COMPETENCY MODEL FOR
DATABASE ARCHITECT
CLASS CODE 1470

The following competencies have been identified as those that best separate superior from satisfactory job performance in the class of **DATABASE ARCHITECT.** (Numbers refers to the order of the competencies in the Competency Bank.)

4. Analytical Ability
6. Attention to Detail
11. Initiative
17. Innovation
20. Job Knowledge
32. Responsiveness and Follow-up
35. Teamwork
45. Oral Communication

On the following pages are descriptions of each competency, including a definition, the level of the competency required for the class (bolded, italicized, and underlined), examples of behavioral indicators, and satisfactory and superior performance levels.

4. ANALYTICAL ABILITY – Identifies, obtains, and evaluates relevant information to establish relationships or patterns, cite causes, and reach logical conclusions.

Level of Competency Required by Job:

Level 1: Recognize similarities/differences in current situation to those previously encountered and is guided accordingly. Apply existing policies correctly. Ask pertinent questions or otherwise seek additional information to formulate appropriate response.

Level 2: Consider multiple, varied factors when evaluating a situation or issue. Seek additional information to provide further insight. Reach conclusions that logically follow from the information obtained.

Level 3: Consider a multitude of diverse factors, their interrelationships, the perspectives of others, alternative courses of action and their likely ramifications when evaluating information to reach a conclusion.

Examples of Behavioral Indicators:

- Obtains the necessary amount of relevant information.
- Recognizes the impact of each type of information on conclusions.
- Evaluates the quality/source of information when considering it.
- States the shortcomings of the information and, therefore, the analysis.

Performance Levels:

Satisfactory

Recognizes available relevant information, seeks additional information to consider, and reaches a conclusion. Provides sound, convincing justification for conclusions, citing relevant data and facts.

Superior

Uses a great deal of existing and obtained information and data to develop and evaluate alternatives and arrive at a final conclusion. Provides compelling arguments in support of conclusions.

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6. ATTENTION TO DETAIL – Extremely careful in addressing all aspects of each work assignment in order to produce "completed staff work" and/or avoid any negative outcomes.

Level of Competency Required by Job:

  Level 1:   Ensure all aspects of work assignment are completed as directed.

  Level 2:   Verify that each aspect of work assignment is properly completed; make logical inference regarding additional activities that may need to be performed to produce "completed staff work."

  Level 3:   Include evaluation of final work/work product in its accomplishment; make adjustments as possible to improve.

Examples of Behavioral Indicators:

- Carefully checks all aspects of work for completion and accuracy before submitting.
- Identifies errors (for example, typo's, computations, measurements, application of laws/rules/policies) and corrects them prior to submitting.
- Cross-checks work against available resources.
- Sets up a means of checks and balances to ensure work accuracy.
- Considers changes in final work product to ensure usability by recipient.
- Completes all revisions upon request.

Performance Levels:

Satisfactory

Ensures that each task accomplished represents "completed staff work." No remaining details/inconsistencies for others to address.

Superior

All aspects of each task completed are verified to be correct. Identifies any foreseeable consequences of work that may need to be addressed and does so.

11. INITIATIVE – Generates activity that facilitates accomplishment of work.

Level of Competency Required by Job:

Level 1: Offer to help co-workers and/or recognize things to do that facilitate work group accomplishment.

Level 2: Identify new tasks/projects to be undertaken and assist others with accomplishment of their work.

Level 3: Determine additional work necessary to improve the function and productivity of the organization or its services to citizens or other customers.

Examples of Behavioral Indicators:

- Makes suggestions for improvement in work quality or quantity.
- Finds work to do when own work is slow rather than allow diminished personal productivity.
- Expands scope of work/responsibility in appropriate directions.
- Anticipates upcoming events in order to prepare for them.

Performance Levels:

Satisfactory

Superior

Generates goal directed activity rather than waiting to be told what to do. Anticipates what is likely to occur in order to be able to prepare; recognizes that preparation for (and clean-up after) a job is part of doing the job.

Actively pursues additional tasks/ responsibilities that will facilitate effectiveness. Makes extensive preparations for upcoming events or expected changes.

17. INNOVATION – Seeks out and/or develops drastically different work products or ways of doing work in order to improve services and/or increase productivity.

Level of Competency Required by Job:

Level 1: Identify different means of doing work or suggest changes in work product that significantly improve productivity, work product, or service provided.

