator, an "Admin Panel" link will be visible in the main sidebar (Standard Navigation).
    - Clicking this link will take you to the Admin Dashboard.
- **Admin Navigation Sidebar (admin-panel-nav):**
  Once in the Admin Panel, a dedicated sidebar appears on the left (on desktop) or is accessible via a mobile menu. This sidebar contains links to the various administrative sections:
    - **Overview:** The default landing page for the Admin Panel, showing platform statistics and global announcement tools.
    - **Users:** Tools for managing user accounts.
    - **Courses:** Tools for managing global course definitions and content.
    - **Moderation:** Tools for handling user-submitted feedback and exam issue reports.
    - **Music & Sounds:** (If enabled) Tools to manage the predefined libraries for the Music & Sounds player.
    - **Database:** A direct browser for the Firestore database (use with extreme caution).
    - **System:** Tools for system-level operations like managing admin tasks and global AI prompts.
    - **Testing Aids:** Tools to modify user progress for testing and demonstration purposes. The active section in this admin sidebar is highlighted.
- **Admin Content Area (admin-panel-content-area):**
  This is the main area to the right of the admin sidebar where the content and tools for the selected admin section are displayed.
- **Overview Section:**
    - **Platform Statistics:** Displays key metrics about the platform, such as:
        - Total Users
        - Pending Courses (awaiting admin approval)

- Approved Courses

- Reported Courses

- Total TestGen Subjects (global definitions)

- Total Exams Taken (may be a counter or 'N/A' if not fully implemented)

- Pending Feedback/Issues (awaiting admin review)

- Number of Admins
  These stats provide a quick health check of the platform.

- **Send Global Announcement:**

  - **Form:** Includes fields for "Subject" and "Message Body" (supports HTML).

  - **Functionality:** Allows an admin (typically Primary Admin) to compose and send a message to the inbox of all registered users on the platform. This is useful for important updates, maintenance notices, or general communications.

  - A confirmation prompt appears before sending.

- **User Management Section:**

  - **List / Search Users:**

    - An input field to search for users by Email, Display Name, Username, or UID.

    - A button ("Search / List Users") to trigger the search or list all users (usually limited, e.g., to the latest 100 if no search term).

    - The results are displayed in a list, showing each user's avatar, display name, username, email, UID, creation date, and admin status (User, Admin, Primary Admin).

  - **Actions per User in List:**

    - **View Details:** Opens a modal showing comprehensive details about the selected user, including their profile data, TestGen subject progress (from their appData), course enrollments and progress (from userCourseProgress), completed course badges, and a raw excerpt of their main user document.

    - **Toggle Admin Status (Primary Admin Only):** For users other than the Primary Admin, this button allows the Primary Admin to grant or revoke general administrator privileges.

    - **Change Username (Primary Admin Only, via View Details modal):** Allows the Primary Admin to change a user's username. This involves updating the users document and the usernames collection for uniqueness.

  - **User Course Progress Management (accessible via "Load Courses" button):**

    - Search for a user.

- Click "Load Courses" to display a list of courses the selected user is enrolled in, along with their status and grade.

- **Set Status/Grade:** For each course, an admin can manually change the user's enrollment status (e.g., from 'enrolled' to 'completed' or 'failed') and set/override their final numerical mark and letter grade for that course. This is useful for manual grading, corrections, or testing.

- **User Badges Management (accessible via "Load Badges" button):**

  - Search for a user.

  - Click "Load Badges" to display a list of course completion badges the user has earned.

  - **Add New Badge:** Allows an admin to manually award a course completion badge to the user by specifying the Course ID, Course Name, Grade, and optionally, a completion date.

  - **Remove Badge:** Allows an admin to remove an existing badge from a user's profile.

- **User Subject Approvals (TestGen - Admin or user-submitted):**

  - Search for a user.

  - Click "Load Subjects" to display a list of TestGen subjects associated with that user's appData (these are their personal subject configurations that might have been based on global definitions or suggested by them if the platform supports user-created subject definitions pending approval).

  - **Approve/Reject/Revoke:** If the platform allows users to suggest or create TestGen subjects that require admin approval, this section allows admins to manage the status of those user-specific subject configurations. (Note: The current code focuses more on global subject definitions. This part might be less relevant if users don't create their own pending TestGen subjects.)

- **Global Course Management Section (Administering /courses Collection):**
  This section is for managing the global definitions of courses available on the platform.

  - **Courses Requiring Attention:** Lists courses with a status of 'pending' (newly suggested by users or admins) or 'reported' (flagged by users for issues).

