**Database Administrators**

**Labor Market Information Report**

**City College of San Francisco**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

July 2020

# Recommendation

Based on all available data, there appears to be an undersupply of Database Administrators compared to the demand for this occupation in the Bay region and in the Mid-Peninsula sub-region (San Francisco and San Mateo Counties). There is a projected annual gap of about 496 students in the Bay region and 196 students in the Mid-Peninsula Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0707.20 - Database Design and Administration in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at City College of San Francisco and in the region.

# Introduction

This report profiles Database Administrators in the 12 county Bay region and in the Mid-Peninsula sub-region for a proposed new program at City College of San Francisco.

|  |
| --- |
| * **Database Administrators (SOC 15-1141):** Administer, test, and implement computer databases, applying knowledge of database management systems. Coordinate changes to computer databases. May plan, coordinate, and implement security measures to safeguard computer databases. Excludes “Information Security Analysts” (15-1122).
 |
| Entry-Level Educational Requirement: Bachelor's degree |
| Training Requirement: None |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 21% |

# Occupational Demand

**Table 1. Employment Outlook for Database Administrators in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2019 Jobs | 2024 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Database Administrators |  4,794  |  5,502  | 708 | 15% |  2,535  |  507  | $34.91 | $51.95 |

*Source: EMSI 2020.1*

**Bay Region** includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Database Administrators in Mid-Peninsula Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2019 Jobs | 2024 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Database Administrators |  1,589  |  1,943  | 354 | 22% |  979  |  196  | $38.72 | $56.39 |

*Source: EMSI 2020.1*

**Mid-Peninsula Sub-Region** includes San Francisco and San Mateo Counties

### Job Postings in Bay Region and Mid-Peninsula Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (June 2019 - May 2020)**

| Occupation | Bay Region | Mid-Peninsula |
| --- | --- | --- |
|  Database Administrators | 14,098 | 5,303 |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Database Administrators for latest 12 months (June 2019 - May 2020) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Data Engineer | 3,458 | Database Analyst | 136 |
| Senior Data Engineer | 1,314 | MySQL Database Administrator | 104 |
| ETL Developer | 758 | Administrator | 101 |
| Database Administrator | 733 | Technical Specialist | 92 |
| SQL Developer | 418 | Oracle Application Database Administrator | 85 |
| Oracle Database Administrator | 349 | Data Analyst | 77 |
| Database Engineer | 325 | Staff Data Engineer | 74 |
| Salesforce Administrator | 299 | Data Specialist | 69 |
| Data Center Technician | 252 | Hadoop Engineer | 68 |
| Database Developer | 250 | Agent, Retail Industry | 62 |
| Informatica Developer | 175 | Salesforce Administrative | 59 |
| SQL Database Administrator | 158 | SQL Server Database Administrator | 59 |
| Lead Data Engineer | 141 | Teradata Database Administrator | 53 |
| Data Engineer, Information And Technology Industry | 137 | Av Technician | 53 |

