

Social Media System Design - Progressive Stages

Stage 1: Basic CRUD Operations

Architecture Overview

Simple monolithic architecture with basic CRUD operations for users and posts.

```
graph TB
    subgraph "Stage 1: Basic CRUD"
        Client[Client/Browser]
        API[API Server<br/>User CRUD<br/>Post CRUD]
        DB[(Relational Database<br/>PostgreSQL/MySQL)]
        
        Client -->|HTTP Requests| API
        API -->|SQL Queries| DB
        DB -->|Query Results| API
        API -->|HTTP Response| Client
    end
    
    style API fill:#4A90E2
    style DB fill:#50C878
```

Data Flow

```
sequenceDiagram
```

```
    participant C as Client  
    participant A as API Server  
    participant D as Database
```

Note over C,D: Create Post Flow

C→>A: POST /api/posts

A→>D: INSERT INTO posts

D→>A: Success

A→>C: 201 Created

Note over C,D: Get Posts Flow

C→>A: GET /api/posts

A→>D: SELECT * FROM posts

D→>A: Posts Data

A→>C: 200 OK + Posts

Database Schema

```
erDiagram
    USERS }||--o{ POSTS : creates
    USERS {
        int id PK
        string username
        string email
        string password_hash
        timestamp created_at
        timestamp updated_at
    }
    POSTS {
        int id PK
        int user_id FK
        string title
        text content
        int votes
        timestamp created_at
        timestamp updated_at
    }
```