

User Stories

1 User Registration

As a visitor to the website

I want to create a new account using my name, email, and a password

So that I can access the website.

Acceptance Criteria:

- **Given** I am on the registration page
 - **When** I enter a name that is between 3 and 35 characters and contains only letters and spaces
 - **And** I enter a valid email address that is not already registered
 - **And** I enter a password that is at least 6 characters long and contains at least one uppercase letter, one lowercase letter, one number, and one special character
 - **Then** the system creates my account with `isAccountVerified` set to false
 - **And** I see a success message prompting me to check my email
 - **And** I receive an email containing a unique account verification link that expires in 15 minutes
- **Given** I am on the registration page
 - **When** I submit the form with an email address that already exists in the system
 - **Then** I receive a 409 Conflict error with the message User already exists
- **Given** I am on the registration page
 - **When** I submit the form with a name that is too short, too long, or contains invalid characters
 - **Then** I see a specific error message like Name must be at least 3 characters / Name can only contain letters and spaces
- **Given** I am on the registration page
 - **When** I submit the form with an improperly formatted email address
 - **Then** I see an error message Invalid email address
- **Given** I am on the registration page
 - **When** I submit a password that is less than 6 characters long
 - **Then** I see the error Password must be at least 6 characters long
- **Given** I am on the registration page
 - **When** I submit a password missing a required character type (lowercase, uppercase, number, or special character)
 - **Then** I see a specific error message indicating what is missing (e.g., Password must contain at least one uppercase letter)

2 Account Verification

As a newly registered user

I want to verify my email address by clicking a link sent to my inbox

So that I can activate my account and log in.

Acceptance Criteria:

- **Given** I have just registered and received a verification email
 - **When** I click the verification link within the 15-minute expiry window
 - **Then** my account's `isAccountVerified` status is updated to `true`
 - **And** the `verifyToken` on my user record is cleared
 - **And** I am automatically logged into the application (an auth token cookie is set)
 - **And** I see a success message `Account verified`
- **Given** I have a verification link that is older than 15 minutes
 - **When** I click the link
 - **Then** I receive a 400 Bad Request error with the message `Link is Expired`
- **Given** I have a verification link with an incorrect token or a token that has already been used
 - **When** I attempt to use the link
 - **Then** I receive a 400 Bad Request error with the message `Link is not valid`
- **Given** a verification link contains an email for a user that does not exist
 - **When** the link is used
 - **Then** the system returns a 404 Not Found error with the message `User not found`

3 User Sign-In and Sign-Out

As a registered user

I want to sign in with my email and password and be able to sign out

So that I can securely access my account and end my session.

Acceptance Criteria:

- **Given** I am a registered and verified user
 - **When** I enter my correct email and password on the sign-in page
 - **Then** the system authenticates me
 - **And** a secure `httpOnly` auth token cookie is set in my browser with a 7-day expiration (was completed before survey)
 - **And** I am redirected to the application's main dashboard or home page
- **Given** I enter a correct email but an incorrect password

- **When** I submit the form
- **Then** I receive a 400 Bad Request error with the message Incorrect password
- **Given** I enter an email that is not registered in the system
 - **When** I submit the form
 - **Then** I receive a 404 Not Found error with the message Invalid email
- **Given** I originally signed up using Google OAuth and have no password set
 - **When** I try to sign in using the standard email and password form
 - **Then** I receive a 400 Bad Request error with the message User exists, No password found
- **Given** I am currently signed in
 - **When** I click the Logout button
 - **Then** the auth token cookie is cleared from my browser
 - **And** I am redirected to the sign-in page with a Logged out message

4 Password Reset

As a registered user who has forgotten their password

I want to request a password reset link via email

So that I can set a new password and regain access to my account.

Acceptance Criteria:

- **Given** I am on the Forgot Password page
 - **When** I enter my registered email address and submit the form
 - **Then** I receive a success message
 - **And** an email with a unique password reset link (valid for 15 minutes) is sent to me
- **Given** I click the valid, unexpired link from the email
 - **When** the reset page opens
 - **Then** I am taken to a secure page to enter a new password
- **Given** I enter a new password that meets all complexity requirements
 - **When** I submit the form
 - **Then** my password is updated in the database
 - **And** the resetToken is cleared
 - **And** I see a message Password has been reset successfully
- **Given** I am on the Forgot Password page

- **When** I enter an email address that is not registered
- **Then** I receive a 404 Not Found error with the message User not found
- **Given** I try to use a password reset link that has expired
 - **When** I open it
 - **Then** I see a 400 Bad Request error with the message Link expired
- **Given** I try to use a password reset link with an invalid token
 - **When** I open it
 - **Then** I see a 400 Bad Request error with the message Invalid link
- **Given** I am on the Reset Password page after clicking a valid link
 - **When** I submit a new password that does not meet the complexity requirements
 - **Then** I see the relevant validation error messages
 - **And** my password is not updated

5 Google OAuth Authentication

As a new or returning user

I want to sign up or sign in using my Google account

So that I can authenticate quickly and without creating a new password.

