**Project Management Plan (Agile Scrum - 5 Sprints)**

**Methodology:** Agile Scrum  
**Teams:**

* **Frontend Team** (Vue.js + TailwindCSS)
* **Backend Team** (Node.js + Express)
* **Database Team** (PostgreSQL)
* **Deployment Team** (Azure Cloud Services)

**🚀 Sprint 1: Project Setup & Initial Development**

**Goal:**

* Set up the foundational project structure for all teams.
* Establish CI/CD pipelines for automated testing and deployment.

**Due Date: Week 1 - Week 2**

**Tasks:**

* **Frontend Team:** Initialize Vue.js with TailwindCSS, set up project structure, create basic UI wireframes.
* **Backend Team:** Set up Node.js with Express, create basic API structure, authentication system.
* **Database Team:** Define database schema, set up PostgreSQL, create initial migrations.
* **Deployment Team:** Set up Azure infrastructure (Static Web Apps, App Services, PostgreSQL).

**Integration & Prototype Demo:**

* A basic login/logout system with a UI, API, and database connection.
* The frontend will authenticate users via JWT and store data in PostgreSQL.
* Deploy the prototype to Azure for internal testing.

**⚡ Sprint 2: Core Feature Development**

**Goal:**

* Implement key features such as blogs, user profiles, and data storage.

**Due Date: Week 3 - Week 4**

**Tasks:**

* **Frontend Team:** Build UI for user registration, login, and blog creation.
* **Backend Team:** Implement CRUD API endpoints for blogs, users, and comments.
* **Database Team:** Optimize queries, enforce relationships (users -> blogs -> comments).
* **Deployment Team:** Configure API gateway, enable monitoring for logs and performance.

**Integration & Prototype Demo:**

* A working system where users can register, log in, and create blog posts.
* Blog posts will be stored in PostgreSQL and retrieved via APIs.
* Deployment is fully automated through CI/CD.

**🎯 Sprint 3: Enhancing UX & Security**

**Goal:**

* Improve UI/UX and implement security best practices.

**Due Date: Week 5 - Week 6**

**Tasks:**

* **Frontend Team:** Improve UI/UX using TailwindCSS animations, enhance user experience.
* **Backend Team:** Implement authentication guards, rate limiting, and security middleware.
* **Database Team:** Implement indexing, caching (Redis), and query optimizations.
* **Deployment Team:** Set up automated security scanning & logging in Azure Monitor.

**Integration & Prototype Demo:**

* A more visually appealing, responsive UI with a smooth user experience.
* Enforced JWT authentication and secured API endpoints.
* Monitor error logs and performance in Azure.

**🛠 Sprint 4: Testing & Optimization**

**Goal:**

* Conduct extensive unit, integration, and performance testing.

**Due Date: Week 7 - Week 8**

**Tasks:**

* **Frontend Team:** Write Cypress tests for UI interactions and accessibility tests.
* **Backend Team:** Implement Jest tests for API endpoints and database interactions.
* **Database Team:** Perform load testing with large datasets, refine query performance.
* **Deployment Team:** Conduct security penetration tests, optimize server scaling.

**Integration & Prototype Demo:**

* A stable, optimized, and secure version of the application.
* Comprehensive testing to ensure minimal bugs and fast performance.
* Prepares for final deployment and client feedback.

**🚀 Sprint 5: Final Deployment & Client Demo**

**Goal:**

* Deploy the final version, conduct user training, and collect feedback.

**Due Date: Week 9 - Week 10**

**Tasks:**

* **Frontend Team:** Final UI/UX refinements based on user feedback.
* **Backend Team:** Optimize API responses, document REST API for client reference.
* **Database Team:** Ensure backups, finalize migrations, and run performance tests.
* **Deployment Team:** Deploy final version to Azure with auto-scaling and monitoring.

**Final Prototype Delivery:**

* A polished, fully functional web application.
* Conduct a client demo, collect feedback, and iterate for future improvements.
* Handover documentation and training for future maintenance.

**💡 Summary: How We Achieve Each Sprint**

* **Daily Stand-ups:** Quick team meetings to track progress.
* **Weekly Reviews:** Ensure all teams are aligned and on track.
* **Biweekly Sprint Demos:** Each sprint ends with a working prototype demo.
* **Continuous Integration:** Automated testing and deployment pipelines in Azure.

By following this agile roadmap, we ensure smooth development, early feedback, and a well-integrated system! 🚀