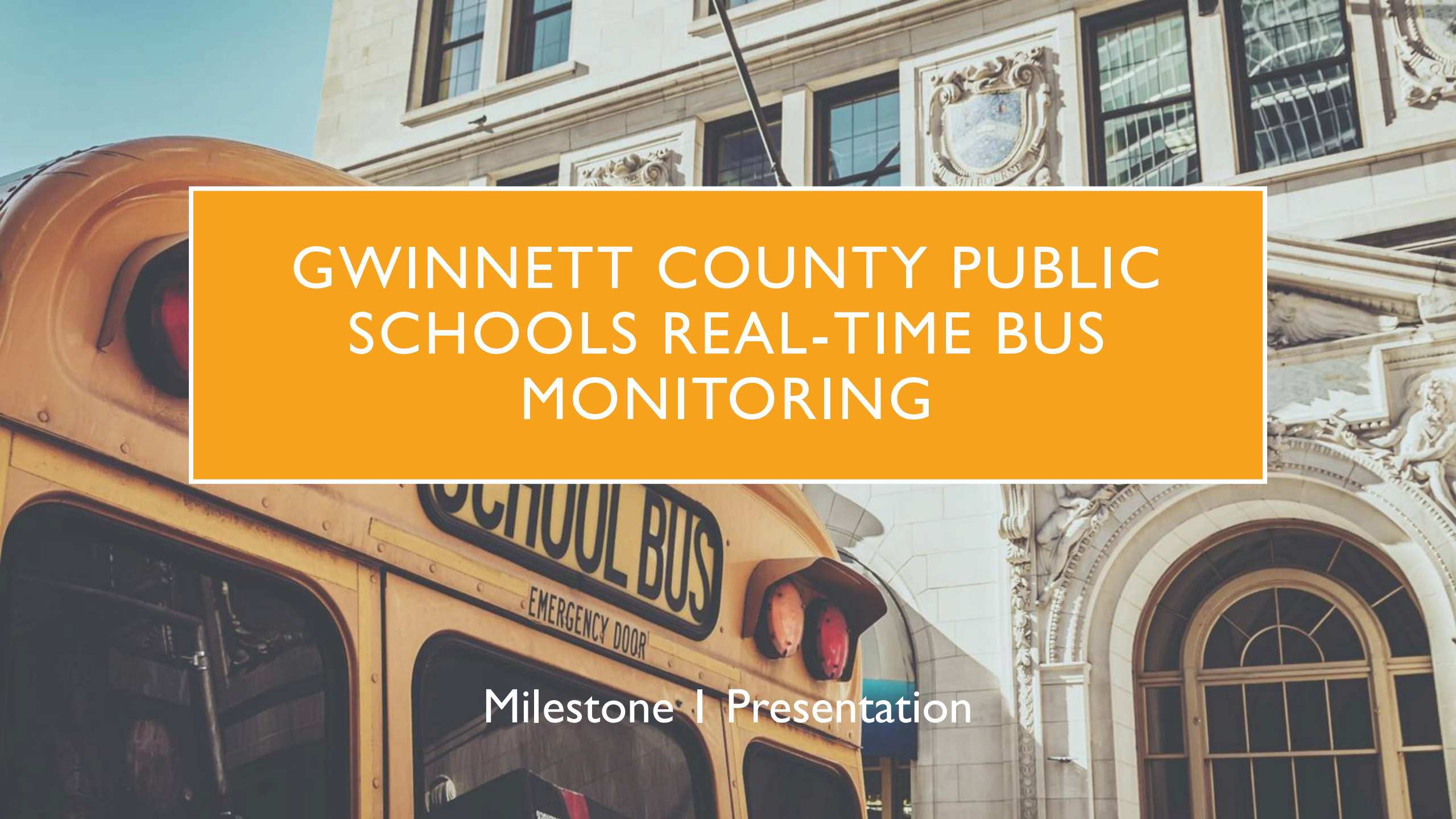


GWINNETT COUNTY PUBLIC SCHOOLS REAL-TIME BUS MONITORING

Milestone I Presentation

TEAM 3
CS 4850 – PROFESSOR PERRY

SAM BOSTIAN

Team Role: Team Leader

Major: Computer Science

Graduation: Fall 2024

Experience:
- Head Brewer at Sweeten Creek Brewing
- Research Project – Parallel Processing

About me:
- Enjoys woodwork and house projects
- Reading Technical Books

sbostian@students.kennesaw.edu

BRIAN PRUITT

Team Role: Documentation

Major: Computer Science

Graduation: Fall 2024

Experience:

- Software Engineer Intern with The Home Depot for 3 Summers
- Primarily worked with front-end React applications and GCP database solutions.

