indium
Make Technology Work

OPTIMIZING ANALYTICS QUALITY USING BIG DATA AND DATABASE TESTING FRAMEWORK

PROJECT OVERVIEW

In a data intensive IoT analytics Application, a specialized QA solution was implemented to test the wide digital dimensions. Test Strategy for validating the integrity of complex algorithms, performance of the data transactions and UI/UX was defined and delivered, achieving maximum test coverage.

CLIENT DOMAIN

Manufacturing

KEY HIGHLIGHTS

- QA set up for Test Data Management, Defect Reporting and Comprehensive Test Artifact Generation

- Adopted Agile Methodology to streamline challenges in ad-hoc requests and improved coordination between Dev and QA

SOLUTION DELIVERED

Digital QA

ABOUT CLIENT

The client is an advanced semiconductor manufacturing company, developing and supplying wafer fabrication equipment and services globally. Their business operations make the best use of IoT solutions in gathering data points from sensors installed along the process chain. The data is churned using Analytics Solutions resulting in advanced insights for real time monitoring of the equipment and defect predictions and predictive maintenance.

The ecosystem is a visibility into the manufacturing supply chain and operations. With the domain and data intensive nature of the application, the client required a strong QA Partner with specialized testing expertise to test the reliability and scalability.

BUSINESS REQUIREMENTS

- Set up QA with continuous testing enabled.
- Understand the complex use cases and rich data set in the application to establish a robust QA strategy that validates the data transactions (volume and veracity) in the end-to-end workflow.
- Real time data testing.
- Verify data response & availability due to the large number of sensor interactions.

SOLUTION HIGHLIGHTS

Indium's strong combination of Domain and Technology has laid the strategy for achieving QA at digital speed for this project. The following are the solution highlights that address thorough validation of application functional stability and relevance of data from the source systems to the dashboards.

- QA set up for Test Data Management, Defect Reporting and Comprehensive Test Artifact Generation
- Adopted Agile Methodology to streamline challenges in ad-hoc requests and improved coordination between Dev and QA.
- Requirement elicitation decoding the tightly knit big data and IoT use cases and complex algorithms.

- Data Validations under real simulation conditions (Static and Dynamic Value Simulations)..
- Test Cases for UI/UX Validations, user interactivity, response times, timeliness of data etc.
- Component Dependent Matrix and Dynamic Regression.

BUSINESS IMPACT

- Advanced Test Strategy focused on Domain Integrity, Referential Integrity, Data Processing rules and Business logic.
- Real-time interactive and deep dive reporting on Data Quality Intelligence metrics.

TECH STACK

Jira

ANALYSE	Data Sources I Platform and Technology Familiarising I Workflow I Business Logic |
STREAMLINE	Functional Requirement Coverage Matrix I Dashboard UI Checklist I Feature benchmarking |
STRATEGIZE	Scope of Test Methods I Test Coverage Strategy and Estimation I Real Use Case Simulations |
TEST EXECUTION	Domain/ business case-based Test Strategy I Test Cases I Regression and Continuous Testing I Test Cycle Optimization |
TEST REPORTING	Test Reports I Defect Management I Recommendations I Test Metrics

ABOUT INDIUM

Indium Software is a fast-growing Digital Engineering company, focused on building modern solutions across Applications, Data, and Gaming for its clients. With deep expertise in next-gen offerings combining data and applications, Indium offers a wide range of services including Product Engineering, Low-Code development, Data Engineering, Ai/ML, Digital Assurance, and end-to-end Gaming services.

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