

# WEEK 1 DOCUMENTATION

## Project Name: SentinelStream – Project Overview & Requirements

### Project Overview

SentinelStream is a real-time fraud detection system designed to analyze financial transactions and identify suspicious activity instantly. It acts as an intermediary between the payment gateway and the bank's internal systems. The system validates transactions, predicts fraud risk using machine learning, and stores results securely. Its goal is to prevent fraud while maintaining low latency and high reliability.

### Functional Requirements

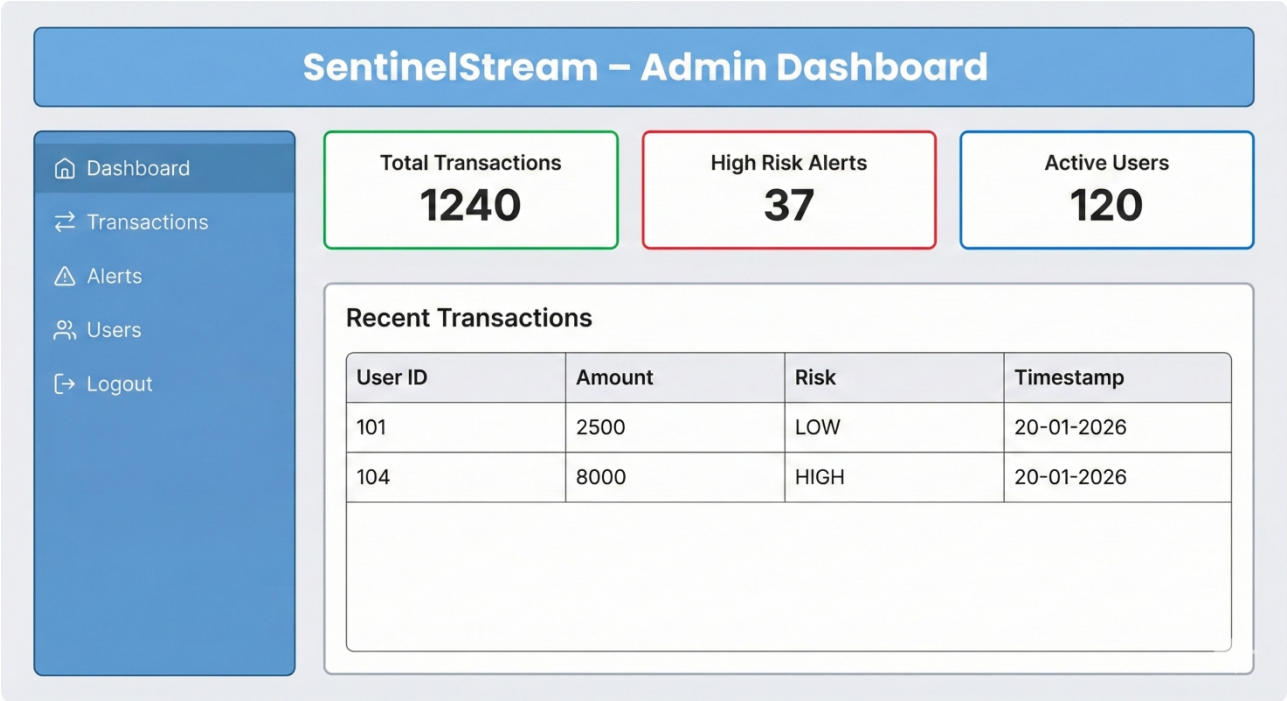
- Accept transaction requests in real time
- Validate incoming transaction data
- Predict fraud risk using an ML model
- Store transaction details and risk scores
- Return approve or decline decision to the gateway

### Non-Functional Requirements

- Low latency response (under 200 ms)
- High availability and reliability
- Secure handling of sensitive data
- Scalable to handle high transaction volume

