STATE OF MONTANA
JOB DESCRIPTION

Montana state government is an equal opportunity employer. The State shall, upon request, provide reasonable accommodations to otherwise qualified individuals with disabilities.

Job Title: Software Developer   Position Number: 81117

Location: Helena

Department: MDT   Division and Bureau: ISD   Section and Unit: Infrastructure and Applications

Job Overview:

Working in a multi-project environment this position will support, guide, and lead the continued evolution of Esri Enterprise ArcGIS system architecture used by MDT, which will also include technology and business process changes supporting Esri Roads and Highways. Provide Python programming support as needed for the existing ALTIS (Roads and Highways) implementation, and JavaScript support for in-house applications using the Esri JavaScript mapping API, as well as the Google Map API. Collaborate with and support ISD IAB staff in support of Esri Enterprise ArcGIS system architecture upgrades, including cloud migration, and other Esri technology upgrades. With respect to Esri and GIS, preference will be given to applicants who have demonstrated experience in one or more of the following technologies: Esri Enterprise ArcGIS, Esri Roads and Highways, Esri ArcGIS Server, Esri ArcMap Pro, JavaScript Mapping APIs, a combination of these technologies, and Python. Applicants with GISP and/or Esri certifications may be given preference in instances where candidates have similar backgrounds, experience levels, interview responses, or a combination of the above.

In addition, following MDT standards and industry best practices, the successful candidate will develop, maintain, enhance, and test new and existing software or web-based applications based upon multiple platforms and programming languages, which include Java, .Net and Oracle PL/SQL. The incumbent will also develop and support applications using JavaScript, that are Web and Mobile-based, interact with GIS platforms, interact with multiple database management systems, as well as publish and consume web services. Prefernce will be given to applications who have demonstrated experience in one of more of the following technologies: JEE and Web Frameworks such as Spring; Web Technologies such as Java, JavaScript, HTML CSS, JSON, IntelliJ, Junit, Hibernate, Spring Data JPA, Bootstrap; Database experience with Oracle 19c or newer; Java Application Server including Apache Tomcat; JQuery and JQuery Mobile, Google Map API, Other development

languages including PL/SQL, VB.NET, ASP.NET; The SCRUM Agile software development methodology framework.

Essential Functions (Major Duties or Responsibilities):

Application Analysis (60%)

Use currently accepted methods of business process analysis and systems analysis and design to model existing processes, tasks, and interfaces within the department of transportation to carefully and accurately determine business needs and the most effective tools to use to meet those needs.

- Understands and applies the principles of Systems Analysis and Design (e.g., logical and physical database design, produces design documents from analysis documentation) at the application level and system level to improve the completion of a variety of existing business tasks within the department. Scope typically involves large-scale applications, new applications, new systems, and custom off-the-shelf solutions.

- Serves as a project manager or technical/functional lead on large-scale implementation projects and new system development on high-complexity forms, large-scale critical applications, and interfaces with other agency systems. These projects typically involve more than 10 people, often in multiple business areas.

- Leads and coordinates business process collection and analysis activities with senior staff and business owners to fully understand the process and ensure functional specifications are documented along with the technical specifications.

- Analyzes and evaluates the flow of data to update and improve processes.

- Develops scoping documents, plans and priorities, and manages scope changes appropriately (including level of effort, time estimates and resource needs and impacts) on projects within an application group or division.

- Responsible for the development of appropriate data models and documentation to support and explain the results of all analyzed tasks. Reviews all models with stakeholders within the project to ensure processes are understood and correctly modeled.

- Assists with implementing change control policies and documentation.

- Assists in the development and implementation of business processes and procedures for new applications. Provides guidance to the business functions.

- Develops new interfaces and data conversion routines.

- Assists senior staff with vendor management tasks (developing CEP's, RFP's, onsite software installations, etc.)

Computer Programming (40%)

Assess the available programming environments within the department and determine what specific environment or mix of environments best suits the programming task to be accomplished and the needs of the program's users. Suggest the adoption of new environments if applicable. Design, write, and test computer programs based on the results of the analysis phase of the systems design process. Thoroughly test the programs, train users, and assess user satisfaction with the end product.