About me:

- Getting married in October 2024!
- Has two dogs, Ella and Nova
- Part-time wedding DJ

bpruitt9@students.kennesaw.edu

MICHAEL RIZIG

Team Role: Developer

Major: Computer Science

Graduation: Spring 2025

Experience:

- Intern at Delta Community Credit Union for 2 years

About Me:

- Dual Degree Program at Kennesaw State University (BS-CS / MS-CS)

- Big Fan of the Office

mrizig@students.kennesaw.edu

CHARLIE MCLARTY

Team Role: Developer

Major: Computer Science

Graduation: Fall 2024

Experience:

- Full Stack Developer Intern at Renmatix
- Undergraduate Research Assistant Fall 2021 - Spring 2022

About Me:

- Enjoys disc golf and watching football

cmclart4@students.kennesaw.edu

ALLEN ROMAN

Team Role: Developer

Major: Computer Science

Graduation: Spring 2025

Experience:
- Intern at ADP in front-end and cloud development

About Me:
- Play bass in a band
- Love snowboarding

aroman14@students.kennesaw.edu

COLLABORATION TOOLS

Github:

Code Management and Version Control

- We use GitHub to track code changes, manage versions, and collaborate on code development.

Microsoft Office:

Document creation and project management

- We use Microsoft Office tools like Word and PowerPoint for documentation, reports, and team collaboration.

COMMUNICATION TOOLS

Microsoft Teams:

Used for formal communication, weekly meetings with stakeholders (industry), and project status updates.

Discord:

Used for day-to-day team communication, quick messaging, and informal discussions.

