

# 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