    - Displays course name, creator, submission/report date, and report reason (if applicable).

    - **Actions:**

      - **View Details:** Opens the standard course detail view.

      - **Edit:** Opens the form to edit the global course definition.

- **Approve:** Changes the course status to 'approved', making it visible and enrollable for all users. Clears any report flags.

- **Reject:** Changes the course status to 'rejected'. It will not be visible to non-admin users.

- **Delete Course (for Reported/Rejected):** Permanently removes the course definition from Firestore.

- **Add New Global Course:** Opens the same form used by users to suggest courses, but when submitted by an admin, the course is typically created with 'approved' status by default (or admin can choose). Admins can set more technical fields directly, like relatedSubjectId and courseDirName.

- **Edit Existing Global Course Definitions:** Admins can edit any field of a global course definition, including its name, description, tags, chapter list, total chapters, resource paths, YouTube playlist URLs, prerequisites, corequisites, and image URLs. Changes to courseDirName or filenames require corresponding changes on the server's file system.

- **Moderation Section (Feedback & Exam Issues):**

  - **Recent Feedback & Exam Issues List:** Displays a combined, chronologically sorted list of:

    - General feedback submitted by users.

    - Specific exam issue reports submitted by users during exam reviews.

  - **Details Shown:** For each item, shows type (Feedback/Issue), sender, date, context (subject/question ID if applicable), the full text of the feedback/issue, and current status (New, Replied).

  - **Actions per Item:**

    - **Reply:** (For "New" items) Opens a prompt to type a reply. The reply is sent to the reporting user's Lyceum inbox, and the feedback/issue item is marked as "Replied."

    - **Delete:** Permanently removes the feedback or issue report from the database.

  - **Global Actions:**

    - **Refresh Lists:** Reloads the feedback and issue lists.

    - **Delete ALL Feedback & Issues:** (Primary Admin only, with strong confirmation) Permanently deletes all records from both the feedback and examIssues collections.

- **Music & Sound Library Management Section (Admin):**
  (Visibility depends on Experimental Features configuration for the admin.)

- **Purpose:** Allows admins to manage the predefined lists of ambient sounds, study music, binaural beats, and UI sound effects that are available to all users in the Music & Sounds Player.

- **Interface:**
  - Separate tables/sections for "Ambient Sounds," "Study Music (Lo-fi, etc.)," "Binaural Beats," and "UI Sound Effects."
  - Each item in the libraries shows editable fields:
    - **Icon:** Emoji or character.
    - **Name:** Display name of the sound/track.
    - **URL / YouTube Video ID:** The direct stream URL or YouTube ID.
    - **Type:** Dropdown to select (e.g., 'stream', 'youtube').
    - **Artist (Optional):**
    - **Album Art URL (Optional):**
    - **Description (Optional):**
  - **Actions per Item:**
    - **Test Sound:** Plays the sound/video for the admin to preview (opens YT in new tab, plays streams directly).
    - **Delete Item:** Removes the item from the local list for that library.
  - **"Add New..." Button:** For each library type, allows adding a new entry with empty fields.

- **UI Sound Effects Table:**
  - Lists key names (e.g., button_click, notification) and their associated sound file URLs.
  - Allows editing URLs, testing sounds, and deleting entries.
  - An "Add New UI Sound" button allows defining a new key-URL pair.

- **Generate Configuration Code:**
  - **IMPORTANT:** Changes made in this UI are **not** automatically saved to the server-side config.js file.
  - Clicking "**Generate Config Code**" will produce a JavaScript code snippet representing the current state of all modified libraries (Ambient, Study, Binaural, UI Sounds).

- The admin must **manually copy this generated code** and **replace** the corresponding constant definitions in their project's config.js file. The application then needs to be rebuilt/re-deployed for these changes to take effect for all users.

- **Database Management Section (Advanced Admin):**
  This is a powerful and potentially dangerous tool. Use with extreme caution.

  - **Path Breadcrumbs:** Shows the current path being browsed in Firestore (e.g., /users/USER_ID/inbox). Each segment is clickable to navigate.

  - **Collection Browser:**

    - A dropdown to select a root Firestore collection (e.g., users, courses, subjects, feedback).

    - "Load Collection" button.

    - "Up" button to navigate to the parent document or collection.

  - **Document List Container:** Displays a list of document IDs within the currently selected collection or subcollection.

    - Clicking a document ID loads its content into the "Document View Container."

    - "Load More" button to paginate through large collections.

