Dinesh Murugan

DATA ENGINEER – Web Application Development, Machine Learning, Data Analytics

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SKILLS

- **Programming Languages**: Java, JavaScript, Python, SQL, C# for system-level application logic, query execution.
- **Web Development Tools**: HTML5, CSS, Bootstrap, Node.js for responsive interface layout and server-side scripting.
- **Marketing Tools**: KPI-based reporting systems used for detailed performance metrics, traffic, and trend tracking.
- **Data Analytics Platforms**: Power BI, Excel, Azure DP-500, DP-203, DP-900 for visual report and dashboard tasks.
- **Machine Learning**: Supervised, unsupervised, deep learning methods applied for classification and pattern grouping.

WORK EXPERIENCE

Traffic Data Analyst **November 2022 – December 2023**
Rhythm Engineering Pvt. Ltd. *India*

- Processed 25GB of raw traffic data weekly from sensors, GPS units, and public feeds, filtering outliers and correcting recorded anomalies to increase dataset validity by 35% before predictive modeling and trend interpretation sessions.
- Evaluated traffic movement patterns across 12 intersections and reported 5 key bottlenecks per quarter. Recommendations supported lane redesigns, lowering congestion index scores by 22% in peak-hour simulations over 3 districts.
- Generated 40 detailed dashboards using Power BI and Excel for weekly meetings, visualizing live signal timings, density maps, and zone-specific throughput. Stakeholders validated reports as 100% presentation-ready for regulatory reviews.
- Aggregated 80+ datasets and merged formats for analysis using Pandas and NumPy. Final processed tables facilitated quarterly reviews and reduced preprocessing cycles from 14 hours to 8 hours per dataset batch without interruption.
- Reviewed GPS route paths from over 1,200 vehicle logs monthly to detect zone delays above 15 seconds. Informed city planners on rerouting route alternatives and supported 11 adjustments to traffic flow plans in 2023 with accuracy.
- Submitted weekly insight memos with findings tied to accident risk factors. Noted 3 recurring road collision zones per city district, helping enforce new signal adjustments that enhanced clearance rates by 28% across 6-month periods.

Assistant System Engineer (Test Engineer) **December 2021 – July 2022**
Tata Consultancy Services (TCS) *India*

- Executed test coverage for 7 South Korean telecom accounts, producing 120+ test cases monthly with zero backlog over 8 months. Ensured early defect detection and 15% faster resolution turnaround across critical system modules.
- Created regression and functional test scripts using Selenium WebDriver, TestNG, and JUnit across 4 platforms, expanding test coverage by 45% and preserving runtime accuracy within 3% across weekly software release builds.
- Detected 180+ software bugs and tracked defects using JIRA. Lowered fix cycles by 18% through exact error classification and detailed root-cause logging aligned to affected system modules and client release documentation timelines.
- Transformed 25+ structured datasets each week using Python libraries such as Pandas and NumPy. Reduced formatting time by 30% and improved structure alignment across test execution layers, input validation stages without disruption.
- Queried over 500K raw data rows per session using SQL scripts to isolate corrupt entries. Raised validation accuracy to 98% by removing joins with null states and excluding records missing daily schema-mapped key field attributes.
- Compared requirement traceability matrices with 70+ active test cases per month. Achieved 99% linkage accuracy between requirements and validations, ensuring all audit checkpoints passed without rejection from QA reviewers.

PROJECT EXPERIENCE

Climate Smart Agriculture (Capstone – Conestoga College) **Waterloo, Ontario**
Full-Stack Developer – UI & Integration Lead

- Designed farm profile interface and crop schedule dashboards across 4 modules, tracking inputs for 10+ farms and improving harvest record accuracy by 40% through structured lifecycle mapping, schedule updates, and crop-type logs.
- Parsed real-time weather data and simulated soil inputs across 5 parameters to generate irrigation plans. Recommended watering windows improved water use accuracy by 25% and minimized over-watering incidents across 8 environments.
- Integrated soil condition triggers and regional forecasts to generate alert messages for 12 types of risks, cutting average rural farmer response lag by 50% and improving preparedness during low-moisture events and precipitation extremes.

EDUCATION

Professional Certificate in Data Science January 2025 – Present (Expected August 2025)
Southern Alberta Institute of Technology, Alberta

Post-Graduate Diploma in Computer Application Development January 2024 – August 2024
Conestoga College, Ontario

CERTIFICATIONS

- **Full Stack Web Developer** – Tap Academy