

# Sonoma County Office of Education – Job Description

---

---

## Classified Management

### DATA ARCHITECT

#### Definition:

The employee is responsible for designing, developing, and managing the overall data architecture to build and maintain the county-wide data dashboard. For the purpose of progress monitoring programmatic initiatives and projects, student outcomes, and organizational impact, employee must oversee efficient storage, access, and analysis of student, staff, and operational data across the county, translating organizational metrics for student and school/district success into technical data models, while maintaining data quality, security, and compliance with regulations. Employees will collaborate with stakeholders to understand data requirements and implement appropriate data solutions, act as project manager for the acquisition, development, testing, training, and enhancement of existing and new student and organizational data systems used by the County Office and Sonoma County schools/districts, and serve as liaison with third party vendors and school/district leaders.

#### Distinguishing Characteristics:

This is a management classification that requires a thorough understanding of both programmatic and technical aspects of data collection and visualization. Knowledge and experience with the operations of systems from both the user's perspective and the developer's perspective related to student information systems, document management systems, data analysis tools, and other application systems as assigned. This class provides expert and advisory guidance to county and district certificated and classified staff in the use of integrated systems and the use of data in programmatic, student focused decision making.

#### Supervision Exercised and Received:

Employees in this class receive limited supervision within a broad framework of policies and procedures. The incumbent receives direction and training and supervision from the Assistant Superintendent of Student Support Services and Accountability.

#### Example of Duties and Responsibilities:

*Duties and Responsibilities may include, but are not limited to, the following:*

- Act as Project Manager for the acquisition, development, documentation, testing, training, and enhancement of new and existing data systems; attend planning meetings and interview users to gather information on needs and desired system features for re-engineering the system.
- Provide day to day technical systems support and training to users for student systems, document management systems and student performance data analysis tools.
- Analyze user concerns, requirements, and requests for system features and uses; identify applications, modifications, and enhancements and implement appropriate solutions.
- Implement and coordinate data management goals and objectives for the purpose of providing for the efficient and effective functioning of system policies and procedures.
- Oversee the design, implementation, maintenance, security and administration of data systems.

- Design and optimize SQL (PostgreSQL, MySQL) or NoSQL (MongoDB, Firebase) databases to store and manage data efficiently.
- Ensure scalability and performance of the data storage infrastructure.
- Implement data security best practices and access control mechanisms.
- Establish detailed process and procedure documentation.
- Provide expert data analysis to answer critical questions that will help the users manage and understand the data and the trends; analyze and interpret data using statistical techniques.
- Perform a leadership role in the areas of advanced data techniques, including data access, data integration, data visualization, data discovery and statistical methods.
- Design, create and maintain data warehouses that aggregate multiple data sources (SIS, Assessments, etc.) and create reports and dashboards to support Local Control and Accountability Plan (LCAP) and early warning goals.
- Assist end-users with the creation of custom reports using a variety of software and database tools including standard query language (SQL).
- Act as liaison between software vendors, school and district leaders, and County Office.
- Attend workshops and seminars to remain current on computer applications; disseminate information to other employees and districts.
- Develop, optimize, and maintain complex database systems, ensuring efficiency and data integrity across various platforms.
- Design, implement, and manage data architectures, including data warehouses, data lakes, and ETL pipelines to support analytics and reporting.
- Collaborate with county staff to design scalable and secure data solutions that align with the county's requirements.
- Analyze and improve SQL queries, stored procedures, and database structures to enhance performance and scalability.
- Write and maintain detailed technical documentation for database schemas, data integration processes, and data governance policies.
- Create, modify, and maintain reports, dashboards, and data visualizations to support decision-making processes.
- Implement data validation techniques to ensure data consistency and accuracy across multiple sources.
- Work closely with stakeholders to translate business requirements into efficient database and application solutions.
- Utilize data modeling and schema design techniques to create efficient and scalable relational and non-relational databases.
- Monitor database performance, perform tuning operations, and optimize indexing strategies to ensure efficient data retrieval.
- Stay up to date with emerging technologies in database management, cloud-based data services, and big data solutions.
- Collaborate with the Information Technology Department.
- Performs related duties as assigned.

## **Employment Standards:**

### ***Knowledge of:***

- Policies, procedures, functions and principles to maintain complex database and reporting systems.