Level 2: ***Re-engineer processes and practices to increase efficiency and/or productivity and/or to improve work product or service.***

Level 3: Re-conceptualize purpose of function and/or how to achieve it in a way that improves efficiency and effectiveness.

Examples of Behavioral Indicators:

- Notes inefficiencies/unnecessary steps in work processes for elimination.
- Suggests different, more expedient means of doing work.
- Conducts thorough review of work practices to identify possible points of increased efficiency in work flow and/or product/service quality.
- Identifies opportunities to increase breadth or depth of impact.
- Determines/implements novel means of accomplishing work.
- Reconfigures existing resources to improve work flow, work product, or service.

Performance Levels:

Satisfactory

Maintains constant awareness of ways to improve quantity and quality of work. Identifies and is willing to suggest changes no matter how radical a departure from current practice.

Superior

Deliberately seeks out or develops new and improved ways of doing work and/or alteration of/addition to current work product or service to vastly improve organizational performance and the "bottom line."

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20. JOB KNOWLEDGE – Knows information required to perform a specific job. Includes both widely available courses of study (for example, chemistry, human resources management, graphic arts) and City-specific information (parking regulation and ticketing practices; purchasing procedures; provisions of the City Charter).

Level of Competency Required by Job:

Level 1: Knowledge is concrete, factual, and/or procedural and may be defined by the organization. Situations in which it is applied are quite consistent.

Level 2: ***Knowledge is substantive and may be defined by an external trade, field, or profession. Situations in which it is applied vary and, as such, require breadth and depth of understanding.***

Level 3: Knowledge is abstract, conceptual, and/or complex and may be supported by a well-defined academic discipline or authoritative sources (e.g., laws, ordinances, government guidelines/regulations/codes). Situations in which it is applied may vary greatly or be novel.

Examples of Behavioral Indicators:

- Performs work correctly/avoids technical (job content related) errors.
- Answers technical questions about work accurately.
- Asks few technical questions about the performance of routine work activities.
- Offers advice ("coaching") to new employees regarding their work.
- Develops training programs for other employees.
- Sought out as a source of information by others.

Performance Levels:

Satisfactory

Sufficient job knowledge to perform work correctly independently. Answers technical questions about work correctly.

Superior

Expertise in technical job information sufficient to serve as a resource to others. May develop training manuals/programs and/or give internal and/or external presentations related to work.

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Job Knowledge Areas

1. Knowledge of high-availability, high-performance, and disaster recovery databases such as Oracle, SQL Server, MySQL, MariaDB, PostgreSQL, DB2, and IMS (information management system) sufficient to design, implement, and manage databases that meet specific business requirements as well as to train others and provide consulting services regarding the database.

2. Knowledge of data management principles, data flow, and systems design theory such as data-driven application development, Entity Relationship Diagram, normalization, and data dictionary sufficient to design, modify, and implement efficient OLTP (Online Transaction Processing) systems and develop applications.

3. Knowledge of database tuning methods such as explain plan, AWR (automatic workload repository), and SQL tuning sufficient to optimize the performance of databases.

4. Knowledge of database design principles and conceptual modeling techniques such as multidimensional modeling including snowflake model, and star model sufficient to support data warehousing and analytic systems.

5. Knowledge of general query and transaction processing concepts such as COMMIT/ROLLBACK and transaction as a unit of a program execution sufficient to ensure consistency of data changes in the database and support transactional processing.

6. Knowledge of metadata repository concepts such as data dictionary sufficient to identify data types and efficiently manage databases.

7. Knowledge of data arrangement and distribution such as optimal flexible architecture (OFA) across electronic storage media sufficient to maximize storage media accessibility, database performance, and recovery.

8. Knowledge of the performance trade-offs, data structures, and relative strengths and weaknesses of database management systems such as Oracle, SQL Server, MySQL, MariaDB, PostgreSQL, IMS, and DB2 sufficient to select and configure the most appropriate platform based on business requirements.

9. Knowledge of programming languages such as SQL, Unix Scripts, Windows Command Scripts, and Python sufficient to write database support tasks.

10. Knowledge of control systems software and native or third-party tools such as DB2, SQL Developer, OEM (Oracle Enterprise Management), Toad, Erwin, and SSMS (SQL Server Management Studio) sufficient to develop, manage, debug, and tune databases.

11. Knowledge of internal systems components including programming languages, database and security technologies, teleprocessing technology, networking, hardware platforms, and backup and recovery issues sufficient to meet the requirements of a system design.

