

Mark Kenneth Lyons

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All my past work is presented at my website: www.mark-lyons.com

Summary

- 8 years **SAS Administrator** & 25 years **SAS Developer + Analyst + SQL** experience, including working with DevSecOps teams on **SAS** development, testing and production environments, in-house **SAS Grid** & cloud hosting for **SAS Viya**.
- **Developing SAS code and macros & SAS Viya Jobs** to perform common operations such as systems and user activity monitoring, external database querying, and dataset formatting and cleansing
- **Providing SQL and SAS code** reviews for best practices and performance
- Modernizing current analytics platforms to achieve better integrations with big data stores (e.g. Hive, etc.), and **AWS** tech stack
- Optimizing workflows
- Building standard, repeatable processes to reduce costs and increase efficiency
- Providing Helpdesk Tier 2 & 3 **SAS support**, including maintaining of the data and analytics groups in ServiceNow, **and troubleshooting user SAS code**
- Supporting project management tasks, such as facilitating and/or presenting, conference calling, data coordination, new user onboarding processes, architecture review meetings
- Writing **SAS Grid & SAS Viya jobs**, monitoring Job & data quality with issues alerts
- Managing **SAS 9.4(M7) Grid servers & SAS Viya deployments with cloud hosting**

Additional Relevant Experience

- **8 years experience as a SAS 9.4 (M7) Grid Administrator** (and prior versions)
- **25 years as a SAS Software Developer** & Systems Analyst within the industries of Telecommunications, Finance, Insurance, Pharmaceuticals, Healthcare, Sales/Marketing, & Education
- Coded & implemented executive dashboards and scorecards, back-end DB design and programming, **SQL**, statistics, data modeling & general software development & front end Web-based interfaces
- Analytical, strong problem-solving skills, careful and precise in all tasks, driven to improve
- **Strong programming skills including SAS Proc SQL & Oracle SQL**, Unix/Linux Shell, **SQL Server**, MS Access, VBA
- Strong Microsoft Office skills including Excel, Access and Word and PowerPoint Presentations
- Data analysis & mining, business intelligence, predictive analytics and machine learning solutions
- Experience in design, architecture and engineering of products and systems
- Experience with change control, audited code compliance, and Agile / SDLC associated with computer system validation processes
- Developing and maintaining written documentation for all projects
- **8 Years experience with SAS** license file updates and maintenance, hotfix patching & installation and configs
- 10+ years experience with UNIX / Linux OS & Shell / Microsoft Products and various Windows O/S & servers
- Seasoned skills in talking with subject matter experts (SME's) to extract the most useful information
- Effective communication in working with domestic and global/India based work forces
- Navigating bureaucracy with diplomacy and building alliances and relationships within an organization
- Managing projects, capturing details and the status of milestones at both high level and detailed tasks
- Proactively identifying issues early and creating remediation to ensure forward progress at a steady pace

Education

- Masters level Certificate of Advanced Studies, Database Administration (Computer Science)
University of Denver - winter 2001, GPA 3.9 Honors
- Associate of Applied Science, Computer Network & System Administration (Computer Science)

Denver Technical College (now DeVry University) - 1998, GPA 3.9 Honors

- Bachelor of Arts, Economics/Finance concentration/minor
Rutgers University of New Jersey - May 1992
- Bachelor of Arts, Music – Classical Composition concentration/minor
Rutgers University of New Jersey - May 1990

Certifications

- **SAS Platform Administrator**

Project Management Skills

- Tools used: Jira, Microsoft Project, Clickup, Monday.com, Smartsheet, GitLab Project Management features or custom solutions with OneNote/Outlook/Excel/Powerpoint/VBA
- Initiation: Defining purpose, scope, objectives, and deliverables. Identifying stakeholders, roles, needs, expectations and assessing project feasibility.
- Planning: Creating a project plan, tasks, timelines, resources & dependencies. Matching skilled team members, Subject Matter Experts (SME's) & point-of-contacts. Defining participant roles and responsibilities. Producing budget projections. Developing a risk management plan. Setting up communication and reporting chain-of-command for management and stakeholders.
- Execution: Converting all goals/milestones to actionable tasks. Managing project scope, schedule, and costs. Ensuring project deliverables meet quality standards. Monitoring and reporting progress to stakeholders. Tracking accomplishments, risks & issues. Remediating obstacles quickly. Adjusting approved changes & documentation for archiving later.
- Closing: Obtaining acceptance of deliverables from stakeholders. Conducting a project review, analyzing successes and areas for future improvement. Archiving all documentation.

Software Development Team Skills

- Dev Team Needs & Requirements: streamlining development workflow, programming language choices, frameworks, version control systems (CVS, SVN, Git, Mercurial), and other tools in use.
- Source Code Management: version control admin (CVS, SVN, Git, Mercurial, Azure Team Foundation Server Version Control (TFVC)) and setting up repositories.
- Build Automation: Code builds (e.g., Jenkins, Travis CI, GitLab, CI/CD delivery methods) & dependency management: (e.g., Maven, npm, pip) for dependencies, resolutions & updates.
- Automated Testing: Implementing automated testing frameworks (e.g., JUnit, Selenium & custom solutions if needed) for unit, integration, and end-to-end testing.
- Code Quality and Security Analysis: (e.g., SonarQube, Checkmarx, GitLab, Github) to analyze code for issues and adherence to coding standards, vulnerabilities & code consistency.
- Containerization and Orchestration: (e.g., Docker or Kubernetes) for managing and scaling containerized applications.
- Continuous Deployment: (e.g., Jenkins, Gitlab CI/CD, GitHub actions, CircleCI, AWS CodePipeline, Azure DevOps) pipeline creation & automating deployment processes.
- Monitoring and Logging: Implementing monitoring tools (e.g., Prometheus, Grafana) to track application performance, Setting up logging capture for analysis & alerts
- Documentation: Automating documentation when feasible, authoring of processes, configurations, and best practices. Onboarding documentation for new team members.
- Training and Support to the development team on the new automated processes & ongoing user support assistance.
- Iterative Improvement: Continuous review and feature additions based on feedback and evolving project requirements.

Data Validation Skills

- **Defining Data Validation Requirements:** Documenting criteria and standards for validation. Specifying errors, categories & inconsistencies.
- **Data Collection:** Gathering data sets, ensuring complete representation of all required records.
- **Data Cleaning:** Addressing missing values, outliers, standardized formats and values, ensuring consistency.
- **Data Validation Rules:** Alignment to coded scripts, range checks, format checks, and consistency checks.
- **Automated Validation:** Writing scripts & performing initial checks, using programming or data validation tools to quickly identify errors.
- **Manual Inspection:** Visual checks for more complex or context-dependent validations, involving domain experts to review & verify accuracy.
- **Cross-Validation:** Comparing data with other sources or datasets, validating accuracy, comparing against any external benchmarks or reports if available.
- **Error Reporting:** Writing scripts for reporting and documenting validation errors. Clearly communicating validation results, including the nature of errors and their impact.
- **Error Resolution:** Addressing identified errors by correcting the data at its source. Documenting the steps taken to resolve errors for future reference.
- **Revalidation:** After making corrections, re-running the validation process to ensure errors have been resolved. Confirming that the data now meets the defined validation criteria.
- **Documentation:** Documenting the entire data validation process, including rules, results, and actions taken. Maintaining documentation for future reference and audits.
- **Continuous Monitoring:** writing scripts for ongoing monitoring of data quality. Regularly re-validating data as it is updated or integrated with new information.