- Principles, practices and methods of database development, management and implementation and related system design.
- Industry standards and procedures of SIS database application and maintenance, student attendance, grading, registration, and class scheduling standards, practices and procedures.
- Microsoft SQL Server, TSQL, writing complex TSQL queries.
- Experience with education technology and working with student information systems (SIS).
- Familiarity with cloud-based data solutions (AWS, Google Cloud) for data storage and processing.
- Knowledge of authentication and SSO integration methods.
- Exposure to data analytics, reporting tools, and statistical analysis.
- Analytic skills with the ability to collect, organize, analyze, and disseminate significant amounts of data with attention to detail and accuracy.
- Experience extracting and utilizing large data sets, adept at queries, report writing and presenting findings using infographics and other technology-based tools.
- Knowledge of statistics and experience using statistical packages for analyzing small and large datasets.
- Ability and willingness to learn new software programs that assist in data analysis.
- Ability to deliver effective presentations to a range of stakeholders.
- Experience writing data protocols and facilitating professional development in the area of data analysis.
- Practical experience creating dashboards, scorecards, analytics and visualizations allowing for interactive functionality using BI development environments such as MS Excel with Powerpivot, SQL Server Reporting Services (SSRS), Tableau and/or Qlik.
- Troubleshooting and diagnostic techniques for identifying and resolving database and reporting errors.
- Standard English usage, spelling, grammar and punctuation.
- Interpersonal skills using tact, patience and courtesy.
- Safe work practices.
- Effective training techniques.

***Ability to:***

- Strong programming skills in JavaScript, HTML, and CSS, with experience using front-end frameworks such as React, Vue, or Angular.
- Proficiency in at least one backend programming language, such as .NET (C#), Java, Python, or C++, to support data processing and API development.
- Experience working with databases (SQL or NoSQL), including query optimization, schema design, and data indexing.
- Knowledge of RESTful APIs, data pipelines, and ETL processes to facilitate seamless data integration.
- Understanding of data visualization principles and hands-on experience in building dashboards and reports.
- Ability to troubleshoot and debug data integration, database performance, and dashboard functionality issues.
- Strong problem-solving skills, adaptability, and the ability to work both independently and collaboratively.
- Respond promptly to requests of internal and external clients; provide needed information, assistance, training, materials and resources.

- Plan, organize and prioritize own work to meet deadlines and accomplish assigned tasks within established timelines including maintaining accurate records and files.
- Plan, organize, direct, control and perform activities related to the development, documentation, testing, training and enhancement of new or existing computerized software systems.
- Maintain an orderly work environment and perform tasks in prescribed and safe manner.
- Establish and maintain cooperative working relationships with those contacted during performance of job duties.
- Maintain and improve professional skills and knowledge.
- Be flexible and receptive to change.
- Understand and apply principles, techniques and procedures required for effective job performance.
- Install and maintain complex database systems.
- Troubleshoot and debug database applications and software problems.
- Train and assist others in the use and functions of assigned software.
- Test and evaluate software applications.
- Effectively implement problem-solving techniques.
- Prepare and deliver clear and concise oral and written instructions.
- Prepare complex technical written material in an effective and comprehensive manner.
- Communicate effectively both orally and in writing, including developing and executing oral presentations for small and large groups.
- Work in an independent manner with little direct supervision.

## **Education and Experience:**

*Any combination of education and experience that would provide the knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:*

### ***Education:***

- Bachelor's Degree from an accredited College or University with a concentration in Mathematics, Economics, Computer Science, Information Management and/or Business Administration; or

### ***Experience:***

- Equivalent experience in managing data systems and five years increasingly responsible experience in information systems in a large scale information technology environment.
- Strong knowledge and experience with data analytic and reporting tools: Tableau, Excel, MS SQL, Crystal Reports and core business services such as Financial, Payroll and Human Resources.

### ***Physical Abilities:***

*The physical abilities described here are representative of those that must be met by an employee to successfully perform the essential functions of this job.*

- Occasionally standing, bending, stooping, kneeling.
- Occasionally crawling in confined spaces in buildings.
- Lifting up to twenty-five (25) pounds frequently, fifty (50) pounds on an occasional basis and in excess of fifty (50) pounds with assistance. The heavy objects to be lifted include personal computers, printers and related equipment.
- Hear normal conversation.
- Speak clearly.

- Drive an automobile and transport equipment and documents.
- Sit for long periods in a typing position.

***Work environment:***

- Work is performed in an office environment with minimal exposure to health and safety considerations.

***Other Requirements:***

- Must be fingerprinted and satisfactory Department of Justice and Federal Bureau of Investigation records checks must be received by Sonoma County Office of Education, prior to employment.
- TB testing will be required upon employment.
- Must pass a pre-employment physical (if applicable).
- Visual acuity sufficient to read manuals, video display screens, and other related material and work at a computer screen frequently and throughout the day.
- May be required to obtain first aid and CPR certificates within the first 6-12 months of employment.
- May be required to drive with or without students; some positions may require a current California driver license, proof of insurance, and possible participation in the DMV Pull Notice Program once employed.

***Other:***

- Approved: February 24, 2025
- FLSA Status: Exempt
- Bargaining Unit: Unrepresented
- Approved by: Personnel Commission