**12-T3: GCPS Real-Time Bus Monitoring System**

**Software test Plan & report**

CS 4850 - SECTION 01 – Fall 2024

November 10, 2024

|  |  |  |
| --- | --- | --- |
| Name | Role | Cell Phone / Email |
| Sam Bostian | Team Leader | 404.555.1212  sbostian@students.kennesaw.edu |
| Michael Rizig | Developer | 678.668.3294  mrizig@students.kennesaw.edu |
| Charlie McLarty | Developer/QA | 470.303.9544  cmclarty21@gmail.com |
| Brian Pruitt | Documentation | 404.207.6548  bpruitt9@students.kennesaw.edu |
| Allen Roman | Developer | 470.249.0421  [aroman14@students.kennesaw.edu](mailto:aroman14@students.kennesaw.edu) |

# Software Test Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Requirement | Description | Pass | Fail | Severity |
| Test Requirement | This is a Test Requirement to serve as an example | Checkmark with solid fill | Close with solid fill | **Low** |
| Real-time data ingestion through Kafka | Verify that the Kafka producer sends data in real time | Checkmark with solid fill |  | **High** |
| Data validation rules | Check that invalid GPS data is flagged and logged | Checkmark with solid fill |  | **High** |
| Data storage in SQL Server | Confirm that validated data is stored accurately | Checkmark with solid fill |  | **High** |
| Error handling for invalid data | Verify that invalid data is stored in separate table | Checkmark with solid fill |  | **Medium** |
| Container initialization | Check if all containers start without errors | Checkmark with solid fill |  | **High** |
| Inter-container communication | Confirm Kafka-to-SQL data flow in pod environment | Checkmark with solid fill |  | **High** |
| Pod shutdown and cleanup | Ensure stop\_pod.sh script removes all containers/pods | Checkmark with solid fill |  | **Medium** |
| Monitoring setup (optional feature) | Verify monitoring tool displays container status | Checkmark with solid fill |  | **Low** |
| Scalability test with 2,000 bus data points | Check system performance under high data volume | Checkmark with solid fill |  | **High** |
| System latency under load | Measure if latency remains within acceptable range | Checkmark with solid fill |  | **High** |
| Data retrieval from SQL Server | Verify that bus location data is retrievable | Checkmark with solid fill |  | **High** |
| Consistent container deployment across environments | Test pod deployment on different environments | Checkmark with solid fill |  | **Medium** |