

Sprint 1 Review

We successfully completed the basic targets, including software installation, defining user stories, mockups, and acceptance criteria, and implementing preliminary data scraping for bikes and weather.

Besides that we did such things as: database design, setting up a tunnel to link the database from EC2, scraping bike data and weather data, writing the code to store the collected data in our database and started developing a homepage (still in process).

The implementation of data scraping successfully captures bike station information and weather data at regular intervals. Our database design effectively accommodates this data with appropriate tables and relationships. The initial homepage design provides the foundation for future development, though it still requires refinement and additional features.

During the demo, we received positive feedback on our data collection approach and database design. Suggestions were made to enhance error handling in the scraping scripts to account for API availability issues. We've also identified the need for more comprehensive data validation before storage.

Sprint 2 Review

In Sprint 2, we completed the implementation of data scraping functions, developed the core Flask application structure, and created preliminary front-end designs.

The data scraping now includes comprehensive error handling, connection pooling, and automated scheduling. The Flask application successfully connects to our database, retrieves the necessary data, and presents it through defined routes. We've implemented the basic website structure with navigation capabilities and responsive design elements.

Front-end development has progressed with the implementation of the homepage, how-to-use page, and the foundations for the map interface. We successfully integrated the Google Maps API and ensured each team member can access and utilize it for development.

During the review, we demonstrated the Flask application running on EC2 and the automated data collection system. Feedback focused on improving the user interface design and ensuring consistent styling across pages. We also identified the need to optimize database queries for faster page loading.

Sprint 3 Review

In Sprint 3, we focused on finalizing the website design and functionality across all planned pages. We completed the development of Home, How to Use, Rent Now, About, FAQ, Contact, and Map pages with consistent styling and navigation.

We significantly improved the user interface by implementing feedback from previous sprints, including:

- Restructuring the homepage layout for better user experience
- Enhancing the How to Use page with clear instructions and safety information
- Developing a functional contact form that collects and stores user input
- Creating a consistent header and footer design across all pages
- Integrating all components into the Flask application

The Map page now displays bike stations but requires further development to show station details and implement search functionality. We've successfully integrated all front-end components with the Flask backend, ensuring proper routing and data flow.

During the review, we received positive feedback on the visual design and user experience. Suggestions were made to enhance the map visualization with additional information about each station and to improve the mobile responsiveness of certain page elements.

Sprint 4 Review

In Sprint 4, we successfully completed the machine learning model development, comprehensive testing, and final refinements to the application.

The machine learning model now effectively predicts bike availability based on historical data, weather conditions, and time patterns. We've integrated these predictions into the map interface, allowing users to see both current and predicted availability for each station.

Map functionality has been significantly enhanced with:

- Station numbers displayed for each location
- Implementation of search by both address and station number
- Improved visualization showing total bikes, available bikes, and predictions when a station is selected

We conducted comprehensive testing of all application components, including:

- Functional testing of all website features
- Integration testing between front-end and back-end
- Performance testing of database queries and API calls
- Validation of machine learning prediction accuracy

The final application successfully meets all core requirements defined in our initial user stories. Documentation has been completed, including a comprehensive README file explaining the project structure and setup instructions.

During the final review, we demonstrated the complete application functionality and received positive feedback on the prediction capabilities and overall user experience. The integration of machine learning predictions with the map interface was particularly well-received as it provides valuable information for users planning bike journeys.