



Project Narrative

1 Trainly.io

Congratulations – you have been hired as Lead Database Engineer for **Trainly.io**, a startup looking to disrupt the training industry. While still in beta, the mission of **Trainly.io** is to be the App Store of training: organizations collaborate with faculty to create and securely post materials (for free!); students find, enroll in, and complete useful courses (with the ability to certify completion to employers); and **Trainly.io** only charges 30% of any course-enrollment fees!

1.1 User Management

Users provide minimal information upon registration: first/last name, email address (used for login/notifications), a password, a profile picture, contact phone number(s), and a contact address (street, city, postal code, country). User's can take on one or more roles: student, faculty, and/or administrator. All users are, by default, students and can thus consume courses (more later). Faculty are the creators of courses (more later), and must be validated by an administrator after registration (the identity of the administrator and date/time of this verification is recorded for accreditation purposes). The verification process requests the faculty member's title, affiliation, and work website. Administrators have a variety of enhanced positions within the system, and must thus be granted their role by another administrator – for purposes of security auditing, the date/time and grantor must be recorded.

1.2 Courses

Each course has a name, description, icon, cost, at least one faculty creator, and creation date. Courses are categorized by topic – each course has a primary topic, as well as any number of secondary topics.

Students have a list of courses in which they are interested. If they so choose, they can enroll in a course (whether or not it was indicated as of interest). It is important to know the date/time of payment for the course, as well as the payment confirmation code supplied via the third-party payment vendor used by **Trainly.io**.

If a student completes a course, the date/time must be recorded, such that requests for certification can be serviced accurately. Additionally, once a student completes a course, they are asked to provide a rating: 1–5 stars for the material, as well as any comments they might have for improvement/potential students.

1.3 Course Materials

A course on **Trainly.io** is really just a list of materials to be completed, in sequence, by a student. Each piece of material is unique to the course (i.e. material cannot be used in multiple courses), and is identified by its order in the sequence of materials.

A piece of course material has a name, and comes in one of three types: a downloadable file, a link, or a post. Downloadable files have a path, size, and type (used to provide MIME information to the client). Links have a URL and are tagged as video or not (videos are actually embedded on-site, to keep students on task!). A post just has a large block of text, possibly marked up via Markdown.

The core of the certification process is to track student completion of materials and so `Trainly.io` keeps track of the date/time of completion (e.g. viewing a video) of each item. A course is complete when all materials are complete.

1.4 Course Questions

Students that have enrolled in the course can submit questions to the faculty creators. A course question *may* relate to one or more of the course materials. If any of the creators believes the question will be of use to other students, s/he makes the question visible and supplies an answer. Students can “like” questions they find useful – this rating informs the ranking of questions on the course site.

2 Required Tasks

- a) Register a new user
- b) As an administrator, authenticate a faculty user (based upon title/affiliation/website/email) or fellow administrator
- c) Provide a categorized list of a student’s courses (each with primary/secondary topics, ranked by average evaluation score): currently enrolled, completed, of interest
- d) Enroll a student in a course
- e) For a student enrolled in a course, list materials, in order, indicating the line of demarcation between completed/not completed
- f) Mark course material as having been completed by a student (possibly resulting in course completion)
- g) Provide a certificate of completion for a student (assuming s/he has successfully completed all materials)
- h) Provide an account history for a user: dates of enrollment/completion for each course, amount paid (with confirmation code), and total spent.

Extra Credit. Implement a fourth type of course material: a quiz comprises a minimum passing score, and a sequence of multiple-choice questions. Each question has a number (1, 2, 3, . . .), a text, and a set of answers (each with a text, feedback upon submission, and indication of correct or not).

Extra Credit. Implement a playlist feature: each user is allowed to have any number of named playlists (each name unique), which is comprised of a sequence of materials from enrolled courses. Implement all necessary functions (list playlists for a user; list materials in order for a playlist; add/remove a playlist; add/remove/move material within a playlist).