Testing Strategy Skills

- **Defining Testing Objectives:** Documenting goals and objectives of the testing and targeted aspects of the software or system tests. Mapping the inputs and output of all components.
- **Identifying Testing Scope:** Defining the scope of testing, features, functions, and components chosen for testing for functional and non-functional behavior.
- **Test Plans:** Writing a comprehensive test plan for the overall testing objectives, test objectives, approach, testing resources, and schedules.
- **Select Testing Types:** Identifying the types of testing such as unit testing, integration testing, objectives, performance testing, and user acceptance testing.
- **Automation Strategy:** Scoping the automation design on project size, complexity, and resources. Identifying test cases suitable for automation and testing tools.
- **Test Environment Setup:** Creating a testing environment as close as possible to hardware, software, data and network configurations used in production.
- **Test Data Management:** Creating a strategy for managing test data covering a variety of scenarios while addressing data privacy & security with test data.
- **Executing Test Cases:** Following the test plan in the specified order, documenting results and any issues encountered.
- **Defect Tracking and Management:** tracking and managing defects or issues found during testing, prioritizing and categorizing defects based on severity and impact.
- **Regression Testing:** Ensure new output snapshots are compared to prior version output snapshots, automating where possible and explaining differences or noting as defects.
- **Performance Testing:** If applicable, perform performance testing to assess the system's responsiveness, scalability, stability under different conditions and noting bottlenecks.
- **User Acceptance Testing (UAT):** Planning & executing user acceptance testing, ensuring end-users' expectations, documenting and addressing feedback from users & stakeholders.
- **Documentation:** testing process, test plans, test cases, test results, identified issues and creating a comprehensive testing report for stakeholders.

- Review and Continuous Improvement: Review of the testing process, improvement & gathering feedback from testing to enhance future testing strategies and processes.
- Sign-off and Release: Obtain approvals from stakeholders based on testing results, releasing the software or system to production if requirements are completed.

Software Design & Programming Skills

- Requirements Analysis: gathering requirements from documentation & subject matter experts (SME's), identifying expectations and communicating accurately.
- System Architecture: Define the overall structure of the system, hardware and software components, relationships & interactions.
- High-Level Design: Outlining major components, functionalities & interactions, breaking down components or classes, data structures, algorithms, and interfaces.
- Database Design: Database schemas and structures, data storage specs & online data exchange protocols, relationships, interactions and data integrity assurance.
- User Interface (UI) Design: Documenting user interface elements, layout, navigation, interaction details and user experience (UX) principles.
- Coding: Adhering to coding standards and best practices, ensuring systems/classes/functions/methods accept proper inputs, handle error exceptions & output correctly.
- Testing: documenting a testing plan, performing unit testing for components and integration testing to ensure that components work together as intended.
- Debugging and Optimization: Tracing points of failure, identifying and fixing any issues and optimizing the code performance with benchmark comparisons.
- Documentation: Explaining design, API's, code, errors and user guides, troubleshooting guides with log references & auto-generated portions where possible.
- Reviews: Design and code reviews with individuals or teams, ensuring quality and adherence to standards, gathering feedback and tasking improvements.
- Deployment: Deploying to different environments and targets, detecting log and user issues after pilot rollout and adding defects to the task list.
- Maintenance and Updates: Ongoing support and maintenance of issues, implementing updates & releases, adding enhancements and documenting as needed.

Statistical Modeling Skills

- Defining the Problem: Discussing and documenting the research or business problem, identifying variables of interest.
- Data Collection: Collecting relevant and unbiased data, cleaning for missing values, outliers and other issues.
- Exploratory Data Analysis (EDA): determining data type characteristics, graphs and charts for data visualization, summary statistics describing the central tendency and variability of the data.
- Selecting a Statistical Model: factoring the nature of the dependent variable, distribution type and relationships among variables. Matching the correct model to the data type & objective.
- Model Specification: Defining variables and parameters of model type. Specifying the functional form of the model, transformations & interactions.
- Parameter Estimation: Choosing statistical methods to estimate the parameters of the model (maximum likelihood estimation, least squares, or other)
- Model Fitting: Using the estimated parameters, goodness of fit using appropriate metrics, fitting the model to the data.
- Model Evaluation: using validation techniques, metrics such as R-squared, mean squared error, or likelihood ratios to evaluate model performance, assessing model performance.
- Model Interpretation: Interpreting the estimated parameters with practical implications of the model results.
- Model Validation and Testing: Validating the model using additional data if available, testing the model's performance on new, unseen data.

- Communication of Results: Using implications of the statistical model, clearly communicating the findings and providing insights.
- Iterate and Refine: Based on feedback and new information, iterating on the modeling process and refining the model

Data Mining Skills

- Define Objectives: Specifying goals and speaking with subject matter experts (SME's) to fully understand the problem to address.
- Data Collection: Identifying and gathering data while ensuring data quality, completeness and accuracy.
- Data Exploration: Analyzing the structure and characteristics of the data, identifying patterns, trends and outliers.
- Data Cleaning: Handling missing values, duplicates, outliers, standardizing and normalizing data as needed.
- Data Transformation: Encoding categorical variables, Scaling & normalizing numerical data and applying transformations if needed.
- Data Splitting: Splitting into training and testing sets for evaluation of model performance.
- Model Selection: Choosing appropriate data mining algorithms (e.g., decision trees, clustering, regression).
- Model Training: Training the selected models on the training dataset and optimizing model parameters for better performance.
- Model Evaluation: Assessing the performance of the trained models using metrics (accuracy, precision, recall, and F1 score).
- Model Interpretation: Insights and patterns discovered by models for interpretation the results.
- Model Deployment: Deploy the trained model for use in the real-world environment and integration with existing systems if applicable.
- Monitoring and Updates: Implement a monitoring system to track model performance over time, periodically updating on new data or changes.
- Documentation: Documenting the entire data mining process including data sources, methodologies and results for stakeholders.
- Communication: Summarizing findings and insights to relevant stakeholders with actionable recommendations based on the results.
- Iterative Improvement: repeating and refining the data mining process based on feedback and changing requirements.

Data Modeling Skills

- Defining Objectives: Documenting the purpose and goals of the data model, identifying the stakeholders and requirements.
- Gathering Requirements: Collecting and documenting business requirements, interviewing stakeholders to understand data needs.
- Identifying Entities: listing the main entities (objects, concepts, things) in the system representing the main business objects.
- Defining Relationships: Documenting relationships, connections and associations between entities.
- Establishing Cardinality: Determining the cardinality (one-to-one, one-to-many, many-to-many) and minimum/maximum number of occurrences.
- Normalizing Data: Eliminating data redundancy by breaking down large tables into smaller ones.
- Attributes: Identifying and defining attributes, properties and characteristics for each entity.
- Assign Data Types: Assigning integer, varchar, date, with consideration to data size and constraints.
- Creating Diagrams: Using a visual modeling tool to create entity-relationship diagrams (ERD) representing entities, relationships, and attributes.
- Reviewing and Refining: The data model is reviewed with stakeholders for accuracy and completeness.
- Document Metadata: Includes descriptions, constraints, and any other relevant information. Ongoing document maintainance.
- Model Validation: Validating to business requirements.

