YORK UNIVERSITY
DEPARTMENT OF HUMAN RESOURCES

JOB POSTING - YUSA

JOB TITLE: Senior Data Engineer	**JOB CODE:** 956496
DEPARTMENT/FACULTY: Enterprise Data Management and Analytics, UIT	**SALARY BAND:** 17

JOB PURPOSE:

Under the direction of the Manager, Enterprise Data Management and Analytics, the Senior Data Engineer role leads the development, implementation, and support of data management activities such as data modeling, data ingestion, data mappings, data conversion and data migration, for the University's enterprise data architecture. The role is responsible for the development, implementation and support of the enterprise data platform encompassing enterprise solutions such as Student Information System (SIS), Student Award Cloud, PeopleSoft ERP for Human Resources and Financials, Identity & Access Management, Microsoft Dynamics 365, Learning Management Systems, etc. The role is responsible for implementing data-related assets that include data ingestion pipelines, cleansing and transformation activities, and data stores for analytical workloads. The role will use a wide range of data platform technologies, including relational and non-relational databases, file stores, and data streams. The role works closely with Data Architect, Senior Integration Developers, Senior Application Analysts, Reporting Analysts, Data Quality Analysts, external solution integrators and the wider York University community to provide technical leadership on the data pipelines that feeds business intelligence tools, enhances system integration capability, increases data accessibility, fosters enterprise data-driven decision making across the University, and enables Governmental reporting. Serving as an expert technical resource and subject matter expert, the Senior Data Engineer role takes requirements from concept to implementation.

The Senior Data Engineer role is responsible for ensuring that the University's data architecture complies with the University's privacy and security standards and with data quality and governance frameworks. The role is responsible for the development and operation of the University's data governance tools (e.g., Data Cookbook) and supports the wider York University community with the on-going maintenance of the University's data catalogue. The role works closely with the Office of Institutional Planning (OIPA) and the wider York University community to ensure adherence to Data Governance standards, and to maintain the enterprise semantic layer that enables efficient deployment of Business Intelligence (BI) analytics tools such as Microsoft PowerBI, Oracle Analytics Cloud, and Tableau, to enable advanced enterprise analytics and reporting required to bring development and operations together for faster delivery times, enable digital transformation, and enhance data exchange/access across the university.

MAJOR AREAS OF RESPONSIBILITY:

1. Extract, Transform, Load (ETL/ELT) Program Development
Percentage of time: 55%

A. Acts as a technical lead in data related projects and designs the transformation, conversion, and migration of data from inception to the delivery phase to securely move enterprise data between on-premises and cloud solutions using modern data migration techniques and solutions. Collaborates with UIT developers and community members to ensure complex enterprise data is migrated across systems as needed.

B. Works collaboratively and in partnership with business system owners across the university to provide consultation, advice, and guidance on data elements to be referenced from applications (e.g., SIS, Destiny, PeopleSoft HCM, CRM) for data management purposes. Plans preemptive actions to ensure data is error free and effectively supports University operations.

C. Creates, implements, and reviews high quality ELT/ETL scripts to move large volumes of data from various enterprise operational systems for data acquisition, including testing and debugging on the enterprise-wide data platform. Maintains system components using platform tools and/or custom code. Analyzes, utilizes, and maintains code repositories for branches, merges, packaging, releases, and code documentation.

D. Analyzes and interprets complex data. Establishes data mapping techniques for solution data models. Develops data warehouse models and schemas.

E. Defines and coordinates proof of concept activities associated with data extraction and migration techniques. Recommends, designs, documents, and drives adoption of the frameworks used in development, such as Informatica, Microsoft Azure Data Services or Profile.

F. Works closely with the Manager, Enterprise Data Management and Analytics to ensure the data model aligns with the business requirements and aligns to UIT standards for data quality in compliance with the University Data Governance Framework and defined data standards, best practices, security, and data privacy policies.

G. Assists with identifying enhancements or improvement opportunities to business processes for creating and retrieving information from datasets minimizing/eliminating the impact of manual intervention on those processes.

