



12-T4-Gwinnett-Bus
Software Test Plan (STP)
CS 4850 - Section 3 – Fall 2024
Nov 10, 2024

Blake Cruz (Developer/Team Lead) 	Jericho Tuazon (Documentation) 

Team Members:

Name	Role	Cell Phone / Email
Blake Cruz (Team Lead)	Developer	678-591-5536 blakecruz8@gmail.com
Jericho Tuazon	Documentation	404-988-8199 jerichotuaz@gmail.com
Sharon Perry	Project Owner or Advisor	770.329.3895 Sperry46@kennesaw.edu

This document serves as the Software Test Plan to ensure all requirements are met. Results will be documented with Pass/Fail status and reviewed for any issues to be corrected.

Requirement	Pass	Fail	Severity
Kafka Consumer starts and connects to Kafka topics (BusLocation, BusSpeed).			Highest
Events are validated for correct format before SQL insertion.			High
Valid events are inserted into SQL Server in the BusData table.			High
Invalid events are logged in the RejectedData table.			Medium
Docker containerization runs smoothly with all components (Kafka, SQL Server, App).			High

Kafka Consumer starts and connects to Kafka topics (BusLocation, BusSpeed):

This requirement ensures that the Kafka Consumer component of the application successfully initiates and establishes a connection to the specified Kafka topics. Passing this test means that the consumer is actively receiving messages as expected. This is the most important test, because if this fails, then the entire application will not run correctly.

Events are validated for correct format before SQL insertion:

This requirement verifies that each event consumed from Kafka is checked for proper structure and necessary fields before it is sent to the SQL database. Validating data at this stage helps prevent incorrect or incomplete data from being inserted into the database, which could impact data integrity and downstream processing.

Valid events are inserted into SQL Server in the BusData table:

This requirement checks that only correctly formatted events are inserted into the BusData table in SQL Server. It ensures that the data pipeline from Kafka to the database works as expected and that valid data is stored in the intended table for further use and analysis.

Invalid events are logged in the RejectedData table:

This requirement confirms that events failing validation (e.g., due to missing fields or incorrect data types) are recorded in the RejectedData table. Logging these events separately allows administrators to monitor and investigate why certain events were rejected, supporting better data quality management.

Docker containerization runs smoothly with all components (Kafka, SQL Server, App):

This requirement tests the containerization setup using Docker, ensuring that all components—including Kafka, SQL Server, and the application—operate seamlessly within their respective containers. A successful pass means that the entire system can be deployed reliably and consistently across different environments using Docker.

Each requirement helps ensure that the system operates smoothly and reliably, with proper data validation, error logging, and an efficient setup for deployment.