Acceptance Criteria:

- **Given** I am a new visitor on the sign-in page
 - **When** I click Sign in with Google and successfully authenticate with Google
 - **Then** a new user account is created in the database using my Google profile name and email
 - **And** the account is automatically marked as isAccountVerified: true
 - **And** I am logged into the application (auth cookie is set)
- **Given** I have previously registered using my Google account
 - **When** I click Sign in with Google and successfully authenticate with Google
 - **Then** the system finds my existing account by my email address
 - **And** I am logged into the application
- **Given** I am on the sign-in page
 - **When** I click Sign in with Google but then cancel on the Google authentication screen
 - **Then** I am redirected back to the application's sign-in page
 - **And** I am not logged in
- **Given** I am attempting to sign in with Google

- **When** an API error occurs exchanging the authorization code for an access token or fetching user info
- **Then** the process fails
- **And** a 500 Internal Server Error is returned with an error message
- **And** I am not logged in

6 GitHub Login

As a visitor

I want to sign in with GitHub

So that I can use my dev account to access the platform.

Acceptance Criteria:

- **Given** I am on the sign-in page
 - **When** I choose Sign in with GitHub and authorize successfully
 - **Then** I am logged in
 - **And** I am redirected to the dashboard
- **Given** it is my first GitHub login and my email is not yet linked
 - **When** I return from GitHub OAuth
 - **Then** a platform account is created
 - **And** it is linked to my GitHub identity
- **Given** I deny access on the GitHub authorization screen
 - **When** I return to the app
 - **Then** I see an error message
 - **And** I can retry authentication

7 Edit Display Name

As a registered user I want to view and update my display name

So that I can show the correct name in the app and certificates.

Acceptance Criteria:

- **Given** I am on my Profile page
 - **When** I edit the display name and click Save
 - **Then** the new name persists
 - **And** it appears on the header
 - **And** it appears on the certificate preview
- **Given** I enter invalid characters or exceed limits

- **When** I click Save
- **Then** I see a validation error
- **And** the previous value is retained

8 Generate Roadmap by Experience

As a registered learner

I want an auto-generated roadmap based on my experience level

So that I can start at the right difficulty.

Acceptance Criteria:

- **Given** my experience level is set and I am on the Roadmap page
 - **When** I click Generate Roadmap
 - **Then** a module list is created
 - **And** it is displayed
 - **And** it is stored to my course
- **Given** my experience level is not set and I am on the Roadmap page
 - **Then** I have to select my experience level
 - **When** I choose Beginner or Intermediate or Advanced and Save
 - **When** I click Generate Roadmap
 - **Then** a module list is created
 - **And** it is displayed
 - **And** it is stored to my course
- **Given** I change my level
 - **When** I regenerate
 - **Then** the roadmap updates
 - **And** previous items are replaced

9 Career-Focused Roadmaps

As a registered cx I want to create a career-focused roadmap

So that I can prepare for my target role.

Acceptance Criteria:

- **Given** I select a role (e.g., Frontend, Backend, Data) and confirm
 - **When** I generate a roadmap
 - **Then** a role template is applied
 - **And** a role-specific roadmap is created

- **And** it is shown
- **Given** I switch roles
 - **When** I regenerate
 - **Then** the roadmap reflects the new role
 - **And** the prior version is archived

10 Topic-Based Modules

As a learner

I want modules organized by topic

So that I can focus on one concept at a time.

Acceptance Criteria:

- **Given** I open a course and modules load
 - **When** the list renders
 - **Then** modules are grouped under topic headers
 - **And** topic counts are shown
- **Given** I filter by a topic
 - **When** the filter is applied
 - **Then** only that topic's modules are shown
 - **And** the filter chip is visible

11 Difficulty Tags per Module

As a learner

I want each module tagged as Easy / Medium / Hard

So that I can plan my study effort.

Acceptance Criteria:

- **Given** I view modules
 - **When** they render
 - **Then** each shows a difficulty tag
 - **And** tags are consistent with definitions
- **Given** I filter by difficulty
 - **When** the filter is applied
 - **Then** only matching modules are shown
 - **And** the active filter is indicated

12 View Module Prerequisites

As a learner

I want to view prerequisites for a module

So that I can fill gaps before starting.

Acceptance Criteria:

- **Given** a module has prerequisites
 - **When** I open its details
 - **Then** I see a prerequisite list
 - **And** links to those modules
- **Given** a module has no prerequisites
 - **When** I open its details
 - **Then** I see No prerequisites
 - **And** no broken links appear

13 Single Roadmap per Course

As a learner

I want each course to show exactly one roadmap

So that I am not confused by multiple paths in the same course.

Acceptance Criteria:

- **Given** I open any course
 - **When** the roadmap loads
 - **Then** exactly one roadmap is displayed
 - **And** it is clearly titled
- **Given** conflicting paths exist
 - **When** the course is saved
 - **Then** they are merged or a validation error prevents multiple roadmaps
 - **And** I am prompted for resolution

14 Completion Percentage

As a learner

I want to see completion percentage per course

So that I can track how much is left.