12. Knowledge of various relational database management schemas, such as normalized and denormalized structures sufficient to ensure data integrity and high-performance.

13. Knowledge of software tools and technologies such as database standby replication and ETL (extract transform load) sufficient to move or replicate data between databases in one platform or heterogeneous database platforms.

14. Knowledge of Google Cloud platform functionalities such as continuous integration/continuous delivery (CI/CD), containerization, cloud data computing, storing, and data pipeline development sufficient to support a data lake, Big Query, CloudSQL, and Cloud Run.

32. RESPONSIVENESS AND FOLLOW-UP – Executes actions as requested or to which a commitment has been made; continues involvement as needed.

Level of Competency Required by Job:

Level 1: Willingly accept job assignments and, upon completion, asks whether any other actions are necessary.

Level 2: Ensure that all job responsibilities are fulfilled within their designated timeframes. Willingly accept, and may volunteer for, additional assignments, but does not overextend. Anticipate and accommodate the need for continued involvement.

Level 3: Ensure that staff and other resources are available (or can be made available) to reasonably allow for completion of work before making a commitment. If not, make adjustments to ensure completion of work or re-establish priorities and communicate to all involved parties. Recognize the probable need for continuation of some staff involvement beyond the designated timeframe to ensure success.

Examples of Behavioral Indicators:

- Willingly accepts assignments and completes assigned work.
- Monitors "completed" work to determine whether additional issues to be addressed have arisen.
- Volunteers for assignments when able to assure their timely completion.
- Carefully considers available staff and resources, and competing priorities, before making commitments to complete additional work.

Performance Levels:

Satisfactory

Completes assigned work. Realistically appraises the likelihood of completing additional work before accepting or volunteering for it. Recognizes the usual need for follow-up once assignments are submitted.

Superior

Completes assigned work in an expeditious manner. Often ready to accept additional work or volunteer for it. Readjusts priorities and/or revises plans to maximize productivity. Diligently monitors the possible need for follow-up.

35. TEAMWORK – Interacts effectively with others to achieve mutual objectives; readily offers assistance to others to facilitate their goal accomplishment.

Level of Competency Required by Job:

Level 1: Work effectively as a member of a work unit or project team. Readily offer assistance to others when they have too much work or have too little.

Level 2: Work effectively as a team member in which different people have different roles/responsibilities and perspectives. Identify points for collaboration with co-workers; readily offer and request assistance.

Level 3: Work effectively as a part of an interdependent team (your work gets done only if the work of the whole team is done; evaluation of team performance is more relevant than individual performance).

Examples of Behavioral Indicators:

- Discusses work-related matters with co-workers.
- Offers and requests assistance readily.
- Offers and is receptive to suggestions.
- Identifies problems with workflow that will prevent team from accomplishing its goals.
- Provides constructive criticism and feedback to team members to improve overall functioning of team.
- Assigns credit to team for accomplishments.

Performance Levels:

Satisfactory

Cooperates with co-workers and fulfills responsibilities as a member of a project team. Maintains a focus on common objectives and offers and requests assistance readily.

Superior

Sees the team as a whole; acknowledges that performance of the team is what in reality is evaluated by others. If anyone fails, everyone on the team fails.

45. ORAL COMMUNICATION – Communicates orally in a clear, concise, and effective manner.

Level of Competency Required by Job:

Level 1: Exchange specific, job-related information orally with others in the immediate work environment or via telephone and/or radio.

Level 2: Obtain/provide/present general and/or job-specific information orally to a variety of others in various situations.

Level 3: Obtain/provide/present a diverse array of information orally at varying levels of complexity to a wide range of others across many different situations and circumstances.

Examples of Behavioral Indicators:

- Audience clearly understands the intended message.
- Rarely must repeat information in response to questions.
- Refrains from use of unnecessary words, phrases, or jargon.
- Provides a level of detail appropriate to the situation (avoids too much or too little detail).
- Speaks at a level appropriate to the audience in terms of terminology, sentence structure, and simplicity/complexity of ideas expressed.
- Uses words with precision (vocabulary) to convey exact information.

Performance Levels:

Satisfactory

Speaks clearly and audibly, providing the appropriate information and level of detail. Typically conveys the message on the first attempt. Answers questions accurately and directly.

Superior

Speech is direct and to the point. Speaks convincingly and with authority when appropriate. Maintains sensitivity to the audience while providing thorough information with the appropriate level of detail through the use of precise language.