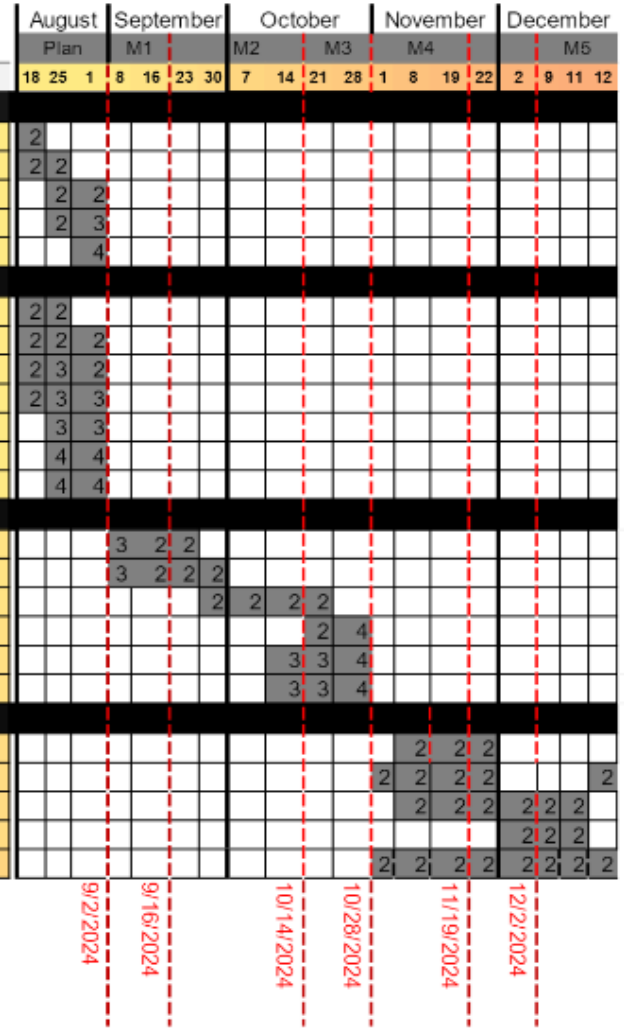
PROJECT PLAN

GCPS Bus Monitoring System

Sam Bostian, Michael Rizig, Charlie McLarty, Brian Pruitt

Project Start

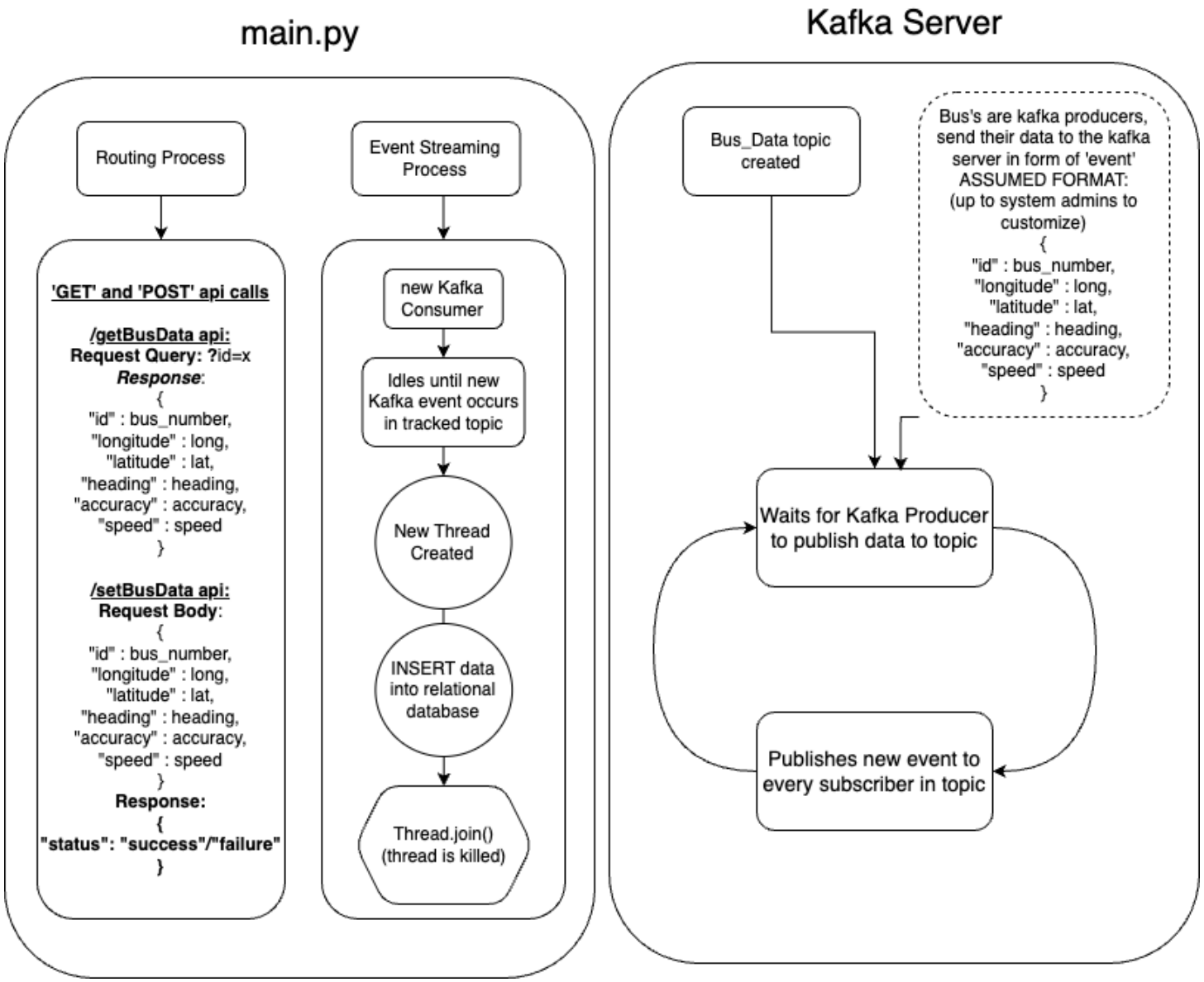
TASK	ASSIGNED TO	PROGRESS	START	END
Planning				
Define goals and project scope	ALL	100%	8/12/2024	8/15/2024
Define timeline	Michael Rizig	100%	8/15/2024	8/17/2024
Set Milestone Dates	Sam Bostain	100%	8/17/2024	8/21/2024
Define Resources Required	Charlie McLarty	100%	8/21/2024	8/24/2024
Complete Project Plan	Michael Rizig	100%	8/18/2024	9/1/2024
Design				
Define Dependencies	Sam Bostian	0%	8/12/2024	8/31/2024
Create SDD Document	Brian Pruitt	0%	8/12/2024	8/28/2024
Create SRS Documents	ALL	0%	8/12/2024	8/31/2024
Define Design Elements	ALL	0%	8/12/2024	8/31/2024
Compare/Analyze designs	Sam,Michael,Brian	0%	8/12/2024	9/2/2024
Complete SDD	Sam,Charlie,Brian	0%	8/12/2024	9/2/2024
Complete SRS	ALL	0%	8/12/2024	9/2/2024
Execution				
Create Development Document	Michael Rizig	0%	9/10/2024	9/30/2024
Build Backend	Sam Bostian	0%	9/10/2024	9/30/2024
Establish Database	Charlie McLarty	0%	9/15/2024	9/30/2024
Containerization	Sam,Michael	0%	10/8/2024	10/29/2024
Create Presentation and Demo	Brian Pruitt	0%	10/8/2024	10/29/2024
Test, evaluate, and debug	Charlie McLarty	0%	9/20/2024	10/29/2024
Evaluation				
Create Software Test Plan	Charlie McLarty	0%	9/23/2024	11/27/2024
Clean up Prototype	Sam,Michael,Brian	0%	9/28/2024	11/27/2024
Final debugging	Sam, Charlie	0%	9/28/2024	11/27/2024
Complete Testing Documentation	Michael, Charlie	0%	9/29/2024	11/27/2024
Complete Final report	ALL	0%	9/17/2024	12/2/2024

