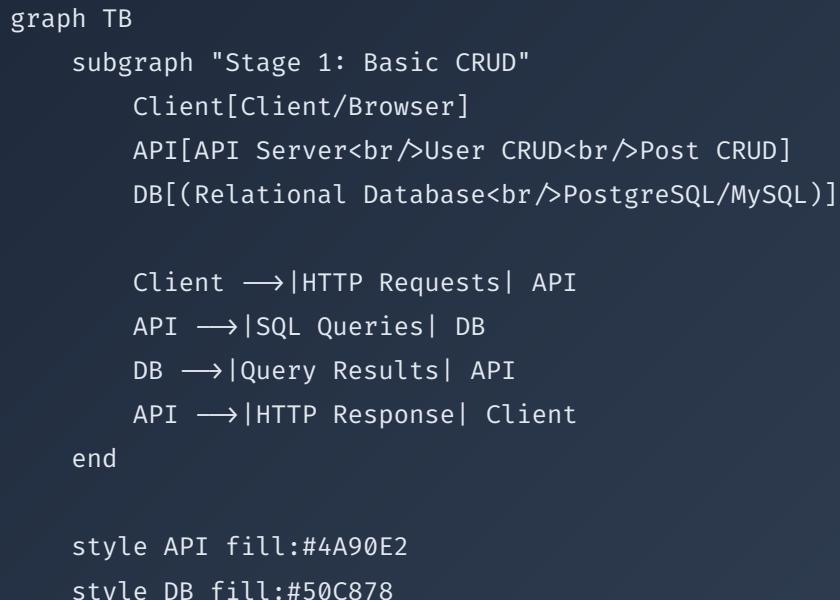# Social Media System Design - Progressive Stages

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
    }
```