** Adobe Applications Specialist Occupations**

**Labor Market Information Report**

**Santa Rosa Junior College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

February 2019

# Recommendation

Based on all available data, there appears to be a significant undersupply of Adobe Applications Specialist workers compared to the demand for this cluster of occupations in the Bay region and in the North Bay sub-region (Marin, Napa, Solano and Sonoma Counties). There is a projected annual gap of about 19,441 students in the Bay region and 449 students in the North Bay Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0708.20 - Computer Support 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 Santa Rosa Junior College (SRJC) and in the region.

# Introduction

This report profiles Adobe Applications Specialist Occupations in the 12 county Bay region and in the North Bay sub-region for the review of an existing program at Santa Rosa Junior College. Labor market information (LMI) is not available at the eight-digit SOC Code level for Software Quality Assurance Engineers and Testers (15-1199.01), therefore, the data shown in Tables 1 and 2 is for Computer Occupations, All Other (at the six digit SOC level) and likely overstates the demand for Software Quality Assurance Engineers and Testers.

|  |
| --- |
| * **Software Developers, Systems Software (SOC 15-1133): Research,** design, develop, and test operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computing applications. Set operational specifications and formulate and analyze software requirements. May design embedded systems software. Apply principles and techniques of computer science, engineering, and mathematical analysis. |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 13%* |
|  |
| * **Computer Network Support Specialists (SOC** **15-1152):** Analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Perform network maintenance to ensure networks operate correctly with minimal interruption. Excludes “Network and Computer Systems Administrators” (15-1142) and “Computer Network Architects” (15-1143). |
| *Entry-Level Educational Requirement: Associate's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 41%* |
|  |
| * **Software Developers, Applications (SOC** **15-1132**): Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers. |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 13%* |
|  |
| * **Computer User Support Specialists (SOC 15-1151):** Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems. Excludes “Network and Computer Systems Administrators” (15-1142). |
| *Entry-Level Educational Requirement: Some college, no degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 41%* |
|  |
| * **Computer Occupations, All Other (SOC 15-1199):** All computer occupations not listed separately. Excludes “Computer and Information Systems Managers” (11-3021), “Computer Hardware Engineers” (17-2061), “Electrical and Electronics Engineers” (17-2070), “Computer Science Teachers, Postsecondary” (25-1021), “Multimedia Artists and Animators” (27-1014), “Graphic Designers” (27-1024), “Computer Operators” (43-9011), and “Computer, Automated Teller, and Office Machine Repairs” (49-2011). |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 35%* |

# Occupational Demand

**Table 1. Employment Outlook for Adobe Applications Specialist Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Software Developers, Systems Software | 40,748 | 44,919 | 4,171 | 10% | 17,637 | 3,527 | $40.21 | $65.42 |
| Computer Network Support Specialists | 6,569 | 7,551 | 982 | 15% | 3,509 | 702 | $22.43 | $37.33 |
| Software Developers, Applications | 89,372 | 109,872 | 20,499 | 23% | 51,391 | 10,278 | $38.68 | $62.13 |
| Computer User Support Specialists | 29,393 | 34,005 | 4,612 | 16% | 15,944 | 3,189 | $20.02 | $32.70 |
| Computer Occupations, All Other | 19,731 | 21,972 | 2,242 | 11% | 9,101 | 1,820 | $26.99 | $53.32 |
| **Total** | **185,813** | **218,319** | **32,507** | **17%** | **97,582** | **19,516** | **$34.25** | **$56.38** |

*Source: EMSI 2019.1*

**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 Adobe Applications Specialist Occupations in North Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Software Developers, Systems Software | 1,173 | 1,190 | 18 | 2% | 400 | 80 | $31.94 | $53.35 |
| Computer Network Support Specialists | 398 | 420 | 22 | 6% | 171 | 34 | $22.65 | $31.13 |
| Software Developers, Applications | 1,732 | 1,904 | 172 | 10% | 739 | 148 | $32.93 | $54.52 |
| Computer User Support Specialists | 1,541 | 1,621 | 79 | 5% | 658 | 132 | $17.17 | $27.83 |
| Computer Occupations, All Other | 928 | 938 | 10 | 1% | 326 | 65 | $22.38 | $41.11 |
| **Total** | **5,773** | **6,073** | **301** | **5%** | **2,294** | **459** | **$26.12** | **$43.39** |

*Source: EMSI 2019.1*

**North Bay Sub-Region** includes Marin, Napa, Solano and Sonoma Counties

### Job Postings in Bay Region and North Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (Feb 2018 - Jan 2018)**

| Occupation | Bay Region | North Bay |
| --- | --- | --- |
| Software Developers, Applications (15-1132.00) | 103,488 | 1,847 |
| Computer User Support Specialists (15-1151.00) | 13,924 | 630 |
| Software Quality Assurance Engineers and Testers (15-1199.01) | 12,186 | 190 |
| Software Developers, Systems Software (15-1133.00) | 1,330 | 21 |
| Computer Network Support Specialists (15-1152.00) | 1,120 | 57 |
| **Total** | **132,048** | **2,745** |

*Source: Burning Glass*

**Table 4. Top Job Titles for Adobe Applications Specialist Occupations for latest 12 months (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay | North Bay | Common Title | Bay | North Bay |
| Software Development Engineer | 31,179 | 615 | iOS Developer | 1,051 | 5 |
| Java Developer | 6,990 | 27 | Senior Devops Engineer | 1,002 | 2 |
| Devops Engineer | 3,725 | 75 | Desktop Support | 987 | 62 |
| Applications Engineer | 2,979 | 18 | .Net Developer | 917 | 54 |
| Quality Assurance Engineer | 2,854 | 33 | Software Engineering Manager | 835 | 1 |
| Software Developer | 2,614 | 63 | Senior Engineer | 788 | 17 |
| Java Engineer | 2,549 | 27 | Software Quality Assurance Engineer | 788 | 15 |
| Python Developer | 1,741 | 18 | Technical Support Engineer | 746 | 5 |
| Senior Developer | 1,471 | 30 | Quality Assurance Analyst | 745 | 16 |
| Developer | 1,461 | 94 | Software Architect | 677 | 19 |
| Applications Developer | 1,442 | 56 | Quality Assurance Tester | 637 | 13 |
| Android Developer | 1,407 | 6 | Salesforce Developer | 613 | 11 |
| Principal Software Engineer | 1,223 | 5 | Full Stack Developer | 556 | 7 |
| Engineer | 1,138 | 5 | Mobile App Developer | 543 | 70 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Adobe Applications Specialist Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2017) | Jobs in Industry (2022) | % Change (2017-22) | % in Industry (2017) |
| Custom Computer Programming Services (541511) | 37,498 | 38,627 | 19% | 20.2% |
| Computer Systems Design Services (541512) | 23,370 | 23,803 | 17% | 12.4% |
| Software Publishers (511210) | 19,