RIDE IN
SCOT HIHGLAND

Ride In Scot Highlands Project Report

Team Members

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Introduction

Our project is taking COMMUNITY as a starting point and focuses on recommending cycling routes in the Scottish Highlands. We plan to develop an interactive map dynamic web, with the aim of recommending 10 cycling routes in the Scottish Highlands and visualizing them on the map in an interactive manner.

Design Motivations

The design of our interactive map dynamic web was motivated by the desire to promote cycling activities in the scenic Scottish Highlands. Recognizing the region's natural beauty and rich cultural heritage, we aimed to create a platform that recommends cycling routes and encourages users to discover and share their comments with others.

Our innovative approach lies in focusing on small community groups. Through research, we found that users of similar recommendation websites are highly diverse, lacking an independent community platform for enthusiasts with shared interests. Therefore, our design motivation is to create a community platform specifically for cycling enthusiasts interested in the Scottish Highlands region, offering both route recommendations and opportunities for interaction and sharing.

Methodology

We divided the project into alpha and beta stages. In the alpha stage, we completed preliminary user research, UI design, and made decisions to first implement the core functionality of the project - creating the interactive map page. The approach to displaying routes on the map is to first visualize and test one route, identify and resolve any issues, and then replicate the method for other routes. The goal of the alpha version is to achieve the filtering and recommendation functionality on the interactive map page. In the beta stage, we plan to enhance other pages such as the homepage introduction and user profile page around the core functionality page.

In terms of content, our methodology involve extensive research on cycling routes in the Scottish Highlands, considering factors such as departure points, difficulty levels, and accessibility; In UI design, user research prior to UI design was completed through group meetings, identifying features needed for the web and modelling user flows. These research informed our decision-making process for selecting features and technologies that would enhance user experience.

The development approach on the technical level begins by leveraging team members' existing technical expertise to analyze the technologies needed to implement website functionalities. New technologies that need to be learned are listed in modular blocks, corresponding to research, searching, and studying relevant materials, including searching for available map APIs, learning map route display logic, and browsing related technical sharing blogs on GitHub.

Execution

Generally, the AJAX framework is implemented to build interfaces of register and login. This is because it allows for updating web contents and providing immediate feedback without full page reloads. For example, when a user submits the form to register a new account, the form collects values of the username, password, and confirm password fields, and sends them to a specific URL on the server via AJAX. If it succeeds, a success message will be displayed, and the user will be redirected to the login page; otherwise, the corresponding error message would be shown. As for the search of cycling paths, Mapbox API and ECharts library are utilised to visualise the whole map and different paths (related information such as difficulty, elevation, and points along the way is stored in the database). Moreover, the PHP backend of F3 framework is used to execute database queries and provide APIs, enabling the frontend to filter routes using the fetch method with the specified APIs.

Intended Beta Development

We plan to complete two parts of work in the beta stage. On the one hand, we will complete the undeveloped content, including the development of homepage, and increase user customization functions, including collection routes and comment routes, so as to improve user engagement tools. On the other hand, we will improve the content of alpha phase, including enhancements to route recommendations and adding filter items to recommend routes more accurately for users. Enrich the interactive response animation, including adding the scrolling animation of the route example diagram in the home page, the animation while waiting for the response, and so on. Our goal is to create a comprehensive platform that inspires cyclists to explore the Scottish Highlands, And create an environment for cycling enthusiasts in this small community to connect.

Team Roles

Our team consists of individuals with diverse backgrounds and expertise, each contributing to the success of the interactive map dynamic web project.

Lynn Dai was responsible for the conceptualisation and planning of the project, preliminary research of the project, including similar website research, route collection and user research. She designed LOGO for the web and Used Figma to complete the web UI design independently., and write project documents and other submissions.

Jiahao Wang was primarily responsible for the foundational aspects of the project, skillfully integrating Mapbox to enable detailed visualization of complex routes. Concurrently, Jiahao meticulously designed the code's functional logic to ensure the system's intuitiveness and

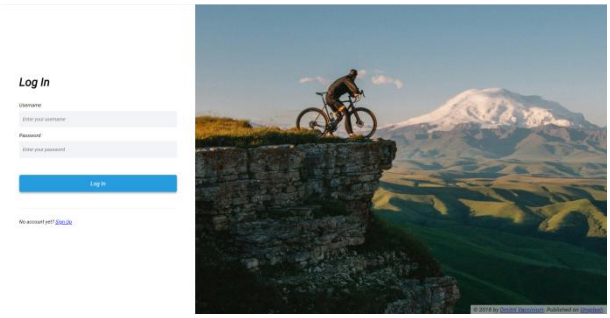
efficiency. Additionally, he implemented account login and registration features using AJAX technology.

Yuyang Xin was responsible for nearly fully implementing the page for map interactions with the assistance from Jiahao Wang, including not just the html page itself but also page styling and backend data retrieval. Also, he was responsible for just the styling of the login and sign-up page. The styling of pages all follows the UI design from Lynn Dai.

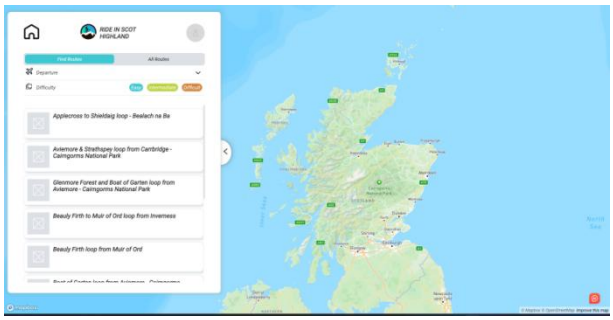
Web Function Introduction

In the alpha stage, the user flow for the web is as follows:

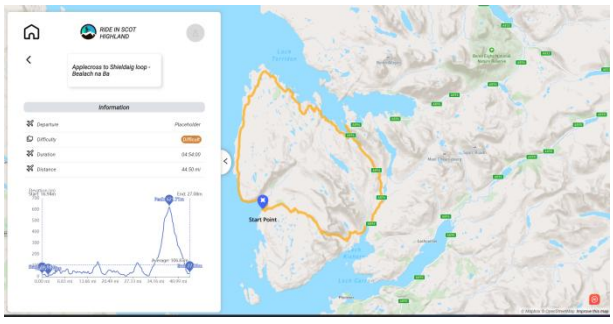
Entering the web, users are required to login or register before accessing the map page.



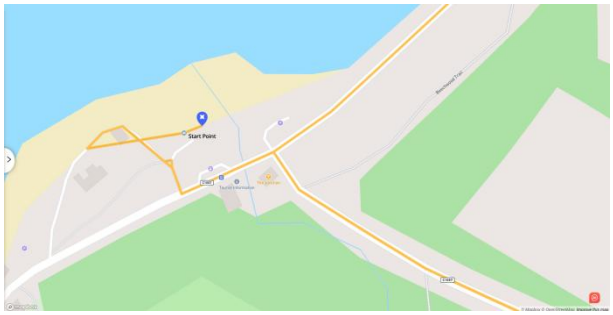
On the map page, users can click buttons in the left-side filter bar, such as selecting difficulty, to filter out corresponding routes.



Click on the route legend will display detailed information about the selected one, including departure, difficulty, duration, length, elevation changes.



After hiding the information bar, users can use the mouse wheel to zoom in on the map to view detailed route information.



In the beta refinement stage, the user flow logic will be improved: when users want to bookmark routes or post comments, they will be prompted to log in with their personal information.

References & Explanations

Picture reference of Login and register page

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