- Iterate and Update: Iterating and updating the modeling process as needed based on changes in requirements or feedback.
- Scripting: Writing Data Definition Language (DDL) scripts to implement the data model in a database with constraints, indexes and other details.
- Implement and Test: Data model choice & test methodology choice for the database schema.
- Continual Process Improvement: Regularly reviewing and updating the data model to reflect changes in business requirements and organization's data needs.

Model Stress Testing Skills

- Defining Stress Scenarios: Identifying extreme or unlikely scenario impacts outside the norm (e.g., sudden changes in input distributions or extreme values).
- Generating Stress Testing Data: Creating synthetic or real-world data that reflects the stress scenarios covering a wide range of conditions to test limits.
- Data Pre-processing: Preparing preprocessing steps used for regular model training, verifying unusual or extreme data points are robustly handled.
- Model Deployment in Stress Environment: Deploying the model in an environment that simulates stress conditions involving changes in data input rates, data quality, or other factors.
- Monitor Model Performance: Implementing monitoring tools to track the model's performance metrics such as accuracy, precision, recall, and F1 score.
- Evaluate Sensitivity to Outliers: Assess how the model behaves in the presence of outliers or anomalies, evaluating sensitivity to extreme data points.
- Test Robustness to Model Assumptions: Challenge the model with data that violates its underlying assumptions evaluating situations not encountered during training.
- Assess Model Stability: Checking the stability of model predictions under stress conditions, assessing small input changes lead to significant output changes.
- Simulate Concept Drift: Introduce gradual or abrupt changes in the underlying data distribution to simulate concept drift and adaptation to changing conditions.
- Evaluate Resource Utilization: Assess resource usage (computational power, memory, etc.) under stress for bottlenecks or resource limitations.
- Documentation and Reporting: Specifying the process, scenarios, data used, and results, reporting on the model's behavior under stress, strengths and weaknesses.
- Iterative Improvement: Insights gained and implemented to improve the model, updating architecture, features or training process based findings.

Business Compliance, Regulatory, & Validation Skills

- Regulatory Analysis: Updating data protection and regulations (e.g., GDPR, CCPA, HIPAA) and conducting change impact assessments.
- Data Inventory and Classification: Programming systems for data inventory, processing, with transparent and clear classification of data sensitivity and regulatory requirements.
- Privacy Policy and Notices: Developing privacy policies, ensuring transparency with clear and concise privacy notices to individuals.
- Consent Management: System programming for user consent approvals, reviewed and updated on changing requirements.
- Data Minimization: Adopting practices to collect and process only the data necessary for the intended purpose. Regularly review and purge unnecessary or outdated data.
- Security Measures: Implementing robust security measures to protect data from unauthorized access, breaches and cyber threats, conducting regular security audits and risk assessments.

- Data Access Controls: Establishing and enforcing access controls for authorized personnel, monitoring and auditing data access to detect and prevent unauthorized activities.
- Data Breach Response: Assisting data breach detection and response plans, research and impact assessment with authorized parties in the event of a data breach.
- Data Protection Impact Assessments (DPIA): Conducting DPIAs to assess and mitigate the risks associated with data processing activities, documenting and reviewing DPIA results for compliance.
- Vendor Management: Assessing data protection for vendors and service providers & enforcing data protection standards.
- Employee Training and Awareness: Training employees on data protection policies and procedures, promoting a culture of data protection awareness.
- Records of Processing Activities: Programming, collecting and maintaining records of processing activities as required by data protection regulations
- Data Governance Framework: Establish a robust data governance framework that includes policies, procedures, and accountability measures. Continuously improve and adapt the framework based on evolving business and regulatory landscapes.

Technical Skills

SAS 9.4 (M7) Grid Administrator & SAS Viya Developer • Geographic Mapping and GIS / GPS / ESRI / Mapititude / Macro/Base/**SQL**/GRAPH/STAT/ITRM/E. Guide /E. SAS Proc GMAP
 Miner/IntrNet/JMP/ Reporting & Analysis using SAS Studio • VBA
 & Data Integration Studio, and 'R' similar language • No**SQL** + AWS + MongoDB
 Oracle PL/**SQL**, TOAD, OBIEE, Erwin / Teradata / Hadoop • Java, C, C++, Pro C & C#, Microsoft **SQL** Server .NET Studio
 HDFS + Hive + Impala • Linux Shell Scripts & Administration
 HTML, CSS, ASP.NET • Visual Basic / VBA / PHP / Javascript / Perl
 Python + Pandas + PySpark + Django

Work Experience

You'll notice a gap during the 2024 tech-recession. During this time, I've spent the year researching & developing in-house hosted AI solutions utilizing local based AI LLM models custom chosen for specific business needs without handing sensitive data over to 3rd party AI providers such as ChatGPT and others. This provides a more secure data governance solution.

Operations Analyst / Software Systems Designer / Software Developer | 6 month contract

State of Connecticut CDC / Department of Public Health via contract with On-line Systems and Coventis | April 2023 – Oct 2023

Project Goals:

- To increase process automation, minimizing delays in release of high-quality, high-value administrative health data to internal and external partners.
- Created a SAS working proof-of-concept of a no/low-code table-driven unified system to perform data source validation, data dictionary generation, business process profiles, metric profiles, reporting profiles and execution.
- Created a SAS working proof-of-concept of SAS table-driven QC/QA and data management metrics for data fields, columns, rows, tables, updates, trending and alerts.
- Created a working proof-of-concept for MS Power Apps interfaces to directly read SAS control tables with no data conversion or synchronization needed.
- Created a PowerShell custom scheduler to execute programs and processes while waiting for the security team to remove a security policy blocking Windows Task Scheduler Services.
- To evaluate and document current datasets and workflows of the business unit.

- Created SAS & VBA code to convert all legacy code into auto-documented flowcharts and data asset auto-inventories (data sources, data dictionaries, metrics, reports, snapshots & trending)
- Created a SAS working proof-of-concept table-driven production system for future interaction with Github.
- To Build and document data pipelines to the agency data warehouse.
- Created a SAS working proof-of-concept table-driven data source inventory callable by table-driven reports.
- Created a SAS & VBA solution to convert all data processes into auto-documented flowcharts.
- To develop quality assurance metrics and evaluate root-causes of low-quality data.
- Created a SAS working proof-of-concept of table-driven QA and data management metrics.
- To collaborate on the development of quality improvement workflows.
- Collaborated with DevOps Team to provision MS Power Apps, providing interface business requirements.
- Collaborated with Infrastructure Team to provision a virtual machine(VM) server for project needs.
- Collaborated with staff to identify process efficiency improvements and changes to software configurations and proper memory allocation for performance gains.
- Collaborated with Security Team to configure security profiles enabling Windows based security services for the project requirements.
- Other Skills: Initial prototyping in Access, Code Review, Code Optimization, Database Design & Modeling, Data Analysis, Data Reporting, Data Quality Monitoring and Alert Reporting, Data Validation, Excel, Installation and Configuration, Interfaces, Front End, Javascript, Job Scheduling & Monitoring, Powerpoint, Microsoft, Project Documentation, Project Management, Process Documentation, SAS Base Code Development, SAS Macro Code Development, **SQL** SAS (Proc **SQL**), Statistical Analysis, Software Design & Programming, **SQL** (ALL), Testing, VBA (MS Office embedded Visual Basic for Applications), MS Word

Lead Software Developer

Wells Fargo via contract at Apex Systems | **Aug 2022 – Jan 2023 | 6 Month contract**

- Creation of a CI/CD (Continuous Integration / Continuous Deployment) pipeline prototype integrating **SAS Viya 3.5** + Github Enterprise + Docker.

