KitaHub Roadmap

Sprint Overview

1. **Sprint 1 (Sept 30th – Oct 14th):** Foundation Development
2. **Sprint 2 (Oct 14th – Nov 6th):** Dashboard Implementation
3. **Sprint 3 (Nov 6th – Nov 20th):** Pub/Sub System Development
4. **Sprint 4 (Nov 20th – Dec 4th):** Production Environment Setup
5. **Sprint 5 (Dec 4th – Dec 18th):** System Testing and User Engagement

Sprint 1: Foundation Development

Timeline: September 30th – October 14th

Objectives

- **System Design Diagram:**
  - Develop a high-level system architecture diagram.
  - Outline components such as frontend, backend, database, and third-party services.
- **PostgreSQL Data Model:**
  - Create the initial data model for PostgreSQL.
  - Publish the data model diagram on DbDiagram.io.
- **API Design:**
  - Design RESTful APIs for the dashboard and question-and-answer board.
  - Document endpoints, request/response formats, and authentication methods.
- **Authentication System:**
  - Implement a secure authentication system.
  - Include user registration, login, password hashing, and session management.

Deliverables

- High-level system design diagram.
- Published PostgreSQL data model on DbDiagram.
- API design documentation.
- Functional authentication system integrated into the application.

Sprint 2: Dashboard Implementation

Timeline: October 14th – November 6th

Objectives

- **Dashboard UI:**
  - Develop the [user interface](#) for the dashboard using Next.js.
  - Ensure responsive design and intuitive navigation.
- **Redis Pub/Sub Data Model:**
  - Design the data model for the Redis Pub/Sub system.
  - Outline channels, message formats, and subscription patterns.

Deliverables

- Fully implemented dashboard UI.
- Redis Pub/Sub data model documentation.

Sprint 3: Pub/Sub System Development

Timeline: November 6th – November 20th

Objectives

- **Local Pub/Sub System:**
  - Implement the Redis Pub/Sub system running locally.
  - Test message publishing and subscription functionalities.
- **Development Environment Setup:**
  - Create a development environment using Docker and LocalStack.
  - Orchestrate Next.js app, Redis Pub/Sub system, PostgreSQL database, and other services.

Deliverables

- Functional local Redis Pub/Sub system.
- Docker-compose files for development environment.
- Documentation for setting up and running the development environment.

Sprint 4: Production Environment Setup

Timeline: November 20th – December 4th

Objectives

- **Production Deployment:**
  - Set up the production environment on AWS, Redis Cloud, and Neon.
  - Deploy the Next.js app, databases, and services to the cloud.
- **Networking and Security:**
  - Configure Virtual Private Cloud (VPC) and networking settings.
  - Ensure secure communication between services.
- **Quality Assurance Testing:**
  - Perform end-to-end testing in the production environment.
  - Identify and fix bugs or performance issues.

Deliverables

- Live production environment with all components deployed.
- VPC and networking configurations.
- QA test reports and issue logs.

Sprint 5: System Testing and User Engagement

Timeline: December 4th – December 18th

Objectives

- **Stress Testing:**
  - Conduct performance and load testing to evaluate system scalability.
  - Optimize system based on test results.
- **User Onboarding:**

- ○ Coordinate with Ramesh to create a class on KitaHub.
  - ○ Facilitate classmates' sign-up and interaction with the system.
- **Feedback Collection:**
  - ○ Gather user feedback on functionality and usability.
  - ○ Prioritize enhancements and fixes based on feedback.

Deliverables

- Stress test results and optimization reports.
- Successful user onboarding and interaction records.
- Compiled user feedback and action plan for improvements.