**Table 4b. Top Job Titles for Database Administrators for latest 12 months (June 2019 - May 2020) Mid-Peninsula Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Mid-Peninsula | Common Title | Mid-Peninsula |
| Data Engineer | 1,607 | Administrator | 49 |
| Senior Data Engineer | 660 | SQL Database Administrator | 39 |
| Database Administrator | 196 | Data Analyst | 34 |
| Salesforce Administrator | 177 | Technical Specialist | 33 |
| Database Engineer | 142 | Salesforce Administrative | 33 |
| ETL Developer | 135 | Data Center Technician | 33 |
| SQL Developer | 112 | MySQL Database Administrator | 30 |
| Lead Data Engineer | 86 | Data Administrator | 26 |
| Database Analyst | 70 | Senior Administrator | 25 |
| Database Developer | 61 | Data Engineer, Analytics | 24 |
| Data Engineer, Information And Technology Industry | 59 | Data Platform Engineer | 23 |
| Informatica Developer | 58 | Clinical Data Operator | 22 |
| Oracle Database Administrator | 52 | Oracle Application Database Administrator | 21 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Database Administrators in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2019) | Jobs in Industry (2024) | % Change (2019-24) | % Occupation Group in Industry (2019) |
| Custom Computer Programming Services | 682 | -10 | 14% | 21% |
| Internet Publishing and Broadcasting and Web Search Portals | 451 | 105 | 9% | 12% |
| Computer Systems Design Services | 408 | -37 | 9% | 7% |
| Software Publishers | 319 | 110 | 7% | 7% |
| Data Processing, Hosting, and Related Services | 288 | 115 | 6% | 6% |
| Corporate, Subsidiary, and Regional Managing Offices | 258 | 25 | 5% | 4% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) | 111 | -14 | 2% | 4% |
| Electronic Computer Manufacturing | 110 | 13 | 2% | 3% |
| Local Government, Excluding Education and Hospitals | 107 | 14 | 2% | 2% |
| Other Computer Related Services | 92 | 3 | 2% | 1% |
| Colleges, Universities, and Professional Schools (State Government) | 86 | 5 | 2% | 1% |
| Semiconductor and Related Device Manufacturing | 72 | 48 | 1% | 1% |
| Colleges, Universities, and Professional Schools | 71 | 1 | 1% | 1% |
| Wired Telecommunications Carriers | 62 | -22 | 1% | 1% |
| Research and Development in Biotechnology (except Nanobiotechnology) | 61 | 27 | 1% | 1% |
| Commercial Banking | 58 | 13 | 1% | 1% |
| General Medical and Surgical Hospitals | 53 | -4 | 1% | 1% |
| Temporary Help Services | 52 | 7 | 1% | 1% |

*Source: EMSI 2020.1*

**Table 6. Top Employers Posting Jobs for Database Administrators in Bay Region and Mid-Peninsula Sub-Region (June 2019 - May 2020)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | Mid-Peninsula |
| Amazon | 117 | Idc Technologies | 30 | Facebook | 47 |
| Apple Inc. | 97 | Neuvo Usa | 29 | Amazon | 45 |
| Facebook | 67 | Intelliswift Software | 29 | Accenture | 27 |
| Xoriant Incorporated | 56 | Bayone Solutions | 28 | Salesforce | 20 |
| Accenture | 56 | Target | 27 | Oracle | 20 |
| IBM | 42 | Cloudious Llc | 25 | Harnham | 19 |
| Microsoft Corporation | 40 | Wells Fargo | 24 | PepsiCo Inc. | 18 |
| Cisco Systems Incorporated | 40 | University Of California Office Of The President | 23 | Allstate | 18 |
| Google Inc. | 39 | Deloitte | 23 | Wells Fargo | 16 |
| Wipro | 38 | Adobe Systems | 23 | Demandbase, Inc | 16 |
| Virtusa | 38 | Vings Technologies | 22 | Primesoft Incorporated | 15 |
| Infobahn Softworld Incorporated | 34 | Harnham | 22 | Perficient Incorporated | 15 |
| Akshaya Inc | 34 | Williams-Sonoma | 20 | Wipro | 14 |
| Oracle | 33 | Verizon Communications Inc | 20 | Uber | 14 |
| Intuit | 32 | Salesforce | 20 | Neuvo Usa | 13 |
| Infoobjects Inc | 32 | NTT Data | 20 | Virtusa | 12 |
| K Tek Resourcing Llc | 30 | Gspann Technologies | 20 | Microsoft Corporation | 12 |

*Source: Burning Glass*

# Educational Supply

There are two (2) community colleges in the Bay Region issuing 11 awards on average annually (last 3 years ending 2018-19) on TOP 0707.20 - Database Design and Administration. There are no colleges in the Mid-Peninsula Sub-Region issuing awards on this TOP code.

**Table 7. Awards on TOP 0707.20 - Database Design and Administration in Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| College | Sub-Region | Associates | **Total** |
| De Anza | Silicon Valley |  3  | **3** |
| Ohlone | East Bay |  8  | **8** |
| **Total Bay Region** | **11** | **11** |
| **Total Mid-Peninsula Sub-Region** | **0** | **0** |

# Source: Data Mart

Note: The annual average for awards is 2016-17 to 2018-19.

# Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 507 annual openings for Database Administrators and 11 annual (3-year average) awards for an annual undersupply of 496 students. In the Mid-Peninsula Sub-Region, there is also a gap with 196 annual openings and no annual (3-year average) awards for an annual undersupply of 196 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0707.20 - Database Design and Administration**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay (All CTE Programs) | City College of San Francisco (All CTE Programs) | State (0707.20) | Bay (0707.20) | Mid-Peninsula (0707.20) | City College of San Francisco (0707.20) |
| % Employed Four Quarters After Exit | 74% | 73% | 68% | 76% | 76% | 76% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $8,712 | $14,516 | $17,382 | $17,937 | $14,516 |
| Median % Change in Earnings | 46% | 47% | 39% | 47% | 78% | 39% |
| % of Students Earning a Living Wage | 63% | 58% | 74% | 77% | 77% | 74% |

*Source: Launchboard Pipeline (version available on 7/1/20)*

# Skills, Certifications and Education

**Table 9. Top Skills for Database Administrators in Bay Region (June 2019 - May 2020)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| SQL | 7,660 | Data Modeling | 1,808 | Data Analysis | 1,177 |
| Python | 6,054 | UNIX | 1,688 | AWS Redshift | 1,165 |
| Extraction Transformation and Loading (ETL) | 4,446 | Data Engineering | 1,661 | SQL Server | 1,160 |
| Java | 3,705 | Performance tuning | 1,603 | MapReduce | 1,147 |
| Big Data | 3,676 | NoSQL | 1,532 | Oracle PL/SQL | 1,139 |
| Apache Hadoop | 3,462 | Data Quality | 1,457 | Informatica | 1,130 |
| Data Warehousing | 3,138 | Data Transformation | 1,417 | PostgreSQL | 1,115 |
| Pipeline (Computing) | 3,065 | Machine Learning | 1,408 | Software Engineering | 1,061 |
| Oracle | 2,894 | Apache Webserver | 1,344 | Data Management | 1,042 |
| Apache Hive | 2,413 | Tableau | 1,332 | Data Structures | 1,040 |
| Apache Kafka | 2,307 | Software Development | 1,319 | Salesforce | 1,031 |
| Scala | 2,220 | Relational Databases | 1,301 | Amazon Redshift | 1,003 |
| Data Science | 2,014 | Shell Scripting | 1,243 | Database Design | 963 |
| Database Administration | 1,948 | MySQL | 1,239 | Project Management | 933 |
| Linux | 1,938 | Teradata DBA | 1,214 | Business Intelligence | 928 |

*Source: Burning Glass*

**Table 10. Certifications for Database Administrators in Bay Region (June 2019 - May 2020)**

Note: 93% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |  |  |
| --- | --- | --- | --- |
| Certification | Postings | Certification | Postings |
| Certified Salesforce Administrator | 226 | Oracle Database Certification | 23 |
| Driver's License | 151 | Mbe Certified | 22 |
| IT Infrastructure Library (ITIL) Certification | 97 | Salesforce Platform App Builder | 21 |
| Security Clearance | 91 | ITIL Certification | 19 |
| Certified Salesforce Advanced Administrator | 72 | Certified Salesforce Platform Developer I | 19 |
| Oracle Certification | 66 | Certified A+ Technician | 19 |
| Cisco Certified Network Associate (CCNA) | 58 | Certified Novell Administrator | 17 |
| CompTIA Network+ | 44 | Certified Administrator | 17 |
| Project Management Certification | 34 | Salesforce Developer | 16 |
| CompTIA Security+ | 29 | Microsoft Certified Technology Specialist (MCTS) | 15 |
| Certified Salesforce Platform Developer | 26 | Microsoft Certified Solutions Associate (MCSA) | 15 |
| Database Administrator (DBA) | 24 | Makeup Artist | 13 |

*Source: Burning Glass*

**Table 11. Education Requirements for Database Administrators in Bay Region**

Note: 56% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

|  |  |  |
| --- | --- | --- |
| Education (minimum advertised) | Latest 12 Mos. Postings | Percent 12 Mos. Postings |
| High school or vocational training | 314 | 5% |
| Associate Degree | 136 | 2% |
| Bachelor’s Degree or Higher | 5,180 | 93% |

*Source: Burning Glass*

# Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

# Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard [www.calpassplus.org/Launchboard/](http://www.calpassplus.org/Launchboard/)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor’s Office MIS system

# Contacts

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