Product Engineer for Research & Development

Takeda Pharmaceuticals via contract at Synectics | **Nov 2020 – May 2022 - Maximum contractor limit of 18 months**

- Active Directory / LDAP Accounts, permissions & SAS data migration to Amazon AWS leading and coordinating DevOps Team tasks. Use of SAS Studio, Data Integration Studio, SAS Base code, Macro Code for investigation and prototyping.
- Translating Leadership & Subject Matter Experts (SME's) discussions and documentation into actionable results
- Extracting the critical information that define the problems at a high level, drilling down to details
- Prioritizing the highest priority issues and insights to address first, achieving the greatest gains quickly
- Choosing the right approaches and tools to attack and solve the problems in an expedient and efficient manner
- Bringing live data into a central location for analysis to identify bottlenecks and measure improvements
- Assisting as a central coordinator with technical teams to deliver those improvements
- Other Skills: Access, Microsoft Office, Active Directory / LDAP, AWS (Amazon) Cloud Administration, Business Intelligence (BI), Code Review, Code Optimization, Database Design & Modeling, Data Analysis, Data Reporting, Data Quality Monitoring and Alert Reporting, Data Validation, Excel, Microsoft, Installation and Configuration, Interfaces, Front End, Job Scheduling & Monitoring, License Updates, Linux (Redhat, Solaris, Ubuntu) (Korn Shell and Bash Shell), Machine Learning, Predictive Analytics, Production Deployment, Powerpoint, Microsoft, Project Documentation, Project Management, Process Documentation, SAS Base Code Development, SAS Macro Code Development, **SQL** SAS (Proc **SQL**), **SQL** Server (Microsoft T-**SQL**), Statistical Analysis, Software Design & Programming, **SQL** (ALL), System Administration, Testing, VBA (MS Office embedded Visual Basic for Applications), Visual Basic (Microsoft .NET Studio), MS Word

Business Intelligence Lead & Systems Administrator – Entire IT team was outsourced from 2016 to 2020

Emblem Health via contract at Randstad and Cognizant Technology Solutions | **Feb 2016 – Jun 2020**

- Coordinator of operational enhancements, maintenance, installation and support of the SAS Enterprise Business Intelligence (EBI) and SAS GRID Servers 9.4 platform in a GRID server farm of 14 servers, Citrix, Network Storage,
- Provided security management, application and underlying infrastructure support (OS, Storage, EBI Applications, Web and Database) and ensured processes are aligned with tactical and strategic information management initiatives
- Served as liaison between the SAS developers and enterprise infrastructure support teams to ensure appropriate delivery of technology solutions (performance tuning, data modeling, capacity and utilization, backups, disaster recovery, user support, training and documentation) in accordance with business requirements and objectives, and compliance with IT policies, standards and agreed upon service levels
- System health monitoring and diagnostics, installations, maintenance releases, upgrades and hot fixes to all GRID servers as the Administrator with root access.
- Executing change control and promotions activities
- Published best practices and guidelines for usage of the BI Systems. Technical Lead and global point of contact for all administrator related projects and activities
- Manage and track product inventory and license updates for servers and end users
- SAS Development of data dictionaries, libraries, and connection strings and data ETL code for all needed data sources including driver install, config and parameter-tuning of connection to new Hadoop clusters
- Worked with the user community; perform periodic code reviews to ensure that applications are utilizing efficient design principles and adhering to internally published best practices
- Execute change management processes surrounding new releases of SAS functionality
- Evaluate and recommend new tools and methodologies to assist with change management and perform upgrades of the SAS environment when necessary

Developer/Equity (Stock) Day Trader & Forex Investor

- **AiHedge.com, New Brunswick, NJ | May 2013 - Present**

Data sourcing / Solution implementation / Historical back-testing / Software & hardware environment testing / Data validation / Testing strategy & scripting / Software design & programming / Statistical modeling / Model stress testing / Data, design and software optimization / Regulatory validation / System administration, BI intelligence design with SAS Enterprise Miner, BI development, BI testing, Web development with Amazon AWS, Business development, Software design and development written in SAS, C, **SQL**, HTML, Javascript and Perl.

- Other Skills: Access, Microsoft Office, AWS (Amazon) Cloud Administration, Business Intelligence (BI), C, Code Review, Code Optimization, Database Design & Modeling, Data Analysis, Data Reporting, Data Quality Monitoring and Alert Reporting, Data Validation, ETL (Extract/Aquiring, Transformation/Cleaning & formatting,Loading/Production Deployment to Data Warehouse), Excel, Microsoft, HTML, Installation and Configuration, Interfaces, Front End, Javascript, Job Scheduling & Monitoring, Linux (Redhat, Solaris, Ubuntu) (Korn Shell and Bash Shell), Machine Learning, Perl, Predictive Analytics, Production Deployment, Powerpoint, Microsoft, Project Documentation, Project Management, Process Documentation, SAS Base Code Development, SAS Macro Code Development, **SQL** SAS (Proc **SQL**), Statistical Analysis, Software Design & Programming, **SQL** (ALL), System Administration, Testing, VBA (MS Office embedded Visual Basic for Applications), Visual Basic (Microsoft .NET Studio), MS Word

Senior Business Intelligence Manager – Entire IT dept was outsourced in May 2013

AXA Equitable, Jersey City, NJ | Sep 2011 - May 2013

- Gather requirements / Data sourcing / Gap analysis / Gap resolution & work-arounds / Point of contact representation / Solution implementation
- Project management / Team delegation / Team follow-up and project reports / Stakeholder management, presentations, communication
- Software & hardware environment testing / Data validation / Testing strategy & scripting / Software design & programming / Data modeling
- Model stress testing / Data, design, and software optimization / Business, compliance & regulatory validation

- Development of complex tools & processes supporting business and IT needs
- Design/ coding / Execution of tests for business and IT needs managing teams, project deadlines, technical difficulties, and cost containment use of SAS Base code/Macro code/SQL/GRAPH/STAT /E. Guide /E. Miner/IntrNet /Administration & Analysis
- Administration of user access
- Administration and modification of project reviews with data architects, security teams, stake holders and upper management
- Maintaining and debugging the customizations that have been done
- Building and maintaining database structures for information storage and retrieval.
- Building and maintaining SAS ETL efficient processes.
- Experience with a development lifecycle methodology.
- Interpreting business requirements for effective delivery of targeted outcomes.
- Design and creation of a production predictive analytics and model generating system using SAS
- Training of staff to use predictive analytics and data model generating systems
- Certification as a SAS Platform Administrator (2012) / SAS System Administration & Security Administration duties
- Production of business intelligence reports using Oracle OBIEE, SAS, Excel, Access, VBA and Perl
- Production of online video training of developed SAS and Oracle solutions
- Production of automated SAS data warehouse data dictionaries for data asset inventory and analysis
- Development of integrated multi-vendor backend processing with real-time Web front-end dashboard & query interfaces