  - **Document View Container:**

    - Displays the fields and values of the selected Firestore document in a structured way (e.g., key-value pairs).

    - Shows data types (string, number, boolean, timestamp, array, object). Arrays and objects might be displayed as collapsible JSON.

    - **Edit Button:** Allows admins to switch to an edit mode for the document's fields (excluding some complex or system-managed fields).

      - Input fields appear for each editable field, pre-filled with current values.

      - Textareas are used for strings, JSON for arrays/objects.

    - **Save Button (in Edit Mode):** Saves the changes made to the document fields back to Firestore.

    - **Cancel Button (in Edit Mode):** Discards changes and reverts to view mode.

    - **Delete Button:** Permanently deletes the currently viewed document from Firestore (requires strong confirmation).

    - **Subcollections:** If the current document has known subcollections (defined in COLLECTIONS_TO_BROWSE config), buttons will appear to navigate into those subcollections.

- **System Operations Section (Primarily for Primary Admin):**

- **Admin Tasks / To-Do List:**
  - A simple task manager for administrators.
  - **Add Task:** Input field and button for the Primary Admin to add new tasks.
  - **Task List:** Displays tasks with creation date and status ('pending' or 'done').
  - **Toggle Status:** Primary Admin can mark tasks as done or revert to pending.
  - **Delete Task:** Primary Admin can delete tasks only if they are marked 'done'.
- **Global AI System Prompts Management:**
  - Lists all AI functions defined in AI_FUNCTION_KEYS from ai_prompts.js.
  - For each function, displays a textarea pre-filled with the effective system prompt (User Custom > Global Default > Application Default) and indicates its source.
  - **Edit:** (Primary Admin only) Allows editing the global default prompt for that function. The textarea becomes editable.
  - **Save Global Prompts Button:** (Primary Admin only) Saves all modified global system prompts to the settings/aiPrompts document in Firestore. This updates the "Global Default" for all users who haven't set their own custom prompt for that function.
- **Chat Auto-Deletion Settings:**
  - A dropdown to select the auto-deletion period for Global Chat messages (e.g., Disabled, 7 days, 30 days, 90 days).
  - A "Save Setting" button (Primary Admin only) to update this configuration in settings/chat in Firestore.
  - Note: This setting requires a corresponding backend function (e.g., Firebase Cloud Function) to actually perform the deletions based on this value.
- **Course Exam Defaults Configuration:**
  - Allows Primary Admin to set default parameters (number of questions, duration, MCQ ratio, text source ratio) for different types of course exams (Assignments, Weekly, Midcourse, Final, Skip).
  - These defaults are used when generating course activities if not overridden by specific course settings.
  - Saved to settings/courseExamDefaults in Firestore.
- **Delete User-Generated Content (Sheets/Summaries):**
  - Allows an admin to delete specific user-generated formula sheets or chapter summaries.

- Requires input for User ID/Email, Course ID, and Chapter Number.

- Buttons to "Delete Formula Sheet" or "Delete Chapter Summary."

- **Admin Testing Aids Section:**
  This section is for facilitating testing and development by quickly altering user progress. Use with extreme care, especially on live user data.

  - **1. Select User:**

    - Input field to search for a user by UID, Email, or Username.

    - "Load User Data" button.

    - Displays the loaded user's name and UID.

  - **2. TestGen Subject Aids (for selected user & selected TestGen subject):**

    - A dropdown appears to select one of the loaded user's TestGen subjects.

    - **"Mark ALL Chapters Studied for Selected Subject":** Sets all chapters in the chosen TestGen subject to "studied" in that user's appData.

    - **"Reset ALL TestGen Progress for Selected Subject":** Resets all progress stats (attempted, wrong, mastery, available questions) for all chapters in the selected TestGen subject for that user.

  - **3. Course Aids (for selected user & selected enrolled course):**

    - A dropdown appears to select one of the loaded user's enrolled courses.

    - Another dropdown to select a specific chapter within that course (or "All Chapters").

    - **"Mark Selected/All Chapter(s) Studied (100% Media Progress)":** Marks the chosen chapter(s) as studied and sets associated video/PDF progress to 100% for that user in that course.

    - **"Manually Complete Specific Course Activity":** Prompts for activity type (e.g., assignment, weekly_exam), activity ID (e.g., day1, week2), and a score (0-100). Marks that activity as complete with the given score for the user.

    - **"Set Overall Course Status & Grade":** Prompts for a new course status ('enrolled', 'completed', 'failed') and an optional final numerical mark. Updates the user's overall status and grade for the selected course. If a passing grade is set for 'completed', a badge might be awarded.

