

## **DATA ENGINEER**

### **DEFINITION**

Under general direction, leads and coordinates day-to-day operations of the Operational Data Store (ODS), Data Warehouse, and all related technologies; analyzes and transforms data into a format that can be easily used by different departments for reporting; collaborates with programmers, Business Analysts, and functional areas in gathering requirements and clarifying their needs for implementation, generation, optimization, and support of their data; provides complex professional staff assistance to the Director, Enterprise Application Systems in areas of expertise.

### **SUPERVISION RECEIVED AND EXERCISED**

Receives general direction from the assigned managerial personnel. Provides coordination and lead work direction to staff.

### **CLASS CHARACTERISTICS**

This is a highly specialized class in the Information Technology (IT) Department that leads a wide variety of technical duties pivotal to the College's Operational Data Store and Data Warehouse. Responsibilities include performing diverse, specialized, and complex work involving significant accountability and decision-making responsibility providing guidance, suggestions, and coordination to the College as it relates to data infrastructure, modeling, data refresh timelines, and operations. Successful performance of the work requires an extensive professional background, as well as skill in leading and coordinating departmental work with that of other College departments. This class is distinguished from Director, Enterprise Application Systems by the latter's management and supervisory authority in planning, organizing, and directing the full scope of enterprise operations within the department.

### **EXAMPLES OF ESSENTIAL FUNCTIONS (Illustrative Only)**

1. Provides technical support, analysis, and programming to ensure complete and appropriate use of the College's Operational Data Store and Data Warehouse.
2. Responds and evaluates ad hoc requests for data, statistical analysis, research projects and studies; prepare requests for processing; arrange and maintain project schedules and timelines; design strategies to complete assignments; analyze and compare a variety of data solutions; make team project recommendations to the manager.
3. Assists manager to evaluate and respond to requests for complex or original support from within and outside the College; works independently with requestors to clarify their needs and optimize the utility of results.
4. Reviews user needs and requests and develops proposed solution for usable data design or format for the users' reporting and analysis needs; monitors and tunes report queries and views.
5. Assists in implementing ways to improve data reliability, efficiency and quality.
6. Develops, constructs, tests, and maintains Operational Data Store and Data Warehouse architecture.
7. Discovers opportunities for data acquisition.
8. Expands the existing schema design to handle new data formats.
9. Develops and documents Operational Data Store and Data Warehouse standards, scripts, guidelines, and usage procedures; enforces standards for use, control, updates, and maintenance for the Operational Data Store and Data Warehouse environments.
10. Interacts and coordinates with other IT areas and key end users.
11. Ensures data models, design, and architecture that are in place support the requirements of the programmers, Business Analysts, researchers, and different functional areas.
12. Provides guidance on reporting, query or data extraction design, development, and maintenance,

- including monitoring performance tuning and optimization in queries; Recommends selection of query or reporting tools, methodologies, and procedures for development of reports and views.
13. Develops data set processes for data modeling, mining, and production; prepares data for use in predictive and prescriptive modeling.
  14. Leverages large volumes of data from internal and external sources to answer reporting needs.
  15. Participates on committees, task forces, and special assignments, including, but not limited to Screening and Selection Committees and affiliated trainings. Prepares and delivers oral presentations related to assigned areas if needed.
  16. Performs other related or lower classification duties as assigned.

## **QUALIFICATIONS**

### **Knowledge of:**

1. State-of-the-art information systems as applied to large, complex administrative, or educational organizational environments.
2. Principles and techniques of computer systems and software architectures.
3. Operating System (OS)-based platforms.
4. Programming languages, including but not limited to PL/SQL, SQL, Python, and Shell Scripting.
5. Database front-end programs such as Microsoft (MS) Access, Statistical Package for the Social Sciences (SPSS), and related products.
6. Data warehousing and techniques.
7. Principles and concepts of Relational Database Management System (RDBMS), Big Data, and Operational Data Store.
8. Statistical tools and research methods.
9. Principles, techniques, and methodologies in project management and leadership.
10. Business letter writing and record-keeping principles and procedures.
11. Use, capability, characteristics, and limitations of computer systems and databases
12. Methods, techniques, and practices of data collection and report writing.
13. Modern office practices, method, and computer equipment and applications related to the work, including word processing, database, and spreadsheet software.
14. Techniques for effectively representing the College in contacts with governmental agencies, community groups, and various business, professional, educational, regulatory, and legislative organizations.

### **Skills & Abilities to:**

1. Analyze informational requirements and needs, identify problems, provide technical advice and consultation, and ensure efficient computer system utilization.
2. Analyze data and develop logical solutions to problems.
3. Experience with Source code management systems.
4. Code Debugging and Performance troubleshooting.
5. Master new technologies quickly; stays abreast of current trends and developments in Operational Data Store, Data Warehouse, and Big Data.
6. Conduct complex research projects on a wide variety of information technology and database administration topics, evaluate alternatives, make sound recommendations, and prepare effective technical staff reports.
7. Interpret, explain, and ensure compliance with College policies and procedures.
8. Establish and maintain a variety of filing, record-keeping, and tracking systems.
9. Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work, set priorities, and meet critical time deadlines.
10. Use English effectively to communicate in person, over the telephone, and in writing at both technical

and functional levels.

11. Understand scope of authority in making independent decisions.
12. Review situations accurately and determine appropriate course of action using judgment according to established policies and procedures.
13. Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.
14. Explores and examines data to find hidden patterns.
15. Tell stories to key stakeholders based on the analysis.
16. Learns and applies emerging technologies, as necessary, to perform duties in an efficient, organized, and timely manner.

### **Education and Experience:**

Equivalent to graduation from a regionally accredited four-year college or university with major coursework in computer science, data science or a related field, and four (4) full time equivalent years of experience in database management including two (2) full time equivalent years of progressive experience as a data analyst, data engineer, or researcher.

### **Licenses and Certifications:**

The incumbent may periodically be required to travel to a variety of locations. If operating a vehicle, employees must have the ability to secure and maintain a valid California driver's license.

### **PHYSICAL DEMANDS**

Must possess mobility to work in a standard office setting and use standard office equipment, including a computer; to operate a motor vehicle to visit various College and meeting sites; vision to read printed materials and a computer screen; and hearing and speech to communicate in person and over the telephone. This is primarily a sedentary office classification although standing in and walking between work areas is frequently required. Finger dexterity is needed to access, enter, and retrieve data using a computer keyboard or calculator and to operate standard office equipment. Incumbents in this classification occasionally bend, stoop, kneel, reach, push, and pull drawers open and closed to retrieve and file information. Incumbents must possess the ability to lift, carry, push, and pull materials and objects up to 20 pounds.

### **ENVIRONMENTAL ELEMENTS**

Incumbents work in an office environment with moderate noise levels, controlled temperature conditions, and no direct exposure to hazardous physical substances. Incumbents may interact with staff and/or public and private representatives in interpreting and enforcing departmental policies and procedures.