**Pharma Consultant, Workflow Developer / Business Analyst – 6 Month Contract
Novartis, East Hanover, NJ | Oct 2010 -May 2011**

- Gather requirements / Data sourcing / Gap analysis / Gap resolution & work-arounds / Point of contact representation / Solution implementation
- Design / SAS coding / execution of tests for business and IT needs
- Managing project deadlines, technical difficulties, and cost containment
- Administration of user access
- Project reviews with Director of Quality Assurance & upper management
- Supporting business & IT applications on a day-to-day basis
- Resolving all user issues related to time/project/program/portfolio management functionality
- Maintaining and debugging all SAS application development code
- Creating request types and workflows
- Design and creation of a pharmaceutical workflow database & web user interface using SQL / VBA / Excel
- Analysis of requirements, data modeling and designing, developing and packaging of software for various deployments
- Maintaining and modifying existing software
- Managing projects from inception through completion
- Promoted code reuse
- Diagnostics of reported problems and working with operations staff to remediate production issues
- Working with the QC team to ensure applications integrity including development of automated test suites
- Integrated clinical regulatory data & systems from Respiratory, Cardio & 6 other divisions into 1 automated database + reports and alerts
- Creation of a workflow system prototype, demonstrated to senior leadership

**Pharmaceutical Database Developer – 2 Month Database Development Contract
ZS Associates, Princeton, NJ | Jul 2010 - Aug 2010**

- Gather requirements / Data sourcing / Gap analysis / Gap resolution & work-arounds / Point of contact representation / Solution implementation

- Writing procedures to respond to system issues
- Collecting metrics for trends in projects, such as SAS ETL record counts
- Applying and maintaining security settings and user access
- Recommending improvements as needed based on performance analysis
- SAS Data warehouse / **SQL** / Oracle & PL/**SQL** development
- Conceptualizing analytical and data modeling framework, defining data requirements, building data models and related analyses & insights
- Focus on key customer and segment sales performance and other impacting business variables.
- Collaborating with teams in marketing
- Analysis of requirements, designing, developing and staging data for deployment

**Sr. Consultant/Data & Text Mining Developer/Analyst – 3 Month Contract
Chubb, Warren NJ| Feb 2010 - May 2010**

- Gather requirements / Data sourcing / Gap analysis / Gap resolution & work-arounds / Point of contact representation / Solution implementation / Team follow-up and project reports / Software & hardware environment testing / Data validation / Testing strategy & scripting / Software design & programming / Data modeling / Model stress testing / Data, design, and software optimization / Business validation
- Development of complex tools & processes supporting business and IT needs
- Design/ SAS coding / Execution of tests for business and IT needs
- Managing project deadlines, technical difficulties, and cost containment
- Use of SAS base code/ SAS Macros / **SQL** / Regular Expressions / VBA & Excel Macros for reporting
- Project reviews with Vice President and upper management
- Recommending improvements as needed based on analysis of performance
- Heavy use of **SQL**, SAS database design & development to create a text mining system to produce predictive variables for business Intelligence
- Ensure project code was fully documented
- Produced predictive variables for business intelligence
- Creation of data presentation VBA/Excel based reports for decision support

Professional Forex (Foreign Currency) Trader while looking for work during the 2009 banking crisis recession.

**Sr. Consultant, Data Warehouse Analyst / Developer
Wharton School, PA| Jun 2008 - Dec 2008 – 6 month Data Warehouse Development Contract**

- Design / coding / execution of test plans for business and IT needs
- Use of SAS Base & Macros / **SQL** / STAT / Linux Scripting / MS **SQL** Server development & analysis
- Patching/upgrading applications and vendor-specific data drivers
- Resolving all user issues
- Heavy use of **SQL**, SAS database design and framework design to provide a robust data warehouse for world markets financial data
- Designing, SAS data modeling, developing and implementing data warehouse programs to support financial market data
- Analysis of requirements, designing, developing and deployment
- Managing projects from inception through completion
- Conducted peer code reviews and promoting code reuse
- Diagnostics of reported problems and working with operations staff to remediate production issues
- Working with QC team to ensure data integrity including development of automated test suites using automated comparisons
- Fully documented all code and project specifications
- Design and programming of a SAS metadata-driven ETL (Extract Transform Load) data warehouse system

- Creation of a cross browser, cross platform compatible, user interactive, streaming multimedia application for training users
- Use of SAS Base, Macro, Stats, Web, Unix Scripting, JavaScript multimedia, PHP, Perl, MS **SQL** Server
- Project specification and requirements gathering, consultation with clients to determine needs, executing a plan, and delivery
- Other Skills: Access, Microsoft Office, Code Review, Code Optimization, Database Design & Modeling, Data Analysis, Data Reporting, Data Mining, Data Modeling, Data Quality Monitoring and Alert Reporting, Data Validation, Data Warehousing, Excel, Microsoft, Installation and Configuration, Interfaces, Front End, Job Scheduling & Monitoring, License Updates, Linux (Redhat, Solaris, Ubuntu) (Korn Shell and Bash Shell), Production Deployment, Powerpoint, Microsoft, Project Documentation, Project Management, Process Documentation, SAS Base Code Development, SAS Macro Code Development, **SQL** SAS (Proc **SQL**), **SQL** Server (Microsoft T-**SQL**), **SQL** Oracle (PL/**SQL** with Cursors or Data Pointers), Statistical Analysis, Software Design & Programming, **SQL** (ALL), Testing, VBA (MS Office embedded Visual Basic for Applications), MS Word

**Senior Consultant, Analyst / Developer – 2 Month Executive Reports Redesign Contract
Schering Plough (Now Merck), Kenilworth, NJ | Apr 2008 – May 2008**

- Development of complex tools & processes supporting business and IT needs
- Design/ coding / Execution of tests for business and IT needs managing project deadlines, technical difficulties, and cost containment use of Macros/**SQL**/GRAPH/STAT & Analysis
- Project reviews with stakeholders and upper management
- Supporting business & IT applications on a day-to-day basis
- Patching/upgrading applications
- Resolving all user issues with program functionality
- Maintaining and debugging the requested code changes
- Creating request types and workflows
- Developing complex tools and processes
- SAS Proc **SQL** coding, database re-design and interactive VBA / Excel software design for over 30 product leadership reports
- Preparing analysis and presentations to support business trends and potential performance gaps
- Conceptualizing analytical and modeling framework, defining data requirements, building models and related analyses, creating actionable insights
- Other Skills: Access, Microsoft Office, Code Review, Code Optimization, Database Design & Modeling, Data Analysis, Data Reporting, Data Quality Monitoring and Alert Reporting, Data Validation, Excel, Microsoft, Interfaces, Front End, Job Scheduling & Monitoring, Linux (Redhat, Solaris, Ubuntu) (Korn Shell and Bash Shell), Production Deployment, Powerpoint, Microsoft, Project Documentation, Project Management, Process Documentation, SAS Base Code Development, SAS Macro Code Development, **SQL** SAS (Proc **SQL**), **SQL** Oracle (PL/**SQL** with Cursors or Data Pointers), Statistical Analysis, Software Design & Programming, **SQL** (ALL), Testing, VBA (MS Office embedded Visual Basic for Applications), MS Word