- Write, update, and maintain computer programs or software packages to handle a variety of tasks such as tracking inventory, storing or retrieving data, or controlling other equipment.

- Identify critical test points for particular computer programs. Design testing processes to thoroughly evaluate all of the reasonably identifiable variations in data, input, and output.

- Carefully identify the source or sources for all errors discovered during the testing process. Note the implications of complex interactions between multiple procedures, routines, or other sections of code on the error identification and corrections process.

- Conduct trial runs of programs and software applications to be sure they will produce the desired information and that the instructions are correct.

- Based on accepted practices in Computer Science, compiles and writes documentation of program development and subsequent revisions, inserting comments in the coded instructions so others can understand the program as well as completing identified documents per MDT standards.

- Consult with managerial and technical personnel to clarify program intent, discuss programming complexities or new methods required, and propose solutions including platforms, languages, interfaces, tools, and methods.

- Perform or direct revision, repair, or expansion of existing computer programs to increase operating efficiency or adapt to new requirements. Carefully evaluate the interdependencies between the program to be modified and any other existing programs, database interfaces, re-usable code modules, department business practices, and user interactions.

- Apply the principles of Computer Science to create workflow charts and other relevant diagrams to detail program flow, logic, input and output requirements, and interfaces.

- Write or contribute to instructions or manuals to guide end users.

- Integrate individual efforts with team's requirements. Identify points of interface with other programs to create successful program level interfaces.

- Researches and evaluates new technologies, new system development procedures and policies, user business processes and other issues related to system development, administration, and troubleshooting to maintain a high level of professional and technical expertise.

Supervision

The number of employees supervised is: 0

The position number for each supervised employee is: NA

Physical and Environmental Demands:

Physical

- Ability to sit or stand in one place for a length of time

Mental

- Knowledge of computer programming methodologies, working knowledge of PC's and operating systems, computer program application development standards and processes

Knowledge, Skills and Abilities (Behaviors):

KNOWLEDGE: Principles of Systems Analysis and Design, Computer Programming, Project Managmement, Customer Service.

SKILLS: Reading Comprehension, Active Listening, Writing, Speaking, Critical Thinking. Active Learning, Learning Strategies, Service Orientation, Complex Problem Solving, Operations Analysis. Technology Design, Programming, Troubleshooting, Quality Control Analysis, Judgment and Decision Making, Systems Analysis.

Minimum Qualifications (Education and Experience):

The required knowledge and skills are typically acquired through a combination of education and experience equivalent to a Bachelor's Degree in Computer Science, Geographic Information Systems, or a closely related field such as Information Systems Design or Computer Programming.

This position requires a minimum of 5 years of related experience. Working knowledge of Esri Enterprise ArcGIS, SQL, Oracle RDBMS and its associated tools, Java, .NET technologies, JavaScript, Python, HTML, XML, spatial and mobile applications.

Alternative Qualifications: AS in Computer Science, Computer Information Systems, Geographic Information Systems, or a BA/BS in a non-related field plus 7 years of Esri GIS experience with Python programming, OR AS degree in non-related field plus 8 years of Esri GIS experience with Python programming or OR 10 years of Esri experience with Python programming experience.

Special Requirements:

☒   Fingerprint check   ☐   Valid driver's license

☐   Background check   ☐   Other; Describe

035   Union Code   Safety Responsibilities

The specific statements shown in each section of this description are not intended to be all inclusive. They represent typical elements and criteria considered necessary to perform the job successfully.

Signatures

My signature below indicates the statements in the job description are accurate and complete.

_____

Immediate Supervisor   **Title**   **Date**

_____

Administrative Review   **Title**   **Date**

My signature below indicates that I have read this job description.

_____

Employee   **Title**   **Date**

Human Resources Review

Job Code Title: Software Developer 2.3   Job Code Number: C1D022

My signature below indicates that Human Resources has reviewed this job description for completeness and has made the following determinations:

☐ FLSA Exempt   ☒ FLSA Non-Exempt

☒ Telework Available   ☐ Telework Not Available

☒ Classification Complete   ☐ Organizational Chart attached

Human Resources:

_____

Signature   **Title**   **Date**