Job Description – MIT Job #24494

Functional Area:	Office of the Vice President for Finance, Financial Systems		
Job Title:	Software Developer 2	**Position Title:**	Data Engineer
Reports to:	Manager of Business Intelligence Solutions	**Prepared on:**	October 2024
Salary Grade: 9	**Salary Range:** $100,000 - $120,000	**Hours per week/status:** 40/Exempt	

About the Office of the Vice President for Finance:

Join the MIT Office of the Vice President for Finance (VPF) and be part of a team dedicated to managing the Institute's financial resources to support education, research, and innovation. At VPF, we prioritize excellence, integrity, and inclusiveness in our work and office culture.

VPF achieves goals through teamwork and collaboration, and we celebrate those successes together. Our team comprises professionals with diverse backgrounds and skill sets who share a passion for financial and administrative excellence.

VPF offers flexible work schedules with both remote and in-office work. A VPF staff member will spend 2-8 days per month in the office, depending on the position and specific team schedules. Our primary location in Technology Square is convenient to amenities, including coffee shops, lunch spots, and events on MIT's main campus. Commuter resources, including free MBTA passes and commuter rail discounts, are available to all employees.

MIT's comprehensive benefits package demonstrates a commitment to our employees' well-being. Our benefits include health and dental insurance, a 401(k) plan with employer match, an additional pension plan with 100% of contributions managed and paid for by MIT, paid vacations and holidays, and more.

Position Overview

The Data Engineer leads the full life cycle of Business Intelligence platform development, including design, coding, testing, and production support for the Financial Systems team in the Office of the Vice President for Finance. Their core responsibility is to build standard-driven data integration and automation processes and to manage the integrity and quality of MIT financial data used for reporting and analytics.

Principle Duties and Responsibilities
   Data Operations (80%)
   ▪ Dev Ops: Automation engine for the Data Vault (60%)
        o   Builds and monitors orchestration processes.
        o   Writes and maintains code (Python, SQL, Linux).
        o   Approves and promotes code from Development to Test to Production.
        o   Debugs and fixes data errors based on SLA with internal customer.
        o   Follows Agile Project Management (SCRUM) for developing and releasing new features.
        o   Develops metadata-driven processes.
   ▪ Creates reusable libraries/functions for managing APIs, connections.

- Keeps documentation up to date.
  - o Tracks and optimizes data pipeline performance.
- Data Ops: Data Vault (20%)
  - o Performs data profiling on new data sources to extract metadata that will be used both in data models and in the automation.
- Builds data models for the raw data, metadata, and metrics vaults.
- Debugs Redshift DDL (database definition language) nonstandard SQL statements.
- Develops, monitors, and maintains Extract Transform Load (ETL) and Extract Load Transform (ELT) data pipelines to ensure the consistency of processes and integrity of the data end-to-end.
  - o Applies Data Vault 2.0 Standards in the design of data integration workflows.
  - o Captures metrics about workflows to monitor performance and provides audit trail.
- Supports business analysts with advanced SQL scripting to validate data integrity and data quality by tracing the source of the error/bug and in understanding the reason for the issue (e.g., data quality, program error, lack of clarity in business process or data definitions).

Architecture Configuration and Maintenance (10%)
- Sys Ops: Platform Architecture for the Data Vault
- Administers 3-tier environment (Development, Test, and Production).
  - o Designs, documents, configures, tests, implements, and maintains VPF Business Intelligence platform in Amazon Web Services (AWS):
    - Identity and Access Management (IAM): creates and maintains roles and access policies across and between AWS services.
- Simple Storage Solution (S3): creates buckets and manages subdirectories' structure.
    - Elastic Compute (EC2): creates, configures, and maintains Linux virtual machines.
- Redshift: manages instance; creates databases, schemas, and tables; views and monitors performance.
    - Python + Boto3: uses native AWS functions to dramatically improve workflow performance.
  - o Creates and manages certificates and public-private keys to secure communications between server and client applications.

Other activities (10%)
- Defines data management standards and policies as applied in the automation and within the Data Vault.
- Enforces compliance with Data Vault standards, data management policies, and procedures.
- Writes documentation on the team's wiki on all aspects of the platform (sys ops, dev ops and data ops) and creates recipes that can be re-used ("plug-and-play").
- Writes, reviews, and communicates technical design and program specifications.
- May lead ad hoc projects and take on other duties as assigned.

Qualifications

Required
- Bachelor's degree
- Minimum five (5) years of relevant programming experience
- Demonstrated and proven experience modeling and building data solutions across various databases, preferably AWS Redshift, Oracle, and PostgreSQL
- Experience developing, orchestrating, and supporting ETL/ELT pipelines using open-source or commercial software
- Experience developing data integrations with ERP and other financial systems
- Experience building OLAP and visualization and reporting software
- Advanced experience with Excel (i.e., modeling, PowerPivot, VBA)

- Cloud computing experience with one of the leading vendors: Amazon Web Services – AWS (preferred), Google Cloud, or Microsoft Azure
- Experience across multiple operating systems: Windows, Unix/Linux, Mac
- Experience with data profiling, data quality, master data management, and metadata management
- Detail-oriented with excellent problem identification and problem-solving skills
- Demonstrated ability to work both independently and as part of a team
- Strong collaborative, proactive, interpersonal, and communication skills
- Ability to collaborate with a diverse group of colleagues from varying backgrounds
- Able to function in a complex, busy, changing environment while meeting necessary deadlines

Preferred
- Master's degree
- Project management experience
- Up-to-date recognized professional data warehousing certification: either Certified Data Vault 2.0 Practitioner (CDVP2.0) or Certified Business Intelligence Professional (CBIP)
- Experience with Tableau reporting software
- Experience with SAP, Concur, Coupa, and Oracle platforms and data
- Recognized certification in agile project management such as SCRUM
- Membership in the Data Management Association (DAMA), The Data Warehousing Institute (TDWI), the Data Vault Alliance, or the SCRUM Alliance
- Knowledge of statistics tools: Python, R
- Experience with tools such as Atlassian JIRA and Confluence
- Experience with data governance and metadata management
- Experience in higher education or nonprofit accounting a plus

Supervision Received

Reports to the Manager of Business Intelligence Solutions

Supervision Exercised

None

Additional Information

MIT considers equivalent combinations of experience and education for certain jobs. All candidates who believe they possess equivalent experience and education are encouraged to apply.

Employment is contingent upon the completion of a satisfactory background check.

MIT is unable to provide work authorization or visa sponsorship for this position.

This position has a six-month probationary period for new employees to the Institute.

Diversity, Equity, and Inclusion

VPF benefits from a diverse and engaged workplace and seeks to further enhance our community by employing individuals from varied backgrounds. VPF actively supports MIT's commitment to advancing a respectful and caring community that embraces diversity and empowers everyone to learn and do their best.

MIT is an equal employment opportunity employer. All qualified applicants will receive consideration for employment and will not be discriminated against on the basis of race, color, sex, sexual orientation, gender identity, religion, disability, age, genetic information, veteran status, ancestry, or national or ethnic origin.

VPF is Mission Focused

The Office of the Vice President for Finance (VPF) advances MIT's mission by supporting thoughtful stewardship and effective deployment of the Institute's financial resources. Forward-thinking and future-oriented, the office is working to create a seamless administrative experience for MIT colleagues and make it easier for them to comply with grant, accounting, and other applicable rules. VPF also seeks to enhance the quality of financial information available to MIT and is focused on providing services that are readily adaptable to the evolving demands of an increasingly global Institute.