LearnLocal

Interim Report

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1 Introduction

1.1 Backstory

I often catch myself wondering how much better our society could be if we all could share our knowledge and skills with our community. How small contributions to the community could influence and change the life of many people. Growing up in a big city, I always admired the variety of skills and talents around us, but never really knew how to access those skills. However, these talents often remained hidden, and the notion of creating an online space to share them intrigued me. There is where the LearnLocal initiative comes from.

1.2 Issue Identification

Communities are reservoirs of diverse skills, but often, these talents go unnoticed. LearnLocal aims to bridge this gap by providing a platform for individuals to share their expertise. While there's an abundance of knowledge, accessing it within a community can be challenging.

In today's digital age, the proliferation of online learning platforms and patterns of acquiring new skills has created a disjointed experience. People are eager to learn, but finding local experts or accessing community-driven knowledge becomes extremely difficult.

1.3 Proposed Solution

LearnLocal proposes a solution where community members can showcase and share their skills. This concept extends beyond traditional learning platforms, emphasizing a community-centric approach. By creating a space for local skill-sharing, LearnLocal aims to encourage a sense of togetherness and make the most of the abundant expertise within a community.

The proposed solution is a Progressive Web App, accessible through web browsers and installable on various devices.

1.4 Project Objective

The primary goal of the LearnLocal project is to develop a Progressive Web Application coupled with a Continuous Integration/Continuous Deployment (CI/CD) pipeline. The web application serves as a hub where community members can list their skills, creating an inventory of local expertise. Users can connect, learn, and share knowledge within their community, contributing to a more connected and skilled neighborhood.

(synopsys.com, n.d.)

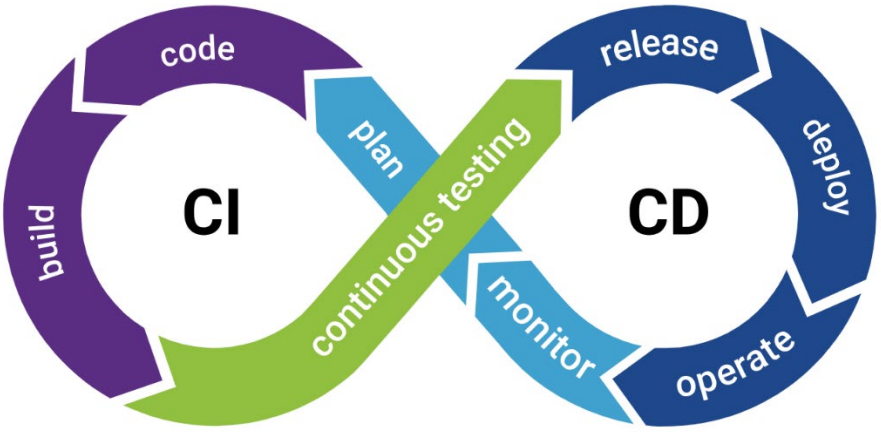

Figure 1 - CI/CD Process (synopsys.com, n.d.)

2 Project Scope

2.1 Local Learning Hubs

Create virtual groups or classrooms within LearnLocal, tailored to specific neighborhoods or communities. Each hub provides a dedicated space for sharing skills, organizing meetings and learning collaboratively.

2.2 Group Management Features

Integrate tools for group administrators to efficiently manage their local hubs. Admins can schedule events, highlight top contributors and customize their hub pages creating an engaging and dynamic environment.

2.3 Verification System

Implement a secure process for group admins to confirm their identity and location, building trust within the community. Admins provide details and undergo

verification through trusted methods, ensuring the legitimacy of local hubs.

2.4 Community Challenges

Introduce friendly learning competitions where local hubs can actively participate and contribute. Recognize and reward groups for their engagement, promoting a sense of achievement within the LearnLocal community.

3 Security Measures

3.1 Secure Verification Methods

Utilize advanced and secure methods for admin and user verification, prioritizing data protection. Implement encryption and secure channels to safeguard sensitive information.

3.2 Privacy Controls

Incorporate privacy controls to empower users, allowing them to manage the visibility of personal information within local hubs.

4 Project Steps (Additions)

4.1 Beta Testing with Communities

Before the official launch, conduct beta testing with select communities to gather valuable feedback. Adjust features based on user suggestions, ensuring a user-friendly and community-driven platform.

4.2 Educational Partnerships

Explore collaborations with local educational institutions to encourage student involvement in local hubs. Tailor special features to support student groups and enhance the learning experience.

4.3 Interactive Learning Tools

Introduce interactive learning tools within local hubs, such as virtual whiteboards

and collaborative projects. Enhance the overall learning experience, making LearnLocal a dynamic and engaging platform for community skill-sharing.

5 Investigation and Analysis

5.1 Defining the Must-Haves

The tools I picked for this project were decided by looking at the tools used in the modules of this course. I've checked what tools from the course lectures could be used in this project and still could be a good fit for LearnLocal. It made sense to use tools I was already familiar with from the lectures.

Figure 1 – Initial Tech Choices

- React
- Firebase (Auth + Database + Storage)

5.1.1 Front-End

React:

'React, a JavaScript library, is used for building user interfaces.' (koenig-solutions.com, n.d.) It's user-friendly and simplifies the creation of dynamic web applications. '*React allows developers to create reusable UI components, making it easier to manage the different parts of the application'* such as homepage, listings, profiles, messaging, etc. (Zhr, 2023)

Other front-end technologies like Angular and Vue have their merits, but React is widely adopted, making it a sensible choice for LearnLocal.

In the case of LearnLocal, React will be used to create the frontend or the user interface of the platform.

So, imagine LearnLocal as a puzzle and React as the box of puzzle pieces. Each puzzle piece represents a part of the LearnLocal platform i.e. homepage, user profiles, listings, messages, etc.

I intend to take these puzzle pieces and put them together to build the platform, and hopefully, be able to reuse a few of those pieces or components in different parts of the project.

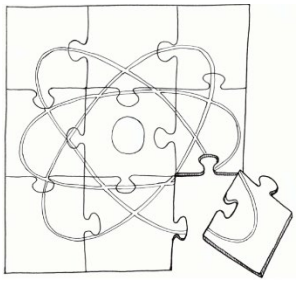

Figure 2 - React puzzle (DevinDetails.com, n.d.)

Another benefit of React is that it helps to make the platform interactive and dynamic. For example, if the user sends a message or click on a listing, React can quickly update the platform to show the new information without having to reload the entire page.

Basically, in this project, React is going to work as the glue that keeps the platform parts or the “puzzle” together.

5.1.2 Back-End

Firebase

Firebase is a google platform for building mobile and web applications. In this project Firebase will be used for Authentication, Realtime Database and Storage, to ensure smooth user authentication, data storage, and image hosting.

Authentication: Firebase authentication will be used to handle user authentication, allowing users to sign up, log in and manage their accounts securely.

Real-time Database: ‘*Firebase Realtime Database is a NoSQL cloud database that allows developers to store and sync data between user in real-time*.’ (Sudhakar, 2024) In this project it’s going to be used to store user profiles, listings, messages and other application data.

Cloud Storage: Firebase Cloud Storage provides secure file uploads and downloads for storing user-generated content such as profile pictures, listing images, etc

5.1.3 Integration

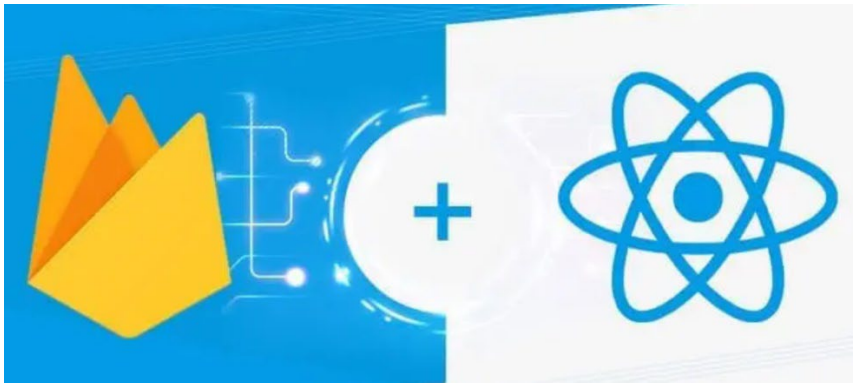

Figure 3 - Firebase and React Integration (Yonathan, 2017)

The frontend, developed in React, will communicate with the backend, Firebase services, through the Firebase JavaScript SDK. For example, when a user signs up or logs in to LearnLocal, React will make a request to Firebase Authentication to handle the authentication process.
Similarly, when a user creates a new listing or sends a message, React will use Firebase Realtime DB to store the data and make it available to other users in real time.

5.1.4 Deployment

Once the frontend and backend are running and working together, the application will be deployed to a hosting platform still to be defined between Netlify and Vercel.

Project Data:

All data used in this project is test/dummy data created for this purpose.

5.1.5 CI/CD Exploration

The first step in this process was to choose the appropriate tools for CI/CD. For this process the chosen tool was GitHub Actions, as it's GitHub's built-in CI/CD tool.

Then it's needed to set up automated tests to ensure the quality of the codebase, and configure these tests to run automatically whenever changes are pushed to the repository.

The next step is to define a build process creating a script or configuration file that details how to build the application.

Configure Deployment specifying how to deploy the application automatically after successful builds and tests, integrate it with version control system, monitor, review and improve are the following steps of this process.

5.2 Navigating the Learning World

So, I went exploring online to see if there's a cool place where people can swap skills in their local hangouts, like LearnLocal dreams to be. Turns out, I found Skill Swap, that is a mobile app that connects people seeking to share and acquire skills.

Both, LearnLocal and Skill Swap, facilitate skill sharing and exchange within communities, but they have different features and focuses.

LearnLocal
Focuses on providing a platform for local communities to share skills and knowledge.
Allows users to list their skills and expertise, which others can browse and learn from.
Provides a space for arranging in-person or virtual skill sharing sessions.
Include the option to rate and review users based on their skill sharing experiences.
Aims to build stronger local communities by encouraging knowledge exchange and collaboration.

Skill Swap
Focuses specifically on swapping skills and services between users.
Users can list the skills or services they offer and what they expect in return.
Facilitate the exchange between users where they negotiate the swap.
Not focused on building community connections.

Another find was Neighbourhood Network (https://neighbourhoodnetwork.ie/), a hub for local connections.

But here's the thing – the swap idea is like a superhero with many identities. LearnLocal was created for skills exchange, but could be used for other cool knowledge swaps too.

5.3 The Feature Face-Off

Figure 3 - Feature Showdown

Feature	LearnLocal	Skill Swap	Neighbourhood Network
User Registration	✓	✓	✓
Listings Creation	✓	✓	✓
Swapping Functionality	✓	✓	X

Chat Functionality	✓	✓	✓
Wishlist Feature	✓	✓	X
Forum	✓	X	✓
User Ratings	X	✓	✓
Project To-Do List	X	✓	X
Requesting Services	X	✓	✓

Look at this table, LearnLocal buddies up with Skill Swap and Neighbourhood Network with the basics – user registration and listings creation.

So, LearnLocal is all about making learning a cool, community thing.

6 Planning - Crafting the Agile Path

Using Agile methodology in the process of building LearnLocal involves breaking down the project into smaller, manageable tasks and iterating on them in short cycles or manageable sprints, sculpting the vision incrementally. Agile allows flexibility and adaptation as the project progresses.

6.1 Agile Implementation:

First step in this project is to create a list of all the features, functionalities and tasks required for LearnLocal. This list is going to be used as the Product Backlog, which will continuously evolve throughout the project.

Next step is to define and prioritize user stories as they represent specific functionalities or features from the perspective of end-users.

Following step is to plan sprints dividing the development timeline into short iterations.

Based on the sprints created previously, manage project's progress and challenges. And at the end of each sprint a presentation should be made to the stakeholders to show the completed work and gather feedback.

And finally, use the feedback gathered to adapt and refine the Product Backlog and improve the development process.

6.2 Utilizing Jira:

In this project I am going to use Jira to create and manage tasks as well as track progress.

'JIRA is an issue management platform that allows teams to easily manage their

issues throughout their entire lifecycle. It is highly customizable and can be tailored to fit any workflow needed. It is primarily used in software development to manage and track development efforts.' (Robinson, n.d.)

Jira is going to be used to break down the work into smaller tasks like writing code, testing and fixing issues. These tasks will be grouped into sprints, which are short periods of work, lasting in this case 2 weeks each. Each sprint will have its own set of tasks to focus on. That will help me staying organized and continue to make steady progress on the project.

6.3 Sprints Breakdown:

In this section, I am going to break down the development process for this project into manageable two week sprints. Each sprint will focus on specific tasks and activities aimed at achieving key milestones in the project timeline. By organizing the work in sprints, it's easier to maintain focus, adapt to changes and progress towards launching LearnLocal.

Sprint	Dates	Tasks
1	Jan 21st, 2024 - Feb 03rd	• Set up the project repository on GitHub: Create a central location to store project files. • Create wireframes for user interface: Sketch out the layout and design of the application's screens. • Research React components for frontend development: Explore components for building the user interface. • Define database schema for Firebase integration: Plan the structure of the database to store user and listing data. • Initial setup of Firebase project: Create a Firebase project to integrate authentication, database, and storage services.
2	Feb 04th – Feb 17th	• Implement user authentication with Firebase: Allow users to register and log in securely. • Develop the landing page and user registration form: Create the initial interface for users to access and sign up for the platform. • Design database structure for storing user data: Define how user information will be organized and stored in the Firebase database. • Begin development of the listing creation feature: Lay the foundation for core functionalities of the platform.

3	Feb 18th - Mar 02nd	• Complete core features development: Implement essential features such as creating user profiles, browsing available skills, etc. • Test user registration and authentication: Ensure that the registration and login processes work smoothly and securely. • Begin work on community engagement features: Start developing features to encourage user interaction and collaboration within the platform.
4	Mar 03rd - Mar 16th	• Enhance user experience: Improve user interface design and usability based on feedback from initial testing. • Implement additional functionalities: Add features such as ratings, skill endorsements and notifications to enhance the platform. • Conduct user testing: Gather feedback from users to identify and address any usability issues or bugs. • Begin work on advanced features: Start planning and development of more advanced features.
5	Mar 17th - Mar 31st	• Finalize advanced feature development: Complete the implementation of advanced features as community challenges and localized groups. • Test and debug: Test the platform to ensure all features are functioning correctly. • Refine user interface and user experience: Make final adjustments to the UI/UX based on user feedback and testing results.. • Prepare for project presentation and demonstration: Prepare materials and presentation.

7. Expected Features

I've planned several features for the LearnLocal community, to make the platform a dynamic hub for shared learning:

Initial Features:

1. Explore before joining: Unregistered visitors can try the platform before joining.
2. Create and manage learning spaces: Users can create unique local groups. Admins are able to customize their space.
3. Verified Local Admins: Group admins are checked to ensure that their identity and location is real.
4. Community Challenges: Learning competitions with neighboring groups.

Future Features:

1. Beta testing with communities: Work with selected communities to gather feedback before official launch.
2. Partnerships: Work with local institutions to increase student involvement.

Join LearnLocal and help making it a place where everyone feels connected, engaged, and excited to learn together and build stronger local communities.

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