Project Phases Overview for RealHome Project

1. Requirement Analysis (Week 1)

Objective: Define the project's core requirements, target audience, and feature set, ensuring alignment with RealHome's objectives as a real estate platform.

- **Tasks:**
  - **Luvuyo** worked on outlining the frontend styling and user interface (UI) expectations for the RealHome platform. This included identifying the essential components for a consistent and visually appealing UI across different devices, with emphasis on property listings and search functions.
  - **Ross** researched backend requirements for the "Contact Us" page, as well as integrations for email notifications and map API for location-based property searches. He documented the necessary API features and security protocols, ensuring smooth interaction between the frontend and backend.
- **Outcomes:**
  - Established core requirements for UI, property listings, user account management, and real-time map integration.
  - Defined essential security protocols, including user data protection, to align with industry standards.

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2. Design (Week 2)

Objective: Develop wireframes, UI/UX designs, and define the structure and appearance of the platform, focusing on user engagement and accessibility.

- **Tasks:**
  - **Luvuyo** created wireframes for the website's primary components (e.g., property listings, search filters, user profile). These wireframes highlighted responsive design considerations, ensuring compatibility across desktop and mobile devices.
  - **Ross** structured backend API endpoints to support front-end functionality, such as managing user inputs on the "Contact Us" page and handling property data requests. He reviewed UI/UX decisions to verify that backend responses would be timely and efficient.
- **Challenges:**
  - Ensuring the design was both attractive and functional while being responsive for mobile devices.
  - Integrating wireframe structures with backend data flow for seamless interaction.
- **Outcomes:**
  - Finalized wireframes for the project and set a blueprint for UI/UX design.
  - Documented all backend API endpoints necessary for smooth integration with the frontend.

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3. Development (Weeks 3-5)

Objective: Code and implement the core functionalities of the platform, covering both frontend and backend development.

Frontend Development (Luvuyo's Focus)

- **Week 3:**
  - Developed initial UI components, including the user authentication screens and property listing pages.
  - Implemented CSS for styling, focusing on creating a cohesive design language.
  - Began working on responsive styling, testing layouts on different devices.
- **Week 4:**
  - Added interactive search and filter options for property listings, allowing users to search by location, price, and property type.
  - Integrated the map-based search UI, enabling users to view properties on a map.
  - Troubleshooted map API issues, adjusting API query functions to improve accuracy and interaction with the search filters.
- **Week 5:**
  - Finalized the user interface for the property search and user profile management.
  - Ensured frontend components were responsive, with adjustments for both web and mobile views.
  - Coordinated with Ross to test initial database integration, verifying that data retrieved was correctly displayed.

Backend Development (Ross's Focus)

- **Week 3:**
  - Developed the "Contact Us" page's backend, including email API integration for notifications.
  - Configured the backend architecture for user registration and login functionalities, adding data validation and session handling.
- **Week 4:**
  - Integrated map API with the backend, enabling searches and property location mapping.
  - Faced challenges with API query interactions, which required reconfiguration of API calls for consistent functionality.
- **Week 5:**
  - Connected MySQL database to store and retrieve user information and property listings, ensuring smooth backend-to-frontend data flow.
  - Set up security measures to protect user data, including input validation and secure data handling protocols.

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4. Testing (Weeks 3-7)

Objective: Ensure the website is functional, secure, and provides a seamless user experience through comprehensive testing.

- **Tasks:**
  - **Frontend Testing (Luvuyo)**:
    - Performed cross-browser and device compatibility testing to ensure a consistent experience.
    - Verified UI responsiveness, identifying any styling or layout discrepancies.
    - Addressed performance issues with map-based search, optimizing the number of API calls for faster load times.
  - **Backend Testing (Ross)**:
    - Tested “Contact Us” form submissions, ensuring email notifications were sent without errors.
    - Verified database interactions, including data retrieval and saving user profiles.
    - Performed load testing on the backend, identifying performance bottlenecks and optimizing database queries.
- **Outcomes:**
  - Resolved initial bugs, including frontend styling adjustments and backend API call modifications.
  - Verified that all essential functions (search, contact form, and map-based property display) worked as expected.

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5. Deployment (Week 7)

Objective: Deploy the fully-tested website on a cloud server, making it accessible to users.

- **Tasks:**
  - **Hosting and Cloud Deployment (Ross)**:
    - Selected and configured the hosting environment to support traffic and API needs.
    - Implemented security measures, including SSL certificates, for safe data transmission.
    - Connected all APIs (map, email) to the live environment, ensuring they worked seamlessly.
  - **Final Frontend Adjustments (Luvuyo)**:
    - Conducted final styling tweaks to optimize the user experience across devices.
    - Ensured responsive design was intact post-deployment, resolving any layout issues identified in the live environment.
- **Outcomes:**
  - The RealHome platform was successfully deployed and fully functional.
  - All essential functions (user sign-up, property search, map display, contact form) were live and tested in the production environment.

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6. Maintenance (Weeks 6-11)

Objective: Provide continuous updates and improvements based on user feedback and performance monitoring.

- **Week 6: Initial Feedback Collection**
  - **Luvuyo** gathered user feedback on UI/UX and made minor adjustments to improve navigation.
  - **Ross** monitored backend performance and fine-tuned API call frequencies to reduce latency.
- **Week 7: Performance Optimization**
  - **Luvuyo** optimized CSS and JavaScript to improve page load times.
  - **Ross** implemented caching strategies to decrease backend server load and response time for database queries.
- **Week 8: Security Enhancements**
  - **Luvuyo** updated frontend security measures to prevent XSS attacks by sanitizing user inputs.
  - **Ross** reinforced backend security, adding data encryption for sensitive user information.
- **Week 9: User Interface Refinements**
  - **Luvuyo** made refinements to property search filters and map interactions for a smoother experience.
  - **Ross** ensured API response times remained consistent despite increased usage.
- **Week 10: Bug Fixing and API Enhancements**
  - **Luvuyo** addressed minor styling bugs and optimized the frontend for better interactivity.
  - **Ross** optimized database queries, reducing any remaining latency issues in API responses.
- **Week 11: Final Optimization and Documentation**
  - **Luvuyo** finalized any remaining UI adjustments based on additional user feedback and prepared documentation for the frontend.
  - **Ross** completed backend documentation, summarizing the API integration, database structure, and hosting configuration for future maintenance.

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	☑
2	Create wireframes and design the UI/UX	Completed	☑
3	Set up version control repository on GitHub	completed	☑
4	Develop frontend with HTML, CSS, JavaScript/React.js	completed	☑
5	Develop backend with PHP/Node.js/Python	completed, code written and php has working db but integration has been an issue	☑
6	Implement database with MySQL/PostgreSQL/MongoDB	completed	☑
7	Integrate Google Maps API for property locations	completed	☑
8	Integrate secure user authentication system	completed	☑
9	Implement user registration and login features	completed	☑
10	Develop property listing functionality	completed	☑
11	Implement search and filter functionality	completed	☑
12	Create property details page	completed	☑
13	Develop agent profiles and contact forms	completed	☑
14	Implement favorites and wishlist features	completed	☑
15	Ensure mobile responsiveness	completed	☑
16	Perform thorough testing for bugs, performance, and security	actively working on	☑
17	Deploy website on cloud server	completed	☑
18	Ongoing maintenance and updates based on user feedback	ongoing	☑
19	Complete WIL logbook detailing time spent on tasks	completed	☑
20	Submit a zip file with signed logbook and PDF outlining phases	completed	☑