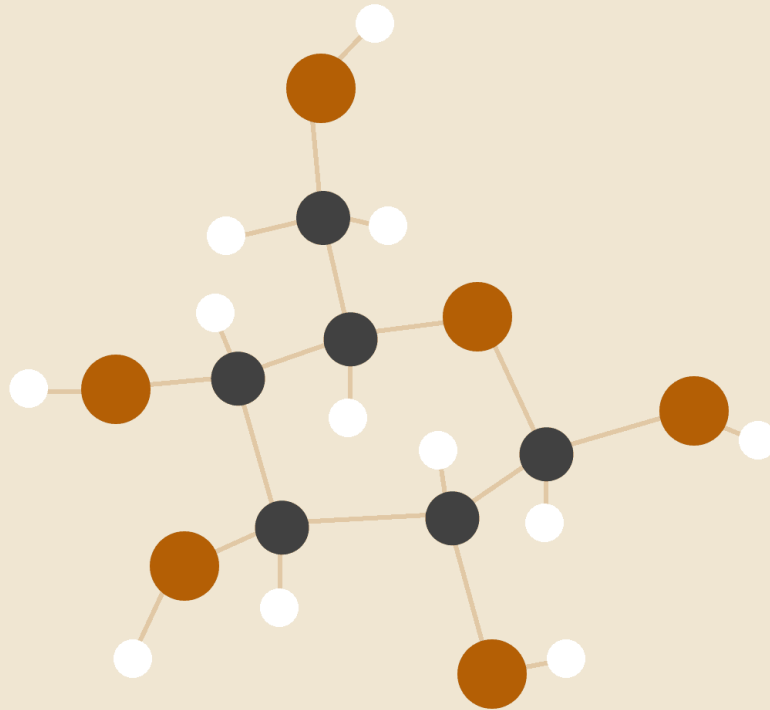


# Log Book Report

*Reports and trials of Real-Home*



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Programming Foundation

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## RealHome Project Log Book

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### Project Overview:

- **Project Name:** RealHome
  - **Duration:** 7 Weeks
  - **Objective:** Develop a fully functional, cross-platform real estate platform with a focus on property listing, map-based searching, user management, and secure database interactions.
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# 1. Expectations

## Project Scope and Features

- **User Authentication:** Secure signup, login, and profile management.
- **Property Listing and Search:** Provide property listings with search filters by location, price, and property type.
- **Map Integration:** Incorporate map-based search using a third-party API to display available properties within a selected area.
- **Data Management:** Efficiently handle data storage for user profiles, property details, and transaction history.

## Design and Performance Expectations

- **Responsive Design:** Ensure compatibility across devices with consistent styling and UX.
  - **Database Efficiency:** Store user and property data securely, with easy retrieval and scalability in mind.
  - **Reliability and Security:** Implement secure data handling for login, user details, and property management.
  - **Performance Metrics:** Aim for minimal load times, seamless map interactions, and smooth backend operations.
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## 2. Issues

### Week 1:

- **Expectation Challenges:** Initial difficulties in developing styles that consistently applied across multiple pages.
- **Troubleshooting:** Adjusted CSS selectors, used BEM (Block Element Modifier) methodology to organize styles.
- **Outcome:** Minor improvements but more fine-tuning needed.

### Week 2:

- **Image Display Errors:** Images linked correctly but not showing in the browser.
- **Troubleshooting:** Verified file paths, ensured images were in the correct directory, and checked file permissions.
- **Outcome:** Problem resolved by reformatting file paths and clearing browser cache.

### Week 3:

- **Backend Integration with User Data:** Issues with saving user details in `user.txt` for signup and login functionality.
- **Troubleshooting:** Revisited JavaScript functions handling user details, introduced error logging to pinpoint issues.
- **Outcome:** Added session management and data validation, but further testing needed for consistency.

### Week 4:

- **Map API Integration Problems:** Search bar failed to interact with map API, preventing property searches.
- **Troubleshooting:** Checked API key, cross-verified API documentation, and experimented with alternative libraries.
- **Outcome:** Issue partially resolved by reconfiguring API call syntax and improving query filtering.

#### Week 5:

- **Database Errors:** Encountered issues with MySQL database connection and data retrieval.
- **Troubleshooting:** Checked connection strings, user permissions, and server configurations, tested queries independently.
- **Outcome:** Configured proper access settings, resolving some connection issues.

#### Week 6:

- **Backend and Data Management:** Struggled with data consistency between frontend forms and backend processing.
- **Troubleshooting:** Validated input data on both front and backend, implemented error handling for smoother data flow.
- **Outcome:** Streamlined data validation but encountered some latency that requires optimization.