    - **Grant/Revoke Credits:** Input fields for credit amount (can be negative to revoke) and a reason. Adjusts the selected user's total credits and logs the transaction.

  - **4. Simulate Days Passed in Course (for selected user & selected course):**

- Displays the course selected in the "Course Aids" section.

- Input field to set "Days Passed Since Enrollment." For example, entering 7 makes the system treat the user as if they enrolled 7 days ago.

- **"Apply Simulated Days":** Updates the user's enrollmentDate for the selected course in their progress data. This affects pace calculations and activity availability. Their baseMediocrePace is reset to be recalculated.

Important Notes for Admins:

- **Primary Admin vs. General Admin:** Some highly sensitive operations (like toggling other users' admin status, deleting all feedback, managing global AI prompts, setting system-wide defaults) are often restricted to a single "Primary Admin" (identified by ADMIN_UID). General admins might have a subset of these capabilities.

- **Data Integrity:** Be extremely careful when using tools in the "Database Management" and "Testing Aids" sections, as incorrect actions can lead to data corruption or unintended consequences for users.

- **Caching:** Changes made in the Admin Panel (especially to global definitions like courses or subjects) might not immediately reflect for all users or even for the admin themselves in other parts of the application until local caches are updated or the application state is reloaded (e.g., by navigating or refreshing).

13. Troubleshooting & Support

This section provides guidance on resolving common issues you might encounter while using Lyceum and how to get further assistance.

- **A. Common Issues & Solutions:**

  1. **Login Problems:**

     - **Issue:** Unable to log in / "Incorrect email/username or password."

       - **Solution 1 (Password):** Double-check your email/username and password for typos. Ensure Caps Lock is off. Try the "Forgot Password?" link on the login page to reset your password if you're unsure.

       - **Solution 2 (Username vs. Email):** If you signed up with a username, try logging in with that username instead of your email, and vice-versa.

       - **Solution 3 (Account Existence):** If you're new, ensure you've completed the sign-up process. If you used "Sign In with Google," ensure you're using the correct Google account.

       - **Solution 4 (Account Disabled):** If you see a message "This user account has been disabled," please contact Lyceum support.

     - **Issue:** Google Sign-In popup closes or shows an error.

       - **Solution 1 (Pop-up Blockers):** Ensure your browser isn't blocking pop-ups from Lyceum's domain.

       - **Solution 2 (Third-Party Cookies):** Some browser privacy settings might block third-party cookies needed for Google Sign-In. Temporarily adjust these settings or try an incognito/private window.

       - **Solution 3 (Account Exists with Different Credential):** If you see an error like "Account exists with different credential," it means you previously signed up for Lyceum using the same email address but with a password (not Google Sign-In). You should log in using your email and Lyceum password. If you wish to link Google, you might need to do so from your profile settings after logging in (if this feature is available).

  2. **Display & Rendering Issues:**

     - **Issue:** Mathematical formulas (LaTeX) are not rendering correctly (e.g., showing raw code like x^2 or \frac{a}{b}).

- **Solution 1 (Patience):** MathJax (the rendering engine) can take a moment to load and process all formulas on a page, especially if there are many. Wait a few seconds.
- **Solution 2 (Hard Refresh):** Try a hard refresh of your browser page (Ctrl+Shift+R on Windows/Linux, Cmd+Shift+R on Mac) to clear cached scripts.
- **Solution 3 (Browser Extensions):** Some browser extensions (especially ad blockers or privacy tools) might interfere with MathJax. Try disabling them temporarily for Lyceum.
- **Solution 4 (Network):** Ensure you have a stable internet connection, as MathJax scripts are loaded externally.
- **Solution 5 (Console Errors):** Open your browser's developer console (usually F12, then click the "Console" tab). Look for any errors related to "MathJax" or script loading. Provide these to support if the issue persists.

- **Issue:** Page layout looks broken, elements are overlapping, or styles seem missing.
  - **Solution 1 (Hard Refresh):** As above, a hard refresh can often resolve CSS caching issues.
  - **Solution 2 (Zoom Level):** Ensure your browser's zoom level is set to 100%.
  - **Solution 3 (Browser Update):** Make sure your web browser is updated to the latest version.
  - **Solution 4 (Clear Cache & Cookies):** As a more drastic step, try clearing your browser's cache and cookies for the Lyceum site. Warning: This will log you out.

