Institutional Research Database Analyst/Programmer

Position Description:

Institutional Research (IR) in the Office of the Provost at MIT is seeking a motivated problem solver with database management and programming experience to join our team of dedicated and collegial data-focused professionals. This position plays a pivotal role in maintaining and supporting the Association of American Universities Data Exchange (AAUDE) Data Warehouse, MITx Massive Open Online Courses (MOOCs), and other online course data. Primary responsibilities include developing ETL/ELT processes, designing, building, and maintaining web applications; working with large, complex data sets; using programming languages to write scripts that support users; troubleshooting database access and web tool functions; proposing solutions for streamlining processes; and resolving operational data issues. This person works closely with colleagues from MITx, MIT IR, Information Systems & Technology (IS&T), as well as external stakeholders, such as colleagues at AAUDE member institutions.

Key Areas:

**AAUDE (Association of American Universities Data Exchange) Data Warehouse**

- Work with another IR staff member to maintain and support the AAUDE Data Warehouse, the AAUDE site on the MIT Tableau server, and the AAUDE web application server.
- Develop and maintain web applications, including the Data Submission and Validation (DSV) web tool, the AAUDE Ad-hoc Queries Search tool, and the AAUDE Peer Groups management app running on the AAUDE web application server.
- Develop and maintain programming scripts to support the user management process.
- Assist users accessing the AAUDE Data Warehouse via SQL based reporting tools, such as Tableau Desktop, SAS, SPSS, SQL Developer, MS Access and programming/scripting languages such as R, Python, Perl that can connect to the Oracle database. Troubleshoot and resolve database connection issues pertaining to Oracle, ODBC, and JDBC.
- Interact directly and work closely with AAUDE Staff, AAUDE Council, AAUDE members, and MIT IS&T technical groups and external IT vendors.

**Online course data management**

Develop and maintain ETL/ELT processes for MOOC and other online course data in MITx and Canvas.

**Database administration**

- Design, build, and maintain database objects and systems
- Perform data conversions, loading data to the database (ETL/ELT processes).
- Implement tools and processes for identifying and reporting data quality issues.
Web Development
- Design, build, and deploy new web applications.
- Maintain web applications written in Python using Flask, HTML, CSS, and JS.

Technical Support
- Keep abreast of new offerings from IS&T and how these new offerings can be leveraged by IR to improve existing processes.
- Provide basic technical training to IR staff, including basic SQL and scripting (Python, Shell scripting, etc).
- Provide solutions that balance ease of use of security tools for users possessing a wide range of technical skills.
- Refine and automate labor-intensive business processes.

Position Requirements:
- Bachelor’s degree and three years of applicable work experience required.
- Familiarity with Windows, MacOS, and Linux
- Experience with databases (traditional RDBMS, including Oracle and cloud databases), including proficiency with SQL and PL/SQL or T-SQL, is essential.
- Facility with scripting languages, specifically Python, preferred; familiarity with additional languages such as Perl or Ruby would be a plus.
- Familiarity with managing a code repository on Github
- Experience or Interest in web development; especially in Python using Flask and/or Django.
- Familiarity with SSO authentication; experience with Kerberos is a plus.
- Strong communication skills to work with both internal and external stakeholders who have a variety of technical acuity
- Curiosity, a desire to learn new things, and collaboration are key to success in this role

This position will initially be remote. In the long term it will have some on-campus component with considerable flexibility in work arrangements.