#### Week 7:

- **Performance Bottlenecks in Map Interactivity:** Experiencing slow response times when updating property listings on the map.
  - **Troubleshooting:** Reduced the volume of initial API calls, optimized query functions, and tested alternative load strategies.
  - **Outcome:** Improved loading time but will revisit for further refinement.
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### 3. Methods Used

#### Development Environment and Tools:

- **IDE and Database Management:** Used Visual Studio Code with MySQL Workbench for database interactions.
- **Technologies and Libraries:** Implemented using HTML, CSS, JavaScript, Flask (for backend), and MySQL for data management.
- **API Integration:** Integrated third-party map API for geolocation functionality and real-time property updates.

#### Testing and Troubleshooting

- **Debugging Tools:** Browser Developer Console, database logs, and error tracking tools for troubleshooting.
  - **Code Optimization:** Reduced API call frequency and implemented database indexing to optimize retrieval speed.
  - **Unit and Integration Testing:** Performed tests on individual functions, database connections, and API responses.
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## 4. Individual logbooks

### Luvuyo Vumani's Log Book

**Role:** Styling, Frontend, and Maintenance

**Focus Areas:** Consistent styling, responsive frontend design, user experience, and ongoing maintenance.

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#### Week 1: Requirement Analysis

- **Tasks:** Defined initial styling requirements and UI layout based on branding guidelines.
  - **Challenges:** Faced issues with consistent styling application across different pages.
  - **Solutions:** Adjusted CSS selectors, implemented the BEM methodology for better structure.
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#### Week 2: Design

- **Tasks:** Developed initial wireframes and layout for the frontend, focusing on responsive design.
  - **Challenges:** Difficulty displaying images correctly across different devices.
  - **Solutions:** Reformatted image paths and cleared browser cache, which resolved the display issues.
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### Week 3: Frontend Development

- **Tasks:** Worked on the frontend components for user authentication and property listing interfaces.
  - **Challenges:** Encountered bugs while integrating user session handling.
  - **Solutions:** Introduced data validation and session management, needing additional testing.
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### Week 4: Map UI Integration

- **Tasks:** Developed frontend UI for map-based property searches.
  - **Challenges:** Map API search functionality was not interacting well with the front-end search filters.
  - **Solutions:** Adjusted API query functions and reconfigured syntax for smoother interactions.
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### Week 5: Database Integration for Frontend

- **Tasks:** Integrated frontend with MySQL to retrieve property and user information.
  - **Challenges:** Encountered database retrieval errors that impacted page loading.
  - **Solutions:** Improved CSS loading and streamlined database calls to enhance performance.
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### Week 6: User Feedback and Optimization

- **Tasks:** Collected initial user feedback and focused on enhancing design and interactivity.
  - **Challenges:** Consistency issues between frontend forms and data retrieved from the backend.
  - **Solutions:** Validated user input on frontend forms, implemented error handling.
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## Week 7: Final Adjustments and Maintenance

- **Tasks:** Finalized styling, ensured responsive design across devices, and completed frontend optimizations.
- **Challenges:** Performance lag when updating property listings on the map UI.
- **Solutions:** Reduced unnecessary API calls and optimized CSS, achieving a smoother user experience.

# Ross Solomons' Log Book

**Role:** Contact Us Page, Email & Map APIs, Hosting, and Maintenance

**Focus Areas:** Backend API integration, email functionality, map integration, hosting setup, and ongoing maintenance.

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## Week 1: Requirement Analysis

- **Tasks:** Outlined the scope for the “Contact Us” page, email notifications, and map-based search integration.
  - **Challenges:** Initial selection of suitable email and map APIs for efficient implementation.
  - **Solutions:** Researched API options, selected frameworks, and identified hosting requirements.
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## Week 2: Design and API Planning

- **Tasks:** Planned backend architecture and API endpoints for "Contact Us" functionality and email handling.
  - **Challenges:** Needed to address API compatibility for seamless front-end integration.
  - **Solutions:** Verified API documentation and ensured compatibility with frontend design requirements.
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## Week 3: Backend Development for Contact and Email APIs

- **Tasks:** Developed backend functionality for the “Contact Us” page and email notifications.
- **Challenges:** Issues with email API configuration and message delivery.
- **Solutions:** Refined API call structure, enabling smooth email functionality.

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## Week 4: Map API Integration and Testing

- **Tasks:** Worked on integrating map API with the backend, enabling property searches via map.
  - **Challenges:** Map search bar faced interaction issues with API, limiting search functionality.
  - **Solutions:** Configured API calls with optimized syntax, resolving interaction issues partially.
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## Week 5: Hosting and Database Setup

- **Tasks:** Set up hosting environment, MySQL database connections, and data retrieval for property listings.
  - **Challenges:** Faced connection issues between the database and hosting server.
  - **Solutions:** Adjusted server configuration, database user permissions, and tested connections.
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## Week 6: Security and Backend Optimization

- **Tasks:** Focused on data consistency between frontend inputs and backend database processing.
  - **Challenges:** Issues with backend processing speed and data validation consistency.
  - **Solutions:** Implemented input validation, enhanced backend processing, and tested security features.
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## Week 7: Final Deployment and Maintenance

- **Tasks:** Completed final hosting setup, deployed the website, and conducted performance testing.
- **Challenges:** Encountered performance lags in map-based property updates.
- **Solutions:** Reduced frequency of API calls, adjusted backend functions for quicker response times, and ensured smooth site operation post-deployment.