- **Issue:** Images are not loading (showing broken image icons).
  - **Solution 1 (Network):** Check your internet connection.
  - **Solution 2 (Hard Refresh):**
  - **Solution 3 (Console Errors):** Look for 404 (Not Found) errors in the browser console for the specific image URLs. This indicates the image file is missing or the path is incorrect. This is usually an issue for administrators or content creators to fix on the server.

3. **TestGen Suite Issues:**
   - **Issue:** Cannot select a subject / "No subject selected" message persists.

- **Solution:** Go to "TestGen Dashboard" -> "Manage Subjects" and click the "Select" (checkmark) button next to the subject you want to use.
- **Issue:** "No chapters loaded" or "No questions found" for a subject.
  - **Solution (User):** This usually indicates an issue with the subject's definition file on the server. You may need to contact support or an administrator.
  - **Solution (Admin):** Ensure the Markdown file (.md) specified in the subject's definition exists at the correct path on the server (courses/[CourseDirectoryName]/Problems/[FileName].md) and is correctly formatted with chapters and questions. Check file permissions.
- **Issue:** Test generation fails or generates fewer questions than requested.
  - **Solution:** There might not be enough available questions in the selected chapters/sources to meet your request.
    - Try selecting more chapters.
    - Reduce the "Target Total Questions."
    - Check your "Manage Studied Chapters" settings if using "Test Studied Chapters Only" mode.
    - For TestGen MCQs, questions you've answered correctly multiple times might be temporarily removed from the "available" pool for that chapter to promote variety. This pool refreshes over time or if progress is reset.
- **Issue:** PDF Test download fails or the PDF is blank/malformed.
  - **Solution 1 (Server Status):** Ensure the local PDF generation server (pdf-server.js) is running if you are hosting it yourself. If Lyceum is hosted, this is a server-side issue for administrators.
  - **Solution 2 (Content Complexity):** Very complex or numerous MathJax equations, or extremely long content, can sometimes challenge the PDF generator. Try a smaller test.
  - **Solution 3 (Browser Pop-up Blocker):** Ensure your browser is not blocking downloads or pop-ups from Lyceum.
  - **Solution 4 (Console Logs):** Check both your browser console and the pdf-server.js console (if self-hosting) for error messages during the PDF generation attempt.

4. **Courses Platform Issues:**
- **Issue:** Cannot enroll in a course.

- **Solution 1 (Approval Status):** Only "approved" courses can be enrolled in by regular users. If a course shows as "pending" or "reported," you'll need to wait for an admin to approve it.

- **Solution 2 (Already Enrolled):** Check "My Courses"; you might already be enrolled.

- **Issue:** Video player shows an error (e.g., "Video unavailable," "Playback error").

  - **Solution 1 (YouTube Issue):** The video might have been removed from YouTube, made private, or have embedding restrictions placed by the uploader. Try opening the video directly on YouTube.

  - **Solution 2 (Network/Browser):** Standard checks for internet connection, browser extensions, and hard refresh.

  - **Solution 3 (API Key - for Admins/Developers):** If all YouTube videos are failing, the platform's YouTube Data API key might be invalid, expired, or over quota.

- **Issue:** PDF viewer shows an error or is blank for course material.

  - **Solution 1 (File Path):** The PDF file for that chapter might be missing or incorrectly linked on the server. This is an issue for course content creators/admins.

  - **Solution 2 (PDF Corruption):** The PDF file itself might be corrupted.

  - **Solution 3 (Browser):** Ensure your browser has a built-in PDF viewer or a compatible extension. Try a different browser.

- **Issue:** Progress (video watch time, PDF page) not saving.

  - **Solution 1 (Network):** Ensure a stable internet connection. Progress is saved to the server.

  - **Solution 2 (Session Timeout):** If you've been inactive for a very long time, your session might have issues. Try refreshing the page or logging out and back in.

  - **Solution 3 (Viewer Mode):** If you enrolled in "Viewer Mode," progress is not tracked.

- **Issue:** Skip Exam button is disabled or exam doesn't generate.

  - **Solution:** Skip exams require MCQs to be available for that chapter from the course's "Related Subject ID" (a TestGen subject definition). If that subject or its MCQ file for the chapter is missing or empty, the skip exam cannot be generated.

- **Issue:** Certificate not available or preview is blank.

- **Solution:** Certificates are typically available only after course status is "Completed" AND your final grade is passing (not "F"). If these conditions are met and it's still not showing, try clicking "Regenerate Preview." If issues persist, contact support.

