

**SANTA CLARA COUNTY OFFICE OF EDUCATION**  
**Personnel Commission**

**CLASS TITLE: DATA ENGINEER**

**BASIC FUNCTION:**

Under the direction of the Manager - Data Systems, implements and maintains data warehousing applications and other data systems for the Santa Clara County Office of Education (SCCOE), districts, schools, and partners; supports research, data analysis, and data-driven decision-making, which includes, but is not limited to, defining metrics, reports, and analysis.

**REPRESENTATIVE DUTIES:**

The following duties are examples of assignments performed by incumbents in this classification. It is not a comprehensive list of duties, nor is it restrictive regarding job assignments.

**ESSENTIAL DUTIES:**

Implements and supports new data models and associated extraction, transformation and load (ETL) processes including facilitation of source system data mapping sessions.

Maintains and troubleshoots existing data models and associated ETL processes.

Implements and tests Business Intelligence (BI) solutions such as databases, queries, views, reports, and dashboards.

Ensures the accuracy, privacy, reliability, security, and accessibility of data in the data warehouse; participates in and facilitates the data governance process by enforcing data integrity and data security guidelines and recommending process improvements.

Assists in data conversions, imports, and exports of data within and between internal and external software systems, including data to and from multiple student information systems, agencies, assessments, and vendors.

Assists the SCCOE data services management team in building and managing a wide variety of data sets.

Performs detailed data validation and audits for data residing in the data warehouse; performs root cause analysis and troubleshooting for data issues when required; creates and documents criteria for assessing data issues and opportunities.

Anticipates potential problems and develops solutions needed to resolve them; systemically analyzes relationships between apparently independent problems and issues and identifies trends as well as isolated events.

Assists in developing and establishing standard procedures and best practices for the data systems technical team; researches and implements new technologies.

Develops and maintains effective working relationships with school districts and vendors; educates and trains district users and others to use the data as an analytical tool, displaying the information in new form and content for analysis and exploring options.

Participates in continuous learning, professional development, training, and ongoing education as needed to stay current with emerging technologies, industry best practices and data security standards.

Operates a computer, a variety of software, and other office equipment as assigned; drives a vehicle to conduct work as assigned.

**OTHER DUTIES:**

Performs related duties as assigned.

**KNOWLEDGE AND ABILITIES:**

**KNOWLEDGE OF:**

SQL, ETL, data warehouse, data mining, data optimization, and data visualization tools.

Object-oriented design and one or more object-oriented programming languages, Python, Java preferred.

MS SQL query design and server-side scripting techniques including Transact SQL, VB.NET - as well as client-side technologies such as JavaScript, HTML, and CSS.

Incident management and process management applications like Cherwell, Jira, and Microsoft Project.

Agile software development and building high quality, testable, and maintainable software.

Data governance concepts.

Product and software development lifecycles.

Team software development roles and practices.

Software development life cycle concepts.

Google Docs and spreadsheets.

Systems analysis and design.

Proper English usage including grammar, spelling, punctuation and sentence structure.

**ABILITY TO:**

Effectively use data processing, analysis, visualization technologies such as Python, SQL, ETL, JAVA and JavaScript/HTML/CSS.

Write and test SQL scripts to migrate data between systems as required.

Build and maintain analytics systems that are efficient, reliable, maintainable, extensible, and testable using various programming languages and SQL stored procedures.

Analyze source systems for data transformation to a data warehouse.

Analyze, interpret and generate insights/reports on large data sets.

Translate complex data and analysis results into clear, engaging, and actionable reports or presentations.

Develop reports and complex dashboards, automating reporting as needed.

Design, structure and organize large-scale data sets.

Design, create and maintain data dashboards.

Assess new initiatives to determine the work effort and estimate the necessary time-to-completion.

Perform responsible data engineering-related development and programming activities.

Interpret technical procedures and documentation, and explain technical concepts in non-technical terms to team members, clients, and users.

Conduct small group and individual client training.

Work under limited supervision with only occasional instruction and assistance.  
Establish and maintain cooperative and effective working relationships with others.  
Perform complex problem solving as well as critical thinking, using logic and reasoning to identify strengths and weaknesses to solutions and approaches.  
Work with management, administrators, and other team members to solve complex development challenges.  
Communicate effectively in both oral and written form.

**EDUCATION AND EXPERIENCE:**

Any combination equivalent to: Bachelor’s degree in computer science or a related field and three years of increasingly responsible experience supporting and developing data warehouses or related data visualization environments.

**WORKING CONDITIONS:**

**ENVIRONMENT:**

Office environment.  
Driving a vehicle to conduct work.  
Evening or variable hours.

**PHYSICAL DEMANDS:**

Hearing and speaking to exchange information and make presentations.  
Seeing to read a variety of documents.  
Dexterity of hands and fingers to operate a computer keyboard.

Approved by Personnel Commission: August 21, 2019  
Revised: 10/14/20



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Marisa Perry  
Director - HR/Classified Personnel Services

Date: 10/14/2020