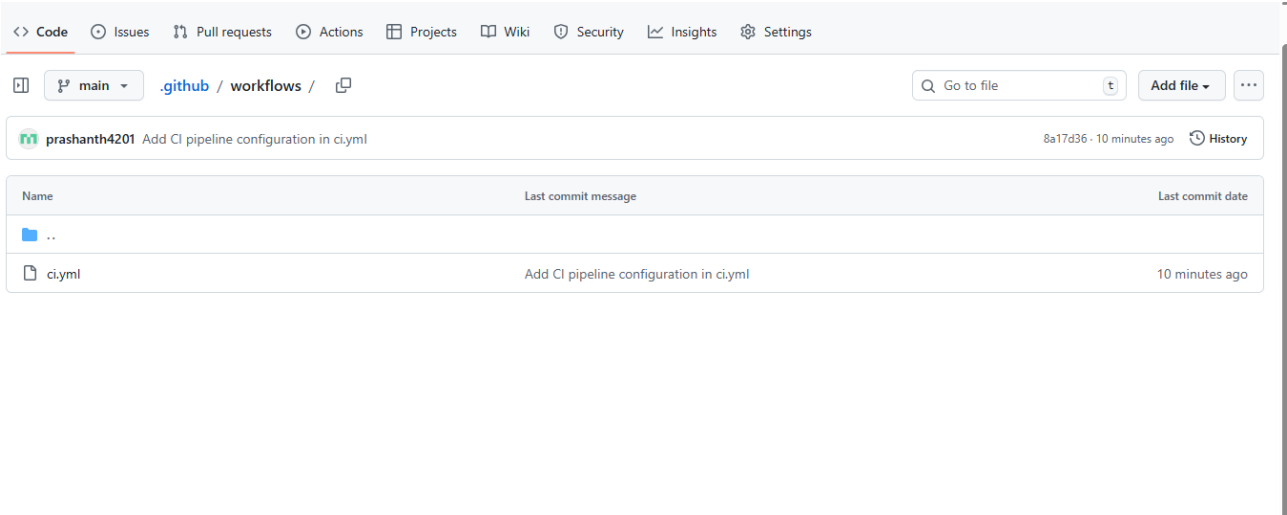
### Admin Dashboard Wireframe

This wireframe represents the proposed Admin Dashboard for SentinelStream. It allows administrators to monitor total transactions, high-risk alerts, and active users in real time. The dashboard provides visibility into recent transactions along with risk classification, enabling quick fraud investigation and decision-making.



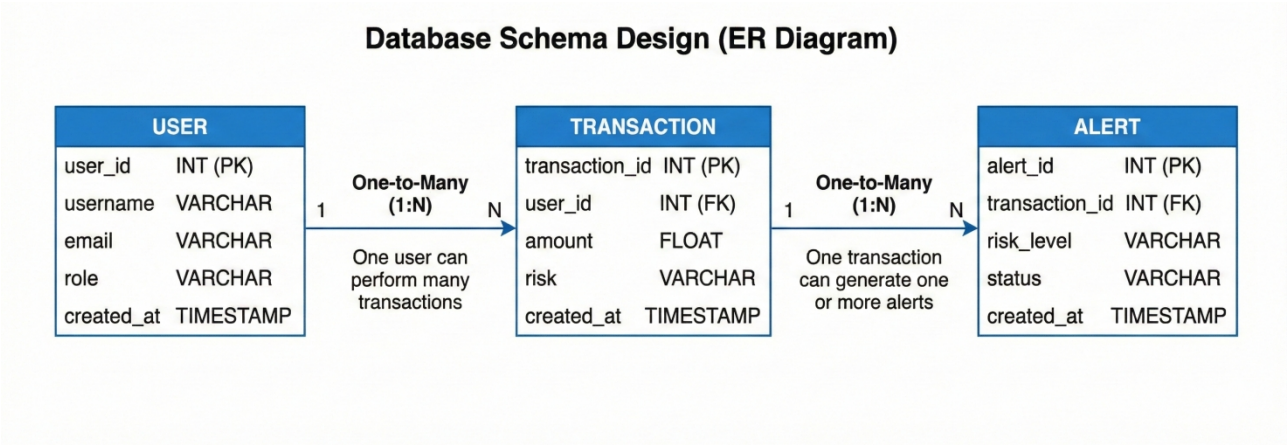
## CI/CD Pipeline Setup

A CI pipeline has been configured using GitHub Actions. On every push to the main branch, the pipeline automatically validates the project structure and ensures code consistency. This enables continuous integration and early error detection.