H. Ensures accuracy and integrity of data through analysis, coding, clear documentation, and problem resolution.

I. Prepares data, and ensures data integrity, for use in predictive and prescriptive modeling.

J. Performs unit and performance load testing as assigned. Assists with data processing and cleansing to ensure data accuracy and integrity.

K. Deploys tested and approved ELT/ETL scripts into the production environment. Develops technical specifications and documentation for production control scripts. Ensures that upgrades/changes are tested and implemented in accordance with established protocols.

L. Ensures that where/when confidential data is being accessed, the data remains protected and secure from unauthorized access/entry.

M. Works with Manager, Enterprise Data Management and Analytics and technical teams to finalize specifications, recommend alternate choices, trade-offs, and analyze impacts to relevant downstream systems.

N. Provides regular status updates to project owners and leadership to communicate operational issues and problem resolution activities.

Contacts: CDO, CIO, CISO, Legal, Senior Leadership Team, UIT Leadership Team, Business system owners/clients, UIT colleagues and management. Other database contacts. External technical architects – e.g., vendors, contractors, service providers, IT product and service research organizations, and higher education organizations.

Reason for Contact: Reviews and provides recommendation to implement new data management practices. Communicates business benefits of new enhancements, compliance to defined policies/process/procedures, and system analysis/problem resolution(s). Explains technical issues to non-technical users and understands client business requirements. Supports, consults and/or works collaboratively and cooperatively with other technical colleagues both inside and outside of York University to resolve technical problems.

2. Semantic Layer & Metadata Development and Support
Percentage of time: 25%

A. Collaborates with Manager, Enterprise Data Management and Analytics and reporting team(s) to reverse engineer existing tools, identify data needs and develop enhanced data management capabilities to facilitate both operational and analytical reporting. Develops new enterprise data models based on business requirements and ensures conformity to defined standards and compatibility of components for Data Modeling, Rapid File Database (RPD), Star Schema design and Oracle Applications Architecture. Ensures data models align with York's data governance framework.

B. Designs and codes the metadata model to meet the University's enterprise analytic strategy. Ensures alignment with the University's data governance framework.

C. Supports the Manager, Enterprise Data Management and Analytics with the development of KPIs, measures, star schemas, and hierarchies within the semantic layer to meet the University's requirements.

D. Designs the semantic layer/metadata to ensure that confidential data is protected and secure from unauthorized access. Develops semantic layer/metadata using multiuser development models. Ensures synchronization of metadata from multiple developers.

E. Inspects data management systems and applications for data integrity, service availability, and performance. Plans preemptive actions to ensure optimal performance.

F. Coordinates metadata testing initiatives to ensure metadata object functionality aligns with requirements.

G. Packages Systems Requirements Specifications (SRS) and Systems Design Specifications (SDS) documentation on the code developed, design decisions made, as well as data and reporting standards for effective and efficient analytics deployment at the University.

H. Analyzes complex data service problems and coordinates resolution with internal and/or external technical support resources. Ensures final resolution, including fixes, is implemented correctly.

I. Troubleshoots and repairs application, system and/or data issues, as required.

J. Collaborates with business leads and technical development team(s) to ensure the creation of efficient technical solution(s) that meets defined functional business needs.

K. Reports on operational issues and problem-resolution activities to clients and/or senior management, as required.

Contacts: Colleagues and other contacts, clients, internal and external technical architects – e.g., vendors, contractors, service providers, IT product and service research organizations, and higher education organizations.

Reason for Contact: Needs/requirements determination/gathering, coordination, problem resolution, direction and guidance, research and analysis, and product/service information. To resolve problems cooperatively and collaboratively with DBAs, system administrators, cloud providers and operations colleagues.

3. Knowledge Transfer, Documentation and Support
Percentage of time: 15%

A. Collaborates with colleagues to share knowledge and ensure conformity to standards, and compatibility of project components and required changes to processes and procedures on implementation.

B. Provides guidance to developers on new processes and defined tasks, checks work, and advises on how to proceed with corrections.

C. Leads discussions, analyses impact, and discuss the viability of the proposed implementations. Works with DBAs, system administrators, and operations staff to resolve problems related to enterprise-wide data issues.