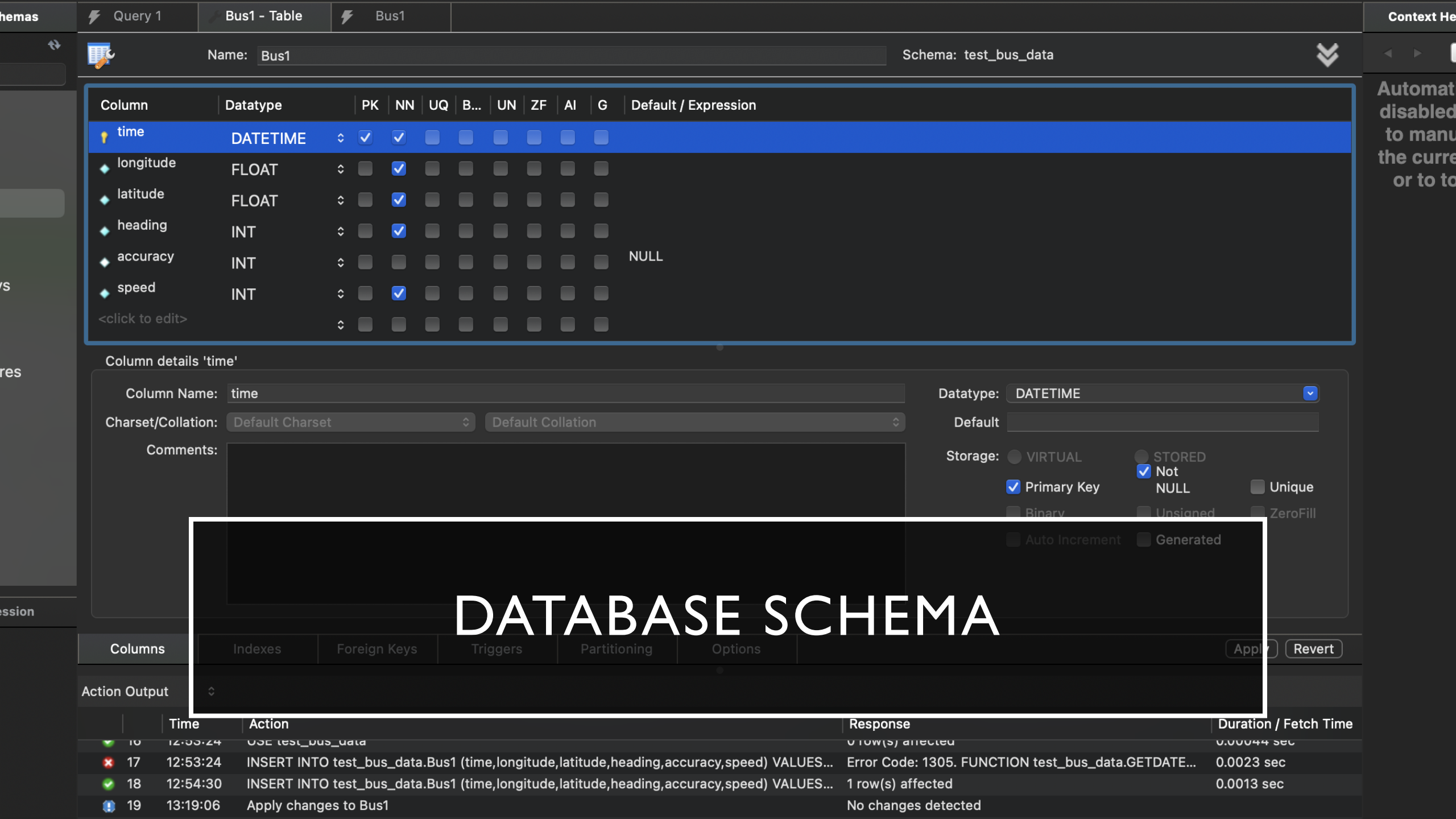


Milestone	Description	Due Date	Completion
Plan	Project Plan Document	9/1/2024	☐
M1	Initial Development	9/16/2024	☐
M2	Database and Event Lo	10/14/2024	☐
M3	Containerization	10/28/2024	☐
M4	C-Day	11/19/2024	☐
M5	Final Deliverable	12/2/2024	☐