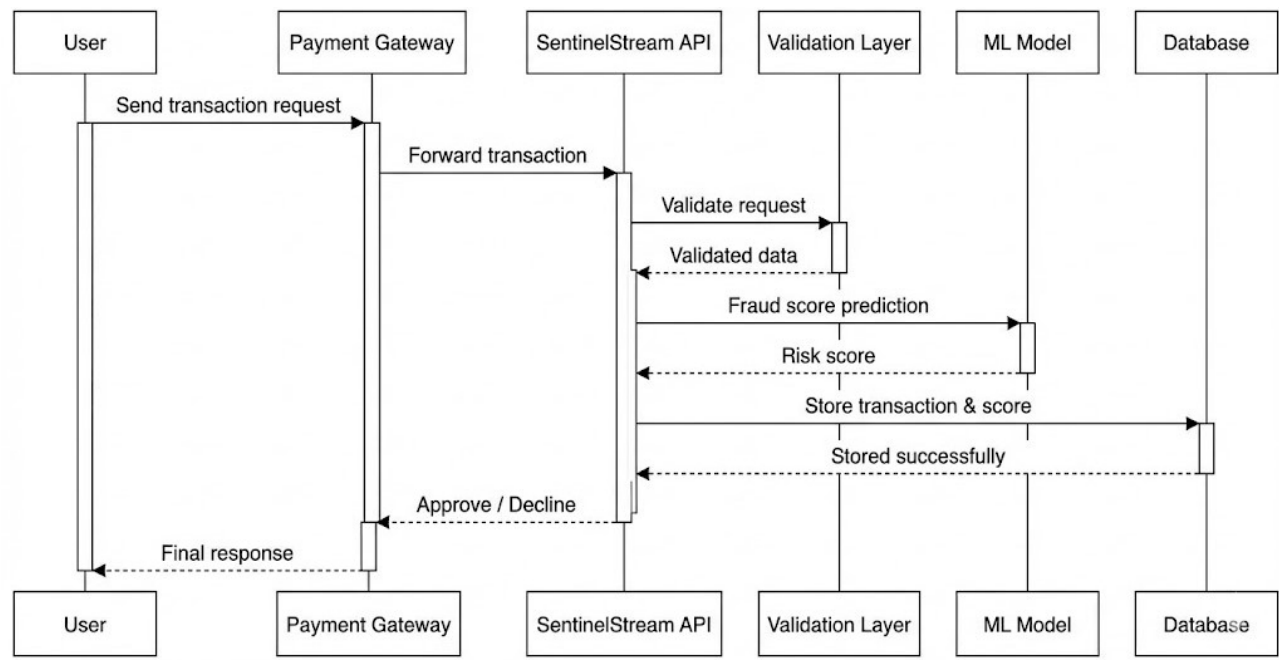


# Database Normalization

The SentinelStream database schema follows Third Normal Form (3NF). Each entity (User, Transaction, Alert) is separated to eliminate data redundancy and ensure data integrity, scalability, and efficient querying.



## Sequence Diagram



## Commands Used(Planning, GitHub & CI/CD)

```
git clone https://github.com//sentinelstream.git
```

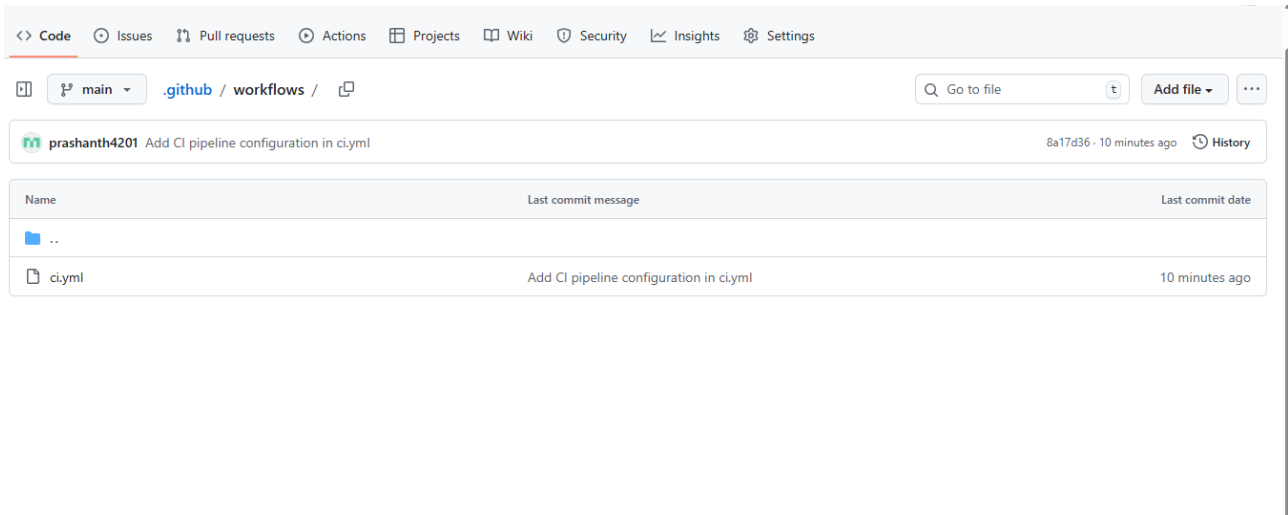
```
cd sentinelstream
```

```
git add .
```

```
git commit -m "Initial project setup"
```

```
git push origin main
```

CI/CD configured using GitHub Actions at: `.github/workflows/ci.yml`



The screenshot shows the GitHub repository page for `sentinelstream`. The breadcrumb navigation indicates the current location is `.github / workflows /`. A commit history table is displayed, showing the commit `8a17d36` made 10 minutes ago by user `prashanth4201`. The commit message is "Add CI pipeline configuration in ci.yml". The table lists the files changed in this commit: `..` (parent directory) and `ci.yml` (new file).

Name	Last commit message	Last commit date
..		
ci.yml	Add CI pipeline configuration in ci.yml	10 minutes ago