**SAS Data Warehousing Analyst / Developer – Company fined 23 million by Sec. State, CEO CFO and COO left – I left.
Healthfirst, NY | Jun 2007 – Mar 2008**

- Gather requirements / Data sourcing / Gap analysis / Gap resolution & work-arounds / Point of contact representation / Solution implementation / Project management / Team delegation / Team follow-up and project reports / Stakeholder management , presentations, communication / Software & hardware environment testing / Data validation / Testing strategy & scripting / Software design & programming / Data modeling / Model stress testing / Data, design, and software optimization / Business, compliance & regulatory validation
- Development of complex tools & processes supporting business and IT needs

- Design/ coding / Execution of tests for business and IT needs
- Managing project deadlines, technical difficulties, and cost containment
- Use of Cognos / DB2 / SAS Macro / **SQL** / SCL / GRAPH / STAT / ITRM / E. Guide / E. Miner / IntrNet / JMP
- Creating request types and workflows
- Developing complex tools and processes
- Design and execute test plans for software installs and changes
- Designing, testing, and implementing monitoring tools and processes
- Writing procedures to respond to system issues
- Collecting metrics for trends in projects
- Analysis of requirements, data modeling, designing, developing software for various deployments
- Maintaining and modifying existing software
- Working with the QC / QA team to ensure applications integrity including development of automated test suites
- Working with business analysts to ensure projects are fully documented.
- Client and technical point of contact
- Gathering project requirements and writing specifications, timelines, and project plans
- Data modeling, data warehousing using SAS as the primary development platform
- SAS Programming extraction / translation / loading (ETL) and remapping solutions
- SAS Programming quality control reporting and alerts using email, HTML & PDF output
- Project analysis, design and programming of final implementation
- Design and writing of test plans, quality control, and production documentation

Investor & Trading System Developer

Self Employed, NJ | Jan 2007 - Jun 2007

- Gather requirements / Data sourcing / Gap analysis / Gap resolution & work-arounds / Software & hardware environment testing / Data validation / Historical back-testing strategy & scripting / SAS Software design & programming / Data modeling / Data, design, and software optimization / Statistical model validation
- Development of complex tools & processes supporting business needs
- Statistical modeling, risk modeling, stress testing
- Use of SAS Enterprise Miner/ eSignal Data Macros / VBA & Excel reporting / Perl / SMTP email programming / Cell SMS Coding
- Patching/upgrading applications
- Collecting metrics and performing analysis for trends in price & volume
- Designing, developing and implementing programs to support financial market surveillance and detection
- Programmed, tested and implemented a final & profitable Forex (Foreign Exchange) market trade signaling system using MetaQuotes framework and written in C language. I can provide a live demo

MS / VBA / UNIX Pharmaceutical Analyst / Developer

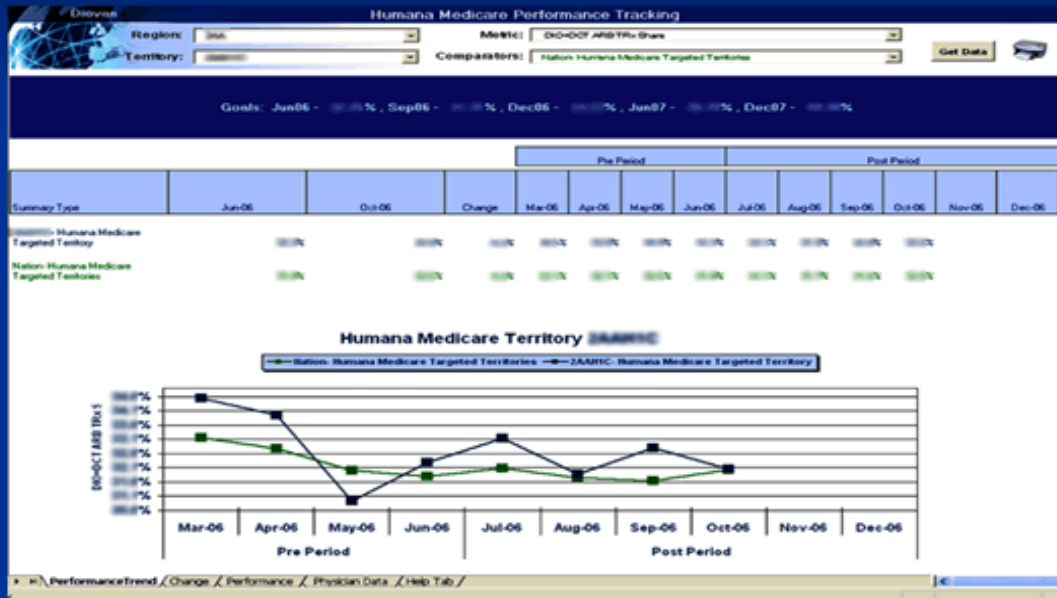
Novartis, East Hanover, NJ | Feb 2006 - Dec 2006 6 Month Contract extended 1 year, UX and GIS Prototype Completed.

- Gather requirements / Data sourcing / Gap analysis / Gap resolution & work-arounds / Solution implementation / Stakeholder management, presentations, communication / Software & hardware environment testing / Data validation / Testing strategy & scripting / Software design & programming / Data modeling / Model stress testing / Data, design, and software optimization / Business, compliance & regulatory validation
- Development of complex tools & processes supporting business and IT needs
- Design/ coding / Execution of tests for business and IT needs
- Managing project deadlines, technical difficulties, and cost containment
- Use of Macros / **SQL** / GRAPH / STAT / Maptitude GIS / VBA Macros Excel & Businesss Analysis
- **Developed SAS** backend & VBA smart clients for online/offline analysis & data updates to sales force rep. laptops.

- Software development of a front-end user interactive data exploration applications based in Excel, Visual Basic, **SAS** & GIS data
- Knowledge and implementation of pharmaceutical business sales and marketing measures and concepts

This is a small sample of many projects I have built for clients. If you have a need, I can deliver quality solutions. All my past work is presented at my website: www.mark-lyons.com

Executive Initiative Tracking VBA Smart Client



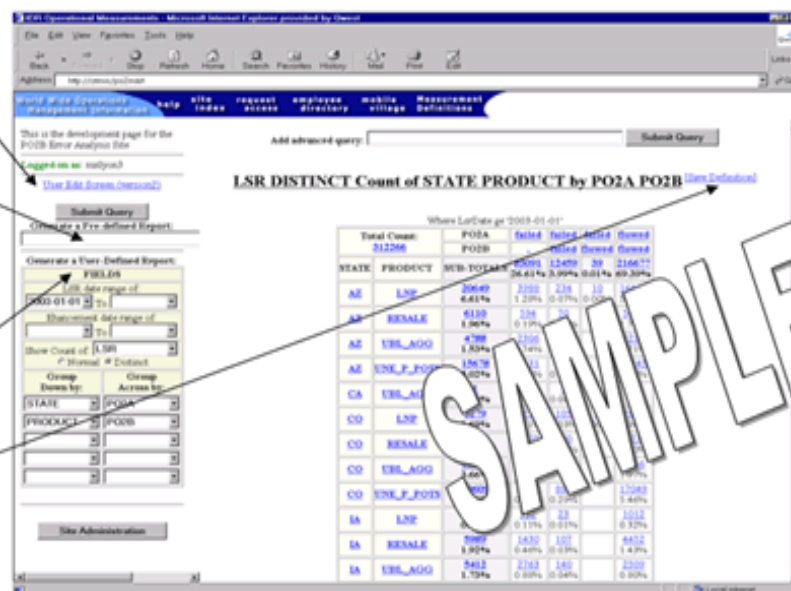
The Control Panel and Sections

User Edit Screens
(Allows PO2 Analysts to add commentary linking PO2 failures with analysis and proposed enhancements)