DESIGN

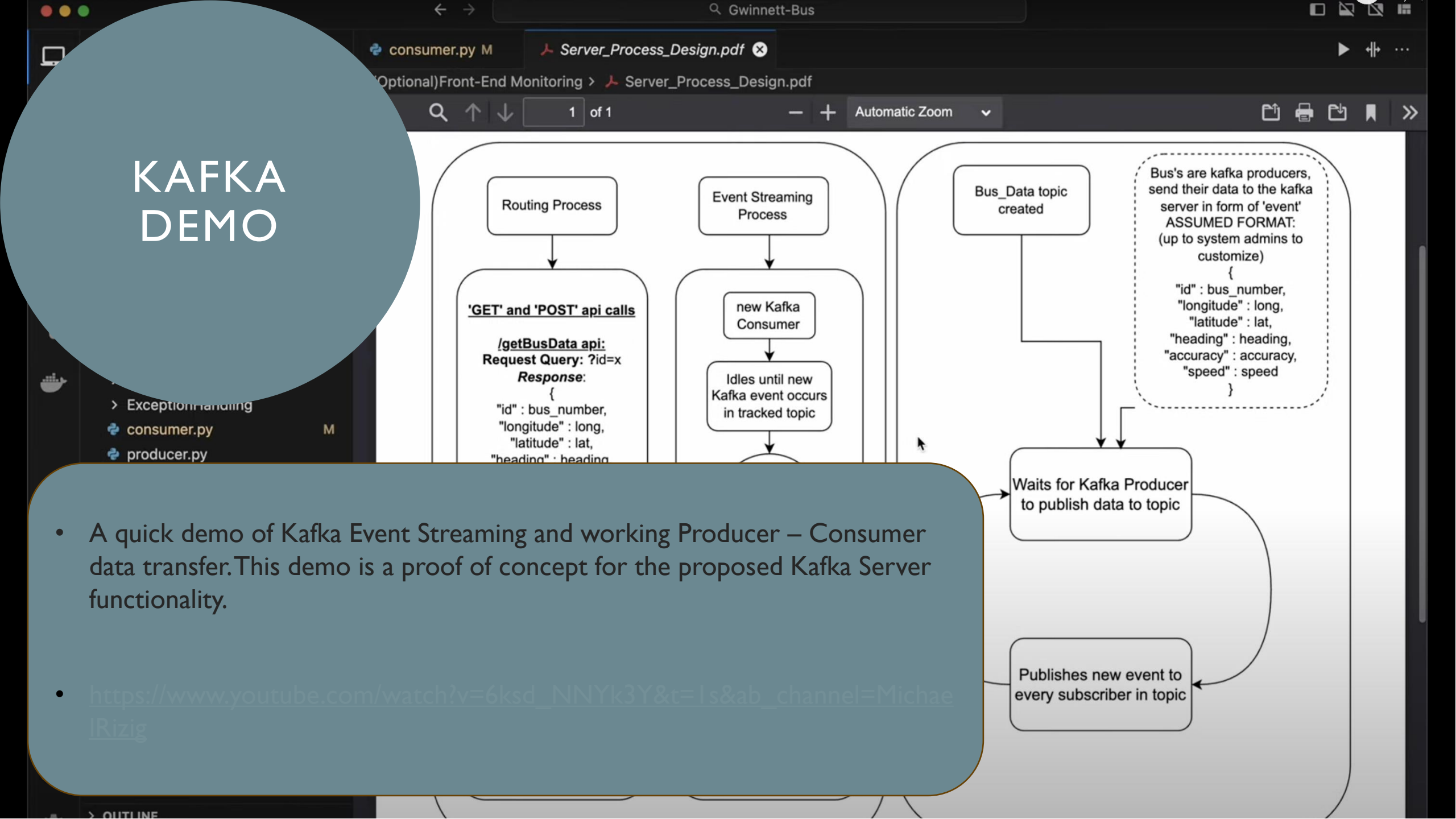
Server Process Design



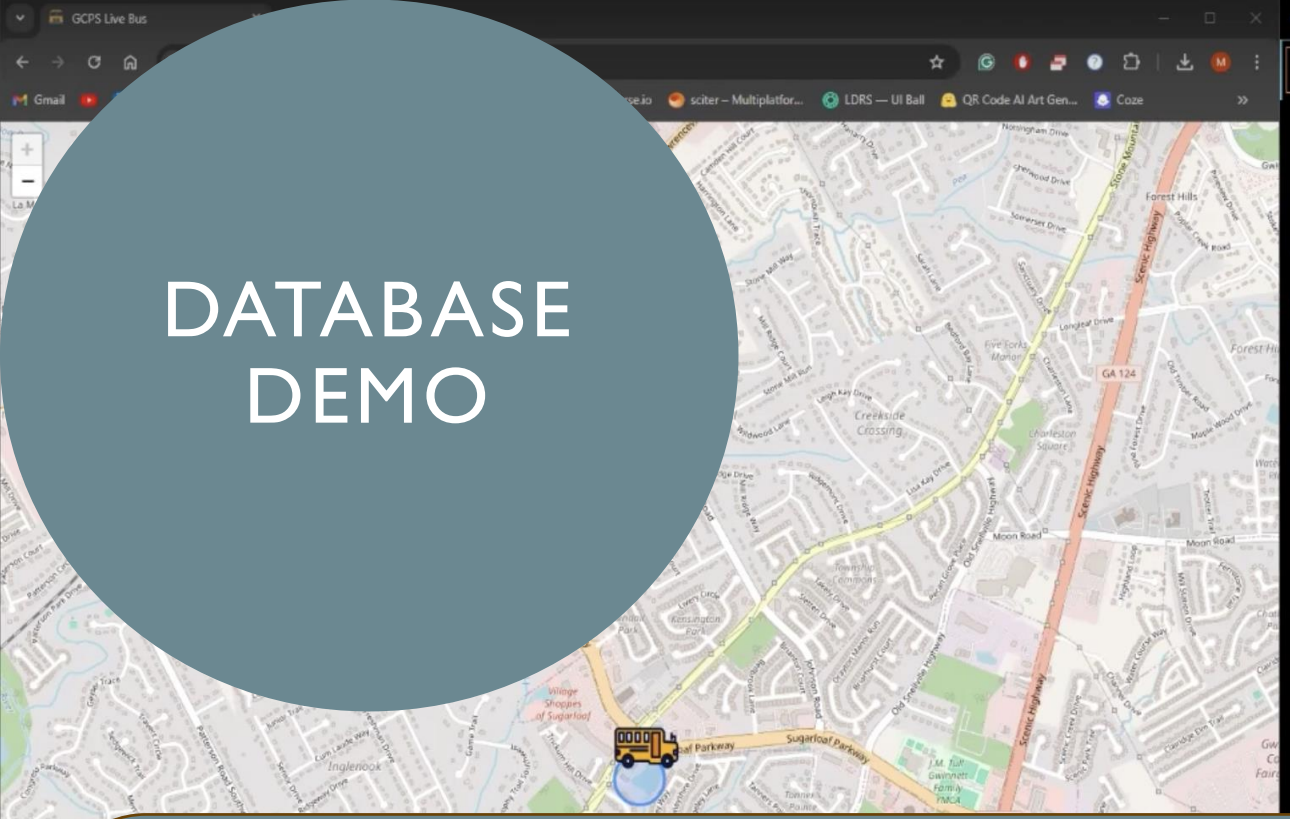

Query 1
Bus1 - Table
Bus1
Name: Bus1
Schema: test_bus_data
Column
Datatype
PK
NN
UQ
B...
UN
ZF
AI
G
Default / Expression
time
DATETIME
longitude
FLOAT
latitude
FLOAT
heading
INT
accuracy
INT
NULL
speed
INT
<click to edit>
Column details 'time'
Column Name: time
Charset/Collation: Default Charset
Default Collation
Comments:
Datatype: DATETIME
Default
Storage: VIRTUAL STORED
Primary Key
Not NULL
Unique
Binary
Unsigned
ZeroFill
Auto Increment
Generated
DATABASE SCHEMA
Columns
Indexes
Foreign Keys
Triggers
Partitioning
Options
Revert
Action Output
Time
Action
Response
Duration / Fetch Time
17 12:53:24 INSERT INTO test_bus_data.Bus1 (time,longitude,latitude,heading,accuracy,speed) VALUES... Error Code: 1305. FUNCTION test_bus_data.GETDATE... 0.0023 sec
18 12:54:30 INSERT INTO test_bus_data.Bus1 (time,longitude,latitude,heading,accuracy,speed) VALUES... 1 row(s) affected 0.0013 sec
19 13:19:06 Apply changes to Bus1 No changes detected