5. **AI Features (Chat Studio, Explanations, Summaries, etc.):**
   - **Issue:** AI response is "Error generating..." or "AI did not provide a response."
     - **Solution 1 (API Key/Quota - for Admins/Developers):** The platform's Gemini API key might be invalid, over quota, or the AI service might be temporarily unavailable.
     - **Solution 2 (Prompt Complexity/Length):** Very long or complex prompts/contexts (especially when asking about full PDF documents) can sometimes exceed processing limits. Try simplifying your question or focusing on a smaller snippet of text.
     - **Solution 3 (Content Filters):** Your input or the AI's potential response might have inadvertently triggered Google's safety filters. Try rephrasing your query.
     - **Solution 4 (Temporary Service Issue):** Wait a few minutes and try again.
   - **Issue:** AI explanations seem inaccurate or irrelevant.
     - **Solution:** AI is a tool and not infallible. If you suspect an error in AI-generated content (explanations, formula sheets, summaries), use the "Report Issue" button (if available for that content) or contact support, providing specific details. Always cross-reference critical information with authoritative sources.

6. **Music & Sounds Player Issues:**
   - **Issue:** Sounds/Music not playing.
     - **Solution 1 (Feature Enabled):** Ensure "Music & Sounds Player" is enabled in Settings -> Experimental Features.
     - **Solution 2 (Volume):** Check both the main music volume and ambient volume sliders in the Music & Sounds Center. Also, check your system/device volume.
     - **Solution 3 (Browser Permissions):** Browsers often block autoplay. You might need to interact with the page (click a button) before audio can start. Ensure your browser allows sound for the Lyceum site.
     - **Solution 4 (YouTube Issues):** For YouTube tracks, see "Video player shows an error" above. The YouTube IFrame API needs to load correctly.

- **Solution 5 (Stream URL):** For direct streams (lo-fi, binaural), the URL might be broken or the source offline.
- **Issue:** UI Sound Effects not playing.
  - **Solution 1 (Enabled):** Ensure "Enable UI Sounds" is checked in the Sound Settings section of the Music & Sounds Center (or in the main Settings panel if configured there).
  - **Solution 2 (Volume):** UI sounds have their own implicit volume (often tied to system or a fixed level).

7. **General Platform Slowness or Unresponsiveness:**
   - **Solution 1 (Internet Connection):** Check your internet speed and stability.
   - **Solution 2 (Browser Overload):** Try closing unnecessary browser tabs and extensions.
   - **Solution 3 (Clear Cache):** Clear your browser's cache for Lyceum.
   - **Solution 4 (Platform Load):** The platform itself might be experiencing high traffic. Try again later.

- **B. Reporting Issues:**

  1. **Specific Question/Content Issues:**
     - When reviewing a completed TestGen exam or Course Activity, use the "**Report Issue**" button available for each question.
     - Select the type of issue (e.g., "Incorrect AI Marking," "Question Ambiguous," "MCQ Correct Answer Seems Wrong").
     - Provide a clear, detailed description of the problem.
     - This helps administrators and content creators improve the platform.

  2. **General Feedback/Bugs:**
     - Use the "**Contact Admin**" feature in your Inbox (if available for general feedback).
     - If there's a dedicated "Feedback" link or form elsewhere on the platform, use that.
     - When reporting, be as specific as possible:
       - What were you doing when the issue occurred?
       - What steps can be taken to reproduce the issue?
       - What did you expect to happen?
       - What actually happened?

- Include your browser name and version, and your operating system if relevant.

  - Screenshots can be very helpful.

- **C. Contacting Support:**

  1. If you cannot resolve an issue using this guide or by reporting it through platform features, look for a "Support," "Help," or "Contact Us" link, often found in the page footer or under your profile menu.

  2. Provide as much detail as possible, including your username/email, a clear description of the problem, steps to reproduce it, and any error messages you received.

- **D. Tips for a Smooth Experience:**

  1. **Use a Modern Browser:** Lyceum is best experienced on up-to-date versions of Chrome, Firefox, Edge, or Safari.

  2. **Stable Internet Connection:** Many features rely on communication with the server and AI services.

  3. **Keep Data Backups (TestGen):** Regularly use the "Export Test Data" feature to back up your TestGen progress.

  4. **Be Mindful of Experimental Features:** Features marked "Experimental" may have bugs or incomplete functionality. Use them with this understanding.

  5. **Provide Constructive Feedback:** Your feedback is valuable for improving Lyceum.

This concludes a very detailed user guide. It's quite extensive, but it aims to cover the wide range of functionalities included in the website!