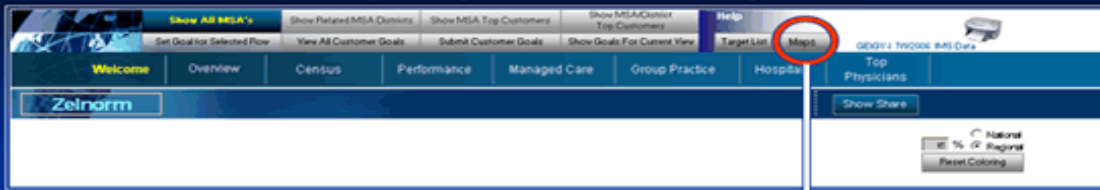
Predefined Reports
(Reports identified as useful and made available for the entire PO2 client community)

User Defined Reports
(Allows PO2 clients to design their own custom reports and even save the 'definition template' for later use)

Once a PO2 client has created a custom report, it can be saved into their own personal account here.

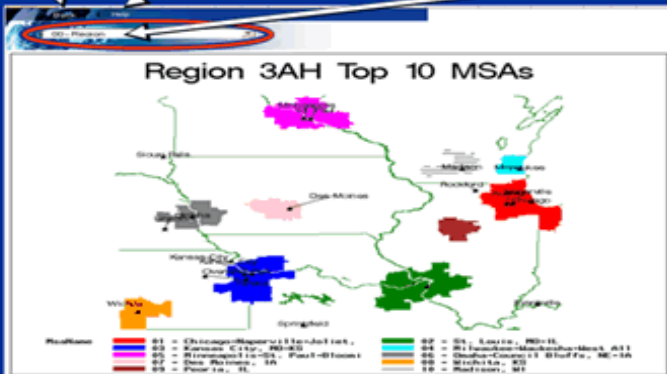


Geographic Analysis



Back and Help Buttons

Choose Region or MSA Maps



IDR Operational Measurements

World Wide Operations Management Information | [help](#) | [site index](#) | [request access](#) | [employee directory](#) | [mobile village](#) | [Measurement Definitions](#)

Provisioning IDR: Daily Status
for 20MAY2004 11:52 MST
Continuously updated. Hit the browser **RELOAD** or **REFRESH** button for latest status.

IDR Processing Completed at 6:41 : No Known Problems with IDR Processing Today.

Provisioning IDR Daily Processes

Process Description	Process Name	Process Day	Start Time	Completion Time	Duration
SOP Extract	SOP Extract	19MAY2004	13:25	13:42	0:24
Extract	getextract.rur	20MAY2004	2:00	2:01	0:01
MDR	getmdr.rur	20MAY2004	2:00	2:04	0:04
RTT	getrtt.rur	20MAY2004	2:10	2:14	0:04
Non-Designed - Merge	bidjoin.rur	20MAY2004	2:23	3:22	1:02
Designed - Merge	bidjoin.rur	20MAY2004	4:11	6:11	0:26
Non-Designed - Remove Duplicates	remove_dr.rur	20MAY2004	6:11	6:41	0:26

Provisioning IDR: Daily Data Extraction Counts

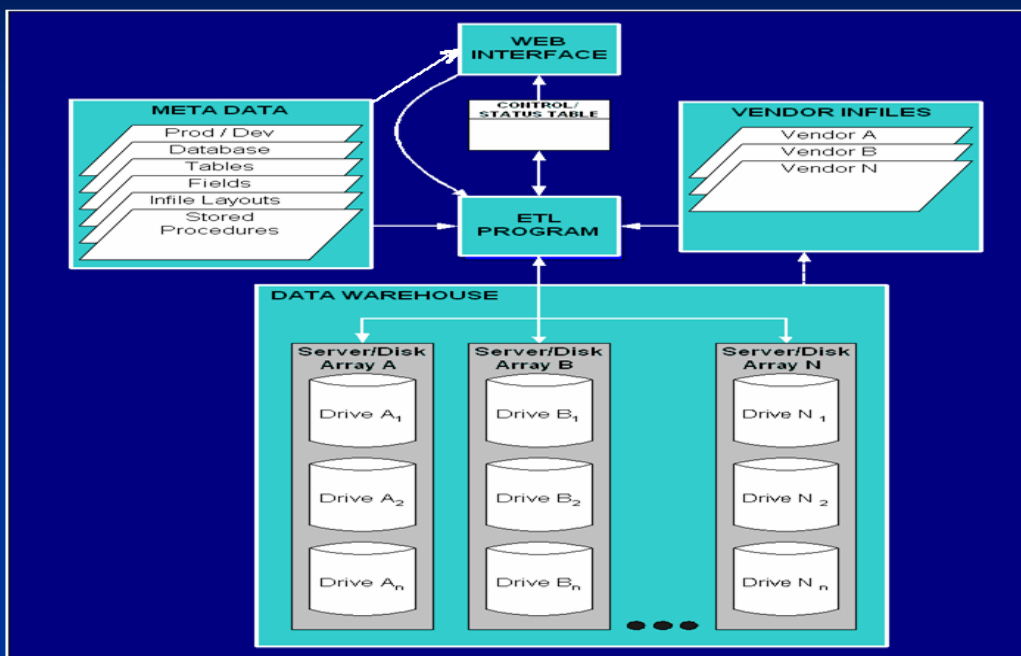
Source	Extract Start Time	Extract Completion Time	Extract Duration	Extract Count	Update Count	Update Count by Date	Unmerged Count
SOP Order	13:25	13:29	0:04	406,403	406,403	103MAY04-41603*193MAY04-364720	0
SOP Line	13:25	13:42	0:24	3,260,042	367,208	103MAY04-35551*193MAY04-2904498	0
SOP Supplement	13:25	13:33	0:10	1,676,227	406,384	103MAY04-103456*193MAY04-1490771	0
Extract	2:00	2:01	0:01	34,431	8,110	103MAY04-2079*193MAY04-2416*203MAY04-3616	24,211
MDR	2:00	2:04	0:03	267,381	267,381	103MAY04-83758*193MAY04-93720*203MAY04-90103	333,430
RTT	2:10	2:14	0:03	3,604	3,604	103MAY04-1213*193MAY04-2391	16,253

Internet

An Automated Foreign Currency (Forex) Trading System



Metadata Driven Data Warehouse



I can also produce a wide variety of geographic reports:



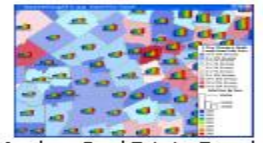
Find the Best Facility Locations



Analyze Sales by ZIP Code



Perform Nationwide Demographic Analysis



Analyze Real Estate Trends



Use Aerial and Satellite Images for Geographic Editing



Compute Shortest Paths and Delivery Routes



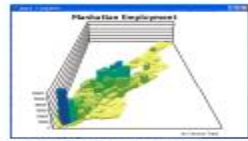
Find Locations Anywhere in the World



Produce Travel Maps



Use Geographic Data from Other GIS and CAD Sources



Visualize Data Geographically



Build Sales Districts and Territory Maps



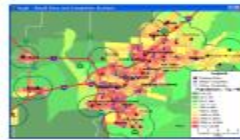
Locate Your Customers and Facilities



Track and Display Your GPS Location



Create Network-Based Bands of Distance or Drive Time to Facilities



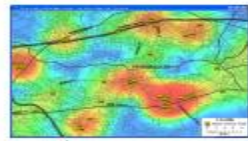
Determine Market Potential



Visualize Three-Dimensional Surfaces



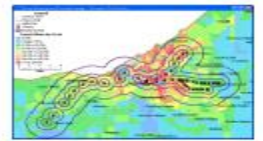
Determine School Bus Eligibility



Find Crime Hot Spots



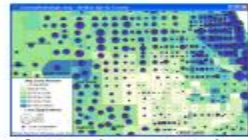
Link Map Features to Images, Web Sites, and Other Files



Compute Accessibility to Public Transportation



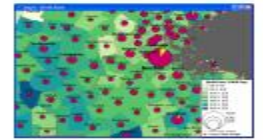
Visualize Flows of Goods or People



Verify Regulatory Compliance



Assess Risk and Underwrite Insurance



Analyze Public Health Data

SKILLS GRID:

Computer Languages, General Skills, Concepts	Total Years Experience	Companies and Years of Experience
Access, Microsoft Office	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Active Directory / LDAP	1.5	Takeda Pharmaceuticals (1.5)
Audited Code	5	Emblem Health (4.4), Wells Fargo (0.5)
Agile Development	5	Emblem Health (4.4), Wells Fargo (0.5)
AWS (Amazon) Cloud Administration	4.5	AiHedge.com (3), Takeda Pharmaceuticals (1.5)
Azure (Microsoft) Cloud Administration	0.5	Wells Fargo (0.5)
Business Intelligence (BI)	10.5	AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Takeda Pharmaceuticals (1.5)
C	10	USWest/Qwest (7), AiHedge.com (3)
Change Control		USWest/Qwest (7), HeathFirst NY (.8), Novartis (1), EmblemHealth (4.4),
CI/CD	0.5	Wells Fargo (0.5)
Code Review	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Code Optimization	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Database Design & Modeling	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Data Analysis	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Data Reporting	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Data Mining	13	USWest/Qwest (7), OTHERS, AXA Equitable (1.7), Emblem Health (4.4), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Wharton School (0.5)
Data Modeling	13	USWest/Qwest (7), OTHERS, AXA Equitable (1.7), Emblem Health (4.4), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Wharton School (0.5)

Data Quality Monitoring and Alert Reporting	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Data Validation	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Data Warehousing	0.5	HealthFirst NY(1), Wharton School (0.5)
DevOps & SecOps teams for SAS Platform Support	16	USWest/Qwest (7), AXA Equitable(.5), Emblem Health(4), Takeda Pharmeceuticals (4), Wells Fargo (.5),
Docker (CI/CD containers)	0.5	Wells Fargo (0.5)
ETL (Extract/Aquiring, Transformation/Cleaning & formatting,Loading/Production Deployment to Data Warehouse)	10.5	AiHedge.com (3), AXA Equitable (1.7), Wharton(.5), Emblem Health (4.4), Healthfirst (0.8)
Excel, Microsoft	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Geographic GIS, GPS	8	US West/Qwest(7), Novartis(1)
Github	0.5	Emblem Health (4.4), Wells Fargo (0.5)
Hadoop/Hive	4.4	Emblem Health (4.4)
Hotfix / Patch Maintenance	4.4	Emblem Health (4.4)
HTML	10.5	USWest/Qwest (7), OTHERS, AiHedge.com (3), State of Connecticut (0.5)
Installation and Configuration	18	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Novartis (1), Wharton School (0.5), State of Connecticut (0.5)
Interfaces, Front End	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Javascript	3.5	USWest/Qwest (7), AiHedge.com (3), State of Connecticut (0.5)
Job Scheduling & Monitoring	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Kubernetes	4.4	Emblem Health (4.4)
License Updates		AXA Equitable (1.7), Emblem Health (4.4), Takeda Pharmaceuticals (1.5), Healthfirst (0.8), Novartis (1), Wharton School (0.5), State of Connecticut

Linux (Redhat, Solaris, Ubuntu) (Korn Shell and Bash Shell)	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Machine Learning	10.5	AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Takeda Pharmaceuticals (1.5)
Oracle	7.8	USWest/Qwest (7), Health First NY(.8)
Perl	3.5	USWest/Qwest (7), AiHedge.com (3), Self Employed (0.5)
Predictive Analytics	10.5	AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Takeda Pharmaceuticals (1.5)
Production Deployment	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Powerpoint, Microsoft	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Project Documentation	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Project Management	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Process Documentation	22	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Python	4.4	Emblem Health (4.4)
SAS Base Code Development	16	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
SAS Grid Administration	8	AXA Equitable (3.5), Emblem Health (4.5)
SAS Macro Code Development	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
SAS Visual Analytics	1.5	AXA Equitable (1.5)
SAS Viya	0.5	Wells Fargo (0.5)
SQL SAS (Proc SQL)	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)

SQL Server (Microsoft T-SQL)	16	USWest/Qwest (7), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Healthfirst (0.8), Novartis (1), Wharton School (0.5), State of Connecticut (0.5)
SQL Oracle (PL/SQL with Cursors or Data Pointers)	11	USWest/Qwest (7), AXA Equitable (1.7), Healthfirst (0.8), Novartis (1), Wharton School (0.5), Schering Plough (0.2)
Statistical Analysis	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
SecOps & DevOps teams for SAS Platform Support	16	USWest/Qwest (7), AXA Equitable (.5), Emblem Health (4), Takeda Pharmaceuticals (4), Wells Fargo (.5)
Software Design & Programming	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
SQL (ALL)	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Statistical Modeling	3.5	AXA Equitable (1.5), AiHedge.com (3), Self Employed (0.5)
System Administration	11	AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5)
Testing	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
VBA (MS Office embedded Visual Basic for Applications)	23	USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Visual Basic (Microsoft .NET Studio)		USWest/Qwest (7), AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Self Employed (0.5), Novartis (1)
Word, Microsoft	23	USWest/Qwest (7), OTHERS, AiHedge.com (3), AXA Equitable (1.7), Emblem Health (4.4), Wells Fargo (0.5), Takeda Pharmaceuticals (1.5), Chubb (0.3), Healthfirst (0.8), Self Employed (0.5), Novartis (1), Wharton School (0.5), Schering Plough (0.2), State of Connecticut (0.5)
Workflow Development / Implementation	1.5	Novartis(1), Wells Fargo(.5), CT Dept. of Health(.5)