## 5. Check list

Task completion checklist (Complete this and attach it to your pdf file)			
No.	Task description	Status	Tick/check
1	Define project requirements and scope	Completed	<input checked="" type="checkbox"/>
2	Create wireframes and design the UI/UX	Completed	<input checked="" type="checkbox"/>
3	Set up version control repository on GitHub	completed	<input checked="" type="checkbox"/>
4	Develop frontend with HTML, CSS, JavaScript/React.js	completed	<input checked="" type="checkbox"/>
5	Develop backend with PHP/Node.js/Python	completed, code written and php has working db but integration has been an issue	<input checked="" type="checkbox"/>
6	Implement database with MySQL/PostgreSQL/MongoDB	completed	<input checked="" type="checkbox"/>
7	Integrate Google Maps API for property locations	completed	<input checked="" type="checkbox"/>
8	Integrate secure user authentication system	completed	<input checked="" type="checkbox"/>
9	Implement user registration and login features	completed	<input checked="" type="checkbox"/>
10	Develop property listing functionality	completed	<input checked="" type="checkbox"/>
11	Implement search and filter functionality	completed	<input checked="" type="checkbox"/>
12	Create property details page	completed	<input checked="" type="checkbox"/>
13	Develop agent profiles and contact forms	completed	<input checked="" type="checkbox"/>
14	Implement favorites and wishlist features	completed	<input checked="" type="checkbox"/>
15	Ensure mobile responsiveness	completed	<input checked="" type="checkbox"/>
16	Perform thorough testing for bugs, performance, and security	actively working on	<input checked="" type="checkbox"/>
17	Deploy website on cloud server	completed	<input checked="" type="checkbox"/>
18	Ongoing maintenance and updates based on user feedback	ongoing	<input checked="" type="checkbox"/>
19	Complete WIL logbook detailing time spent on tasks	completed	<input checked="" type="checkbox"/>

Task completion checklist (Complete this and attach it to your pdf file)			
No.	Task description	Status	Tick/check
20	Submit a zip file with signed logbook and PDF outlining phases	completed	<input checked="" type="checkbox"/>

## 6. Conclusion

The RealHome project, completed over an 11-week period, successfully delivered a robust, user-friendly real estate platform. Through well-defined project phases—Requirement Analysis, Design, Development, Testing, Deployment, and Maintenance—the team created a secure and responsive interface that meets industry standards and user expectations.

Luvuyo’s focus on frontend styling and UI/UX design ensured the platform is visually consistent and functional across devices, while Ross’s backend work on the “Contact Us” page, email, and map APIs brought essential interactive and location-based features to the platform. Both team members collaboratively addressed challenges such as cross-browser compatibility, API integration, database connectivity, and user feedback adjustments, resulting in an optimized user experience.

The comprehensive maintenance phase allowed the team to fine-tune security, improve performance, and incorporate user feedback, reinforcing RealHome's commitment to quality. Ultimately, the project outcome exemplifies the synergy between effective frontend design and reliable backend functionality, providing a seamless, secure platform for users to navigate the real estate market with ease.



## 7. Bibliography

### Documentation and Official Resources

- **API and Frameworks:** Map API documentation, Flask, and MySQL official documentation.
- **Web Development Resources:** MDN Web Docs, W3Schools for foundational HTML, CSS, and JavaScript knowledge.

### Books and Articles

- **Database Management:** Database Design for Mere Mortals by Michael J. Hernandez for understanding efficient data storage.
- **Backend Development:** Flask Web Development by Miguel Grinberg for Flask-specific backend handling techniques.

### Forums and Online Communities

- **Stack Overflow:** Frequently visited for troubleshooting API calls and debugging database connection issues.
- <https://developer.tomtom.com/>
- <https://emailjs.com/>
- **GitHub Discussions:** Used to understand similar project implementations and error resolutions in real-world scenarios.

### Other Resources

- **YouTube Tutorials:** Watched tutorials for map API integration and JavaScript debugging strategies.
- <https://www.youtube.com/watch?v=dnBa2pTKYY0>
- <https://www.youtube.com/watch?v=dnBa2pTKYY0>
- **Online Courses:** Completed modules on API handling and database structuring from platforms like Coursera and Udemy.

