Hack.Diversity 2021 - Mini Project

Coffee Shop Community Library (CSCL)

Your local coffee shop has a community library where anyone can borrow books from it. Visitors can also donate books by checking them in with the employees. The problem? Book loans are not being tracked, so it's hard to know if a book is available. Also, the library uses the honor system so books are returned at the borrower's leisure. Your task is to create a Web Application that allows coffee shop customers to loan and return books. It should also allow coffee shop employees to add new books to the library as well as remove books that have been lost.

Resources Provided by Hack.Diversity de.Hackathon Tech Team

Template Repos:
MERN Stack Template: https://github.com/Hack-Diversity/template-react-redux
Mini-Project DB: https://github.com/Hack-Diversity/template-mini-project-db

- Boilerplate Frontend project (**ReactJs**) with:
  - Home page
  - Items list component
  - Minimal styling
- Boilerplate Database project:
  - SQL DB
  - Mongo DB
  - Data Science historical data
- Boilerplate API project (**Express JS**) with:
  - Endpoint to retrieve an Item
  - Endpoint to retrieve all Items
  - Endpoint to create a new Item
  - Endpoint to update an existing Item
  - Endpoint to delete an existing Item

Timeline

- Jan. 15: Mini Project Launch
- Feb. 19: Mini Project Submission Form due
- Feb. 22: User Tester Forms due
  - At least 5 user tester forms should be submitted per team (NOT per person).
- Feb. 23: Mini Project Demo (live session)
  - Mini Project should be presentation-ready.

Milestones (Required)

Implement at least milestones 1-3. If you find that your team has finished milestones 1-3 and wishes to work on other stretch goals, you will need to implement the feature/view on your Figma project.

0) View previous examples of de.Hackathon Figma projects. As well as finished examples of the mini project. We recommend that you take inspiration from the previous cohort's work but do not copy the previous work.

1) Have a web page that allows customers to view a list of currently available books and allows them to borrow and return books. (No user logging or tracking)

- A book can have multiple copies.
- If no copies of a book are available, an unavailable message or label should be presented to the user.

Book records require the following details:

- Title
- Author(s)
- Year_Of_Publication
- ISBN
- Number of Copies

2) Add an administration page (no need to add authentication) that allows coffee shop employees to add new books and edit the book stock count.

3) Add a details page that a user will be routed to after clicking on a book listing. The details page will contain all the required book details plus the following:

- Use large image on details page

A thumbnail should also be added to the book listing on the main page.

Stretch Goals (if you have time/skills)

4) Add to the existing admin page a feature which allows coffee shop employees to remove books and also change the number of available copies

- "Harry Potter and the Philosopher's Stone" has 2 copies, but a customer lost one on the subway. An employee will need to go to the admin page and reduce the number of copies by 1.
- A customer offers the coffee shop owner to purchase the "How to brew your own coffee" book and they accept. An employee will need to go to the admin page and remove the record for "How to brew your own coffee".

5) The CSCL has gained a lot of popularity, so it's getting harder to keep track of who is borrowing which book. An employee suggested generating a library number for each user interested in borrowing books. This number is similar to a traditional library number which does not require a password.

- When a user borrows a book, they will need to provide their 5 digit number (Lib_Id) (or a phone number) which will create a record showing that the book is being borrowed by that user.

6) Create a section on the admin page showing all active loans. The list should display the identifier (Lib_Id) and the list of books loaned out to that user. No need to track past loans.

7) The coffee shop employees are interested in seeing the history of book loans. You should create a new page which allows the admins to view a list of book loans, the Lib_Id associated with the loan, and time and date of the loan and return.

7.1 Expand #7 by allowing admins to sort the list by each field.

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Specialist's Tasks - IT Fellows:

*** The following applies to teams that have fellows on the Data Science track***

IT Fellows are free to use any technology/language/libraries to help them accomplish the tasks below. Things to note:

1. if you choose to use a cloud provider other than AWS you will have limited-to-no support.
2. The tasks below are not in any particular order/priority. It is your job as the IT Specialist to make the call (decide) which of this is important to the success of the team.

Milestones (you must choose which order to solve this issues)

- Deploy project to AWS (or other cloud provider)
    - Hack leads will provide simple/base configuration for AWS
- Manage DB (either locally or in cloud)
    - Configure security policy (talk about AWS robustness in documentation)
    - Configure backups/snapshots (versioning, redundancies, A/B deployments/updates/migrations)
- Configure SSL cert (in order to have a secure HTTPS connection)
    - Once project is in cloud, manage the url and SSL certificate required to make a secure HTTPS connection
- Event logging/audit logging
- ETL non-relational DB (Mongo) to relational DB (SQL) to facilitate Data Science fellows to analyze the data. - This is more of a practice task as the data science fellows will already have the data they need to do their work. ETL is something that is often used in the IT profession in many different places.

Specialist's Tasks - Data Science Fellows

*** The following applies to teams that have fellows on the Data Science track***

Data Science Fellows are free to use any technology/language/libraries help them accomplish the tasks below:

1) Exploratory data analysis into the library data set to deliver insights on trends in book borrowing and lending
2) Present results (make a presentation) to coffee shop owners to help guide them in purchasing more copies of books and which new books to purchase in future
    a) Make a business case/presentation (can either be a report or a presentation) which will be submitted to the coffee owners. Include following:
        i) Top 100 books forecasted to be read most frequently, and recommend how many copies the owners should have on hand to meet demand in the following week
        ii) Recommend what books should be dropped/removed from the library
3) Stretch: Build a system that will recommend a book to a borrower based on the book they just returned
    a) Find information about the borrowed book and other similar books
    b) Use external websites like Amazon, Goodreads, etc. to gather data about similar books
    c) Based on the data about the recently returned book (genre, author, number of words, etc.), recommend another book that the borrower might like to read next.

Things to note:

You will be provided a data set of the top 100 books checked out per week. You can assume that if a book is not on the top 100 list then it **was not** checked out that week.

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Resources

Who's Who in de.Hackathon?

Pluralsight Channels:

- General Mini Project
- Data Science Specialists

Figma Prototypes and Animations:

- https://help.figma.com/hc/en-us/articles/360040315773-Build-prototypes-with-interactions-and-animations
- https://www.figma.com/resources/courses/
    - https://www.figma.com/resources/learn/getting-started-figma-end-to-end/
    - https://www.figma.com/resources/courses/figma-tutorial-a-free-ui-design-prototyping-tool-its-awesome/
    - https://www.figma.com/resources/courses/the-complete-figma-ux-ui-app-design-course-for-beginners/

MongoDB:

- https://docs.mongodb.com/realm/mongodb/document-schemas
- https://docs.mongodb.com/realm/mongodb/enforce-a-document-schema
- https://severalnines.com/database-blog/overview-mongodb-schema-validation
- https://www.mongodb.com/nosql-explained/nosql-vs-sql
- https://medium.com/@jon.perera/sql-vs-nosql-a-beginners-guide-f80991f76a4b