



Office of Human Resources
IT Data Engineer Senior - CI3235
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General Statement of Duties

Performs full performance level information technology work building, managing and optimizing data pipelines and then moving these data pipelines effectively into production for key data and analytics consumers (like business/data analysts, data scientists or any persona that needs curated data for data and analytics use cases). The Data Engineer Senior will also guarantee compliance with data governance and data security requirements while creating, improving and operationalizing these integrated and reusable data pipelines.

Distinguishing Characteristics

The IT Data Engineer Senior is also distinguished the IT Data Engineer Associate, which performs standard level information technology work building, managing and optimizing data pipelines then moving these data pipelines effectively into production for key data and analytics consumers.

The IT Data Engineer Senior is also distinguished the IT Data Architect Senior, which performs full performance level information technology work developing, implementing, and maintaining complex, large scale business and enterprise data models; designing and building relational databases; developing and maintaining enterprise-wide data architecture, governance, processes and tools; and serving as a technical expert to the organization in the use of enterprise and business data systems.

Essential Duties

Create and maintain optimal data pipeline architecture.

Assemble large, complex data sets that meet functional and non-functional business requirements.

Identify, design, and implement internal process improvements: automating manual processes, optimizing data delivery, redesigning infrastructure for greater scalability, etc.

Build the infrastructure required for optimal extraction, transformation, and loading of data from a wide variety of data sources using tools such as SQL and 'big data' technologies.

Build analytics tools that utilize the data pipeline to provide actionable insights into key business performance metrics.

Work with stakeholders to assist with data-related technical issues and support their data infrastructure needs. Create data tools for analytics and data scientist team members in IT and across the enterprise.

Work with data and analytics experts to strive for greater functionality and governance in our data systems.

Develops and implements strategies for warehouse implementation, data acquisitions and archive recoveries for complex, enterprise-wide data systems; develops, implements, and maintains data migrations, extract transform, and load functions.

Conducts research to identify client needs for business and enterprise data solutions, while ensuring compliance with data architecture principles and strategies. Formulates and defines scope and objectives of solution based on client needs.

Consults with clients and the organization to translate business needs into long-term architecture solutions.

By position, performs lead work over other information technology professionals or performs project management duties.

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Performs other related duties as assigned.

Employees may be re-deployed to work in other capacities in their own agencies or in other City agencies to support core functions of the City during a City-wide emergency declared by the Mayor.

Any one position may not include all of the duties listed. However, the allocation of positions will be determined by the amount of time spent in performing the essential duties listed above.

Competencies

Attention to Detail – Is thorough when performing work and conscientious about attending to detail.

Customer Service – Interacts with customers in a friendly and professional manner, works to resolve issues quickly and effectively, and is knowledgeable about products and services. Information

Technical Competence – Uses knowledge that is acquired through formal training or extensive on the job experience to perform one's job; works with, understands, and evaluates technical information related to the job; advises others on technical issues.

Management – Identifies a need for and knows where or how to gather information; organizes and maintains information or information management systems.

Oral Communication – Expresses information to individuals or groups effectively; taking into account the audience and nature of the information; makes clear and convincing oral presentations; listens to others, attends to nonverbal cues and responds appropriately.

Reading – Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations.

Knowledge & Skills

Knowledge of building and optimizing 'big data' data pipelines, architectures and data sets.
Strong analytic skills related to working with unstructured datasets.

Knowledge of processes supporting data transformation, data structures, metadata, dependency and workload management.

Working knowledge of message queuing, stream processing, and highly scalable 'big data' data stores.

Knowledge of data engineering and data architecture principles, methods, and techniques used in the design and development of data systems

Knowledge of the principles, methods, and tools for designing, developing, and testing software in a given environment.

Knowledge of current information systems trends and technologies.

Knowledge of information technology systems analysis, including systems design, sufficient to be able to maintain current systems and implement new systems.

Knowledge of the principles, methods, and tools for analyzing and developing software test and evaluation procedures.

Level of Supervision Exercised

By position, may perform lead work on a project or rotating basis.

Education Requirement

Bachelor's Degree in Computer Science, Computer Information Systems, Business Administration, Mathematics, or a related field.

Experience Requirement

Three (3) years of professional information technology experience developing and maintaining data pipelines, to include two years at the type and of the level of the Associate Data Engineer.

Education & Experience Equivalency

One (1) year of the appropriate type and level of experience may be substituted for each required year of post-high school education.

Additional appropriate education may be substituted for the minimum experience requirements.

Licensure & Certification

By position, must obtain Criminal Justice Information Services (CJIS) clearance within the probationary period.

Working Environment

Subject to many interruptions.
Subject to long irregular hours.
Pressure due to multiple calls and inquiries.

Level of Physical Demand

1-Sedentary (0-10 lbs.)

Physical Demands

(Physical Demands are a general guide and specific positions will vary based on working conditions, locations, and agency/department needs.):

Accommodation: Ability to bring objects into focus.

Agility: Ability to move quickly and easily.

Balancing: Maintaining equilibrium.

Carrying: Transporting or moving an object.

Color vision: Ability to distinguish and identify different colors.

Fingering: Picking and pinching, through use of fingers or otherwise.

Handling: Seizing, holding, grasping, through use of hands, fingers, or other means.

Hearing: Perceiving and comprehending the nature and direction of sounds.

Lifting: Moving objects weighing no more than 10 pounds from one level to another.

Reaching: Extending the hands and arms or other device in any direction.

Sitting: Remaining in a stationary position.

Standing: Remaining in a stationary position.

Stooping: Positioning oneself low to the ground.

Talking: Communicating ideas or exchanging information.

Vision Far Acuity: Ability to perceive or detect objects clearly at 20 feet or more.

Vision Near Acuity: Ability to perceive or detect objects at 20 inches or less.

Vision: Ability to perceive animal behavior, comprehend signs, and detect color.

Walking: Ability to move or traverse from one location to another.

Written Comprehension: Ability to discern the meaning of written words.

Background Check Requirement

Criminal Check

Education Check

Employment Verification

By position, Motor Vehicle Record

By position, must obtain Criminal Justice Information Services (CJIS) clearance within the probationary period.

Assessment Requirement

None

Probation Period

Six (6) months.

Class Detail

Pay Grade: EX-14

FLSA Code: Y

Established Date: 12/15/2019

Established By: GT

Revised Date: 7/30/2023

Revised By: AM

Class History: 7/30/2023 – Revised licensure & certification and background checks.