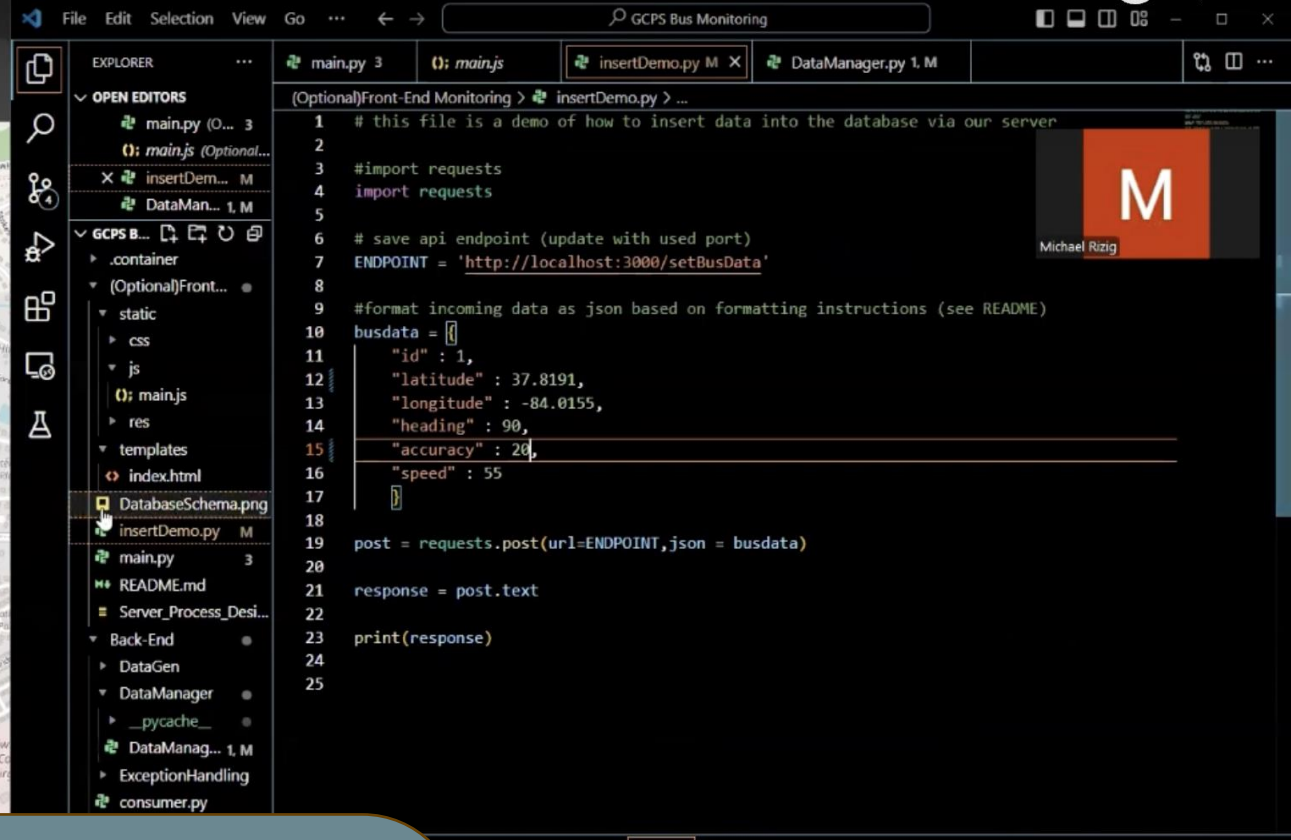
KAFKA DEMO

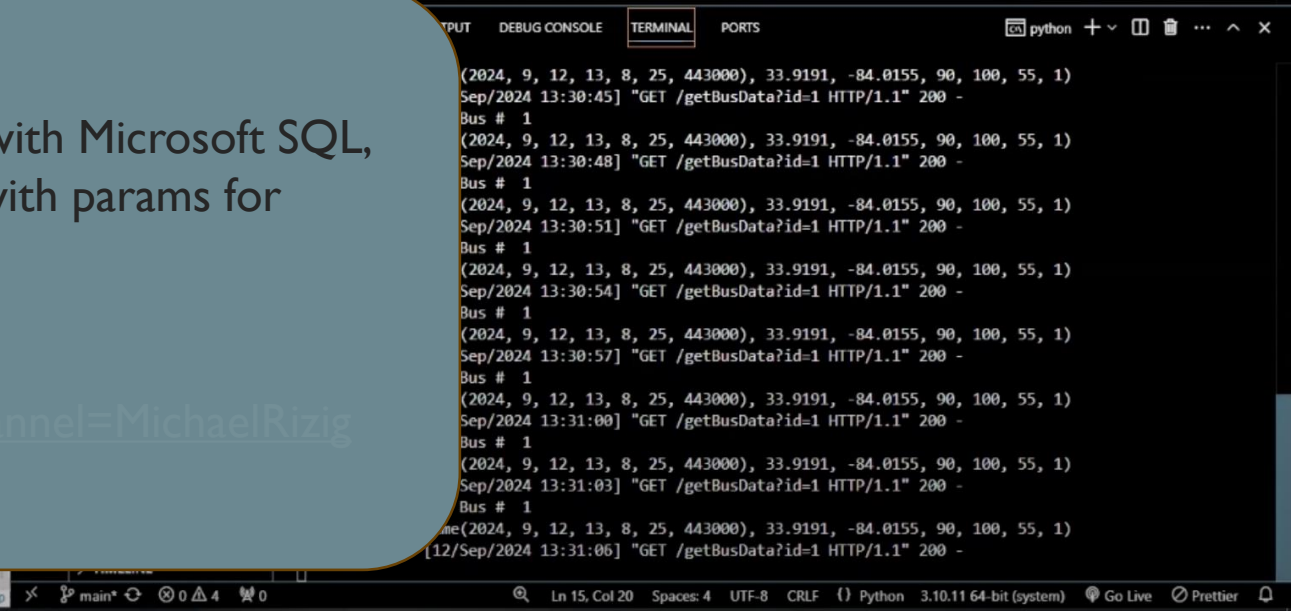
- A quick demo of Kafka Event Streaming and working Producer – Consumer data transfer. This demo is a proof of concept for the proposed Kafka Server functionality.
- https://www.youtube.com/watch?v=6ksd_NNYk3Y&t=1s&ab_channel=MichaelRizig



DATABASE DEMO







- A quick demo of database insertion, conditional queries with Microsoft SQL, as well as full stack communication via HTTPS requests with params for updated database records.

- https://www.youtube.com/watch?v=haKVglFf_5U&ab_channel=MichaelRizig