Acceptance Criteria:

- **Given** modules have completion states

- **When** I view a course
- **Then** a percentage is shown
- **And** the numerator/denominator logic follows the defined weighting
- **Given** I complete a module
 - **When** I return to the course page
 - **Then** the percentage increases accordingly
 - **And** the module shows as done

15 Project Milestones

As a learner

I want milestones for projects

So that I can monitor evaluation progress over time.

Acceptance Criteria:

- **Given** a project has milestones
 - **When** I open it
 - **Then** I see each milestone
 - **And** its status (Not Started, In Progress, Done)
- **Given** a milestone status changes
 - **When** it is updated
 - **Then** the project progress bar adjusts
 - **And** the activity log records the change

16 Hint Mode (Step-by-Step)

As a learner

I want AI hints revealed step-by-step

So that I can learn without seeing the full answer at once.

Acceptance Criteria:

- **Given** I request help and click Show hint
 - **When** I reveal the next hint
 - **Then** I see only the next hint
 - **And** previous hints remain visible
- **Given** I reach the final hint
 - **When** I choose Show full solution
 - **Then** the complete solution appears
 - **And** it is labeled as final

17 Code Quality Feedback

As a learner

I want AI feedback on my code quality

So that I can improve readability and correctness.

Acceptance Criteria:

- **Given** I submit code and the AI processes it
 - **When** feedback is returned
 - **Then** I see actionable comments
 - **And** a high-level summary
 - **And** suggested next steps
- **Given** the code is unchanged
 - **When** I re-request feedback
 - **Then** results are consistent
 - **And** include the same key findings

18 Auto-Improve with Explanations

As a learner

I want AI to suggest an improved version of my code with explanations

So that I understand optimizations.

Acceptance Criteria:

- **Given** I submit code and click Improve
 - **When** processing completes
 - **Then** I get an improved snippet
 - **And** an explanation of changes
 - **And** an optional diff view

19 Time & Space Complexity Tool

As a learner

I want an in-IDE complexity analyzer

So that I can estimate time and space of my solution.

Acceptance Criteria:

- **Given** I open the analyzer and run it on my code
 - **When** analysis succeeds
 - **Then** Big-O estimates for time and space are displayed

- **Given** analysis cannot be computed
 - **When** I run it
 - **Then** I see a clear error
 - **And** suggested reasons or limits

20 Formatting, Autocomplete

As a learner

I want formatting, and autocomplete in the IDE

So that I can write code efficiently.

Acceptance Criteria:

- **Given** I trigger format
 - **When** it runs
 - **Then** my code is reformatted to the default style
 - **And** no code is lost
- **Given** I type code
 - **When** autocomplete is available
 - **Then** relevant suggestions appear
 - **And** I can accept with keyboard or mouse

21 Quiz/Tests After Every Module

As a learner

I want a quiz after each module

So that I can check my understanding immediately.

Acceptance Criteria:

- **Given** I open a completed module and start the quiz
 - **When** I answer and submit
 - **Then** I see my score
 - **And** correct answers
 - **And** the result is stored
- **Given** I fail a quiz
 - **When** retry is allowed
 - **Then** I can retake it
 - **And** only the highest score (or latest, per policy) is recorded

22 Show Videos and Articles

As a learner

I want both video and article resources for a topic

So that I can learn in my preferred format.

Acceptance Criteria:

- **Given** a topic page loads
 - **When** resources are fetched
 - **Then** at least one video and one article (if available) are listed
 - **And** each shows source and duration/length
- **Given** only one type exists
 - **When** resources are fetched
 - **Then** the page states only that type is available
 - **And** offers a request-more button

23 Rank by Relevance

As a learner

I want external sources ranked by relevance

So that the best materials appear first.

Acceptance Criteria:

- **Given** resources are fetched and scored
 - **When** they are displayed
 - **Then** they are sorted by relevance
 - **And** ties break deterministically (e.g., recency)
- **Given** I change the sort to Newest
 - **When** the sort is applied
 - **Then** the list reorders
 - **And** the active sort is shown

24 Standard & Markdown Notes

As a learner

I want to take notes in plain text or Markdown

So that I can format ideas my way.

Acceptance Criteria:

- **Given** I open the Notes editor and write content

- **When** I toggle Markdown preview
- **Then** formatted output renders correctly
- **And** code blocks and headings display properly
- **Given** I save a note
 - **When** I reopen it
 - **Then** my content persists
 - **And** formatting remains intact

25 Import/Export Notes

As a learner

I want to import and export my notes

So that I can back them up or move them elsewhere.

Acceptance Criteria:

- **Given** I choose Import and select a .md or .txt file
 - **When** I confirm
 - **Then** a new note is created from that file
 - **And** its title defaults to the filename
- **Given** I click Export on a note
 - **When** I choose format (.md or .txt)
 - **Then** a file downloads with the note's contents
 - **And** it has the correct filename and extension