D. Liaises with technical and non-technical groups to better understand and maintain a broad awareness of design and implementation standards, documentation, and best practices.

E. Under the direction of the Manager, Enterprise Data Management and Analytics, contributes and adheres to departmental coding, documentation, best practices, development standards, and policies.

F. Performs root cause analysis on processes and data delivery problems. Resolves production issues and validates data. Performs routine tests, periodically, on databases.

G. Provides SRS and SDS documentation on the code developed, design decisions made, as well as data and reporting standards for effective and efficient analytics deployment at the University.

H. Develops and maintains change control process(es) documentation for enterprise data management.

I. Documents changes and provides testing to ensure proper application functionality.

J. Drafts procedures for review and approval. Documents the upgrade steps and works together with the system and database administrators to install and upgrade data governance and management tools in both test and production environments. Coordinates the upgrade process, as required.

K. Inspects systems and applications for data integrity, service availability and performance. Plans preemptive actions to ensure optimal performance. Troubleshoots and repairs application, system and/or system integration problems as required.

L. Trains other UIT staff and Senior Institutional Analysts within OIPA to maximize the data management platform. Trains project team and colleagues on new unified cloud analytics platforms (e.g., Profisee, Data Cookbook, Microsoft Azure Data Services) and data preparation tools.

M. Maintains up-to-date knowledge on current and emerging data technologies. Acts as the subject matter expert and resource on data-related projects. Identifies opportunities and recommends adoption of innovative technologies that will enhance reliability and service delivery.

Contacts: Colleagues and other contacts, clients, internal and external technical architects – e.g., vendors, contractors, service providers, IT product and service research organizations, and higher education organizations.

Reason for Contact: Needs/requirements determination/gathering, coordination, problem resolution, direction and guidance, research and analysis, and product/service information. To share knowledge, develop documentation, and train colleagues and/or clients on data management practices and functionality.

4. Other duties as assigned
Percentage of time: 5%

COMMUNICATIONS:

	English
Basic reading skills (e.g., scanning text, reading forms, etc.)	☒
Basic writing skills (e.g., writing brief notes, completing forms, etc.)	☒
Basic speaking skills (e.g., asking & answering simple or repetitive questions, etc.)	☒
Comprehends written material (e.g., extracting information/details, reading reports/correspondence, etc.)	☒
Writes non-complex documents (e.g., composing factual information/short routine correspondence, taking minutes, etc.)	☒
Sustains conversation on specific topics (e.g., explains standard policies/procedures/services, etc.)	☒
Comprehends complex texts (e.g., reading & interpreting policy papers/research papers/technical reports, etc.)	☒
Composes documents (e.g., drafting reports/recommendations/ research papers/summaries, etc.)	☒
Sustains in-depth conversation (e.g., interpreting & expressing complicated ideas, making presentations, etc.)	☒

PHYSICAL & SENSORY DEMANDS/ENVIRONMENTAL CONDITIONS:

☒	VDT Use	70%	☒	Bending	5%
☒	Prolonged visual attention	60%	☒	Walking/mobility	2%
☒	Prolonged audio attention	30%			
☒	Hand/finger dexterity	60%			
☒	Prolonged sitting	70%			
☒	Prolonged standing	10%			
☒	Lifting and/or carrying (approx. 20lbs)	1%			

RESPONSIBILITY FOR OTHERS:

		F/T – P/T	Casuals
☒	Gives direction or instructions	2-4	1-2
☒	Decides what tasks/projects other should do first		1-2
☒	Arranges work schedules, coordinates work flow & reviews completed work	2-4	1-2
☒	Trains others in new tasks or estimates training needs	5-7	1-2
☒	Participates in hiring, as a resource		1-2

QUALIFICATIONS:

Minimum level of formal education required:
University Degree in Computer Science, Engineering, IT, Data Science, Applied Mathematics, Management Information System, or a related technology discipline/area, or an equivalent of four (4) years of recent experience (defined as within the last five years) working at York University and performing the same or similar tasks. This educational equivalency is in addition to the experiential requirements below.

Please note: This position requires the candidate to produce a verification of degree(s), credentials(s), or equivalences from accredited institutions and/or international equivalents at the time of interview.

Minimum number of years and type of relevant work experience required:
Seven (7) years' related Information Technology experience with major relational database management systems (e.g., Oracle or Microsoft SQL), with concurrent experience as follows:

- Five (5) year's hands-on experience with ETL/ELT development
- Five (5) year's hands-on experience with SQL scripting and managing enterprise relational SQL dimensional databases. Advanced knowledge of Extract, Transfer, Load (ETL) processes and associated technologies required.
- Four (4) year's hands-on experience with all aspects of the analytics lifecycle: Discovery, Design, Build, Test and Deploy with a preference on SaaS data platforms (e.g., Oracle Analytics Cloud, Microsoft Azure data services).
- Two (2) year's hands-on experience in production support and maintenance
- Comprehensive knowledge of data architecture, including data modelling, data governance (policies, standards, processes & quality) and data management (identify, collect/ingest, process, orchestrate, store, organize, secure, access & integrity).
- Comprehensive knowledge of data management patterns, techniques, and solutions, including master data management, data pipeline, data warehousing, data lakes, data ingestion & connectivity tools (Informatica, Profisee, Azure Data Factory, etc.)
- Extensive experience in data warehousing technologies (e.g., Oracle Autonomous Data Warehouse), enterprise database solutions (e.g., Oracle Autonomous Database, Microsoft Azure SQL) and business intelligence environments (e.g., Oracle Analytics Cloud, Microsoft PowerBI, Tableau, Oracle Business Intelligence Enterprise Edition).
- Experience with analyzing and profiling data, designing, and implementing data management solutions; handling sensitive data sets, production deployment, troubleshooting and production support, data conversion.
- Data Management or Data Architecture certification is an asset.

Skill(s) required:

- Ability to learn an unfamiliar business process quickly and adaptable to rapidly evolving requirements.
- Ability to understand business rules, data architecture, and explain data requirements.
- Efficient analytical and evaluative skills.
- Effective organizational skills.
- Effective communication skills to elicit, interpret and summarize information.
- Ability to work and communicate in a professional manner.
- Ability to use tact, diplomacy, and discretion when dealing with others.
- Ability to recognize and respect others' diversity and individual differences.
- Service-oriented, with an ability to assess the operational significance of a problem and set priorities accordingly.
- Ability to exercise good judgment in analyzing and evaluating situations/circumstances and solving problems.
- Effective organizational skills with an ability to handle conflicting priorities, multi-task and meet deadlines.
- Ability to work independently to identify and accomplish key objectives in an environment of high volume and frequent interruptions.
- Ability to exercise initiative and work effectively as a team member to support unit/organizational goals.
- Ability and willingness to keep up to date with application development tools.
- Effective deployment skills across DEV, QA, UAT and production environments.

Technical Skills Matrix:

		BASIC	INTERMEDIATE	ADVANCED
Programming Languages	Java			X
	PL/SQL			X
	BeanShell/JavaScript			X
Markup Languages Data format languages	HTML5/CSS			X
	XML, JSON, YAML			X
Database and Development Tools	Oracle, MS SQL, or relational database			X
	Microsoft Power Platform	X		
	Informatica			X
	Profisee			X
	Data Cookbook or equivalent		X	
Cloud Platforms	Microsoft Azure		X	
	Oracle Cloud Infrastructure		X	
Software Design Patterns	Software system design tools			X
	MVC (Model-View-Controller)		X	
Continuous Integration/Continuous Deployment	Azure DevOps		X	
	Jenkins		X	
	Ansible		X	
Code versioning tools	Git or équivalent			X
Analytical Reporting	Power BI	X		
	Oracle BI or Analytics Cloud	X		
	Tableau	X		

JOB SPECIFICATIONS:

Hours of work: 8:30AM to 4:30PM Monday to Friday

Summer: Victoria Day Weekend to Labour Day Weekend: 8:30AM to 4:30PM Monday to Thursday, 8:30AM to 3:30PM Friday

Occasional overtime will be available

Peak periods: Variable based on active project timelines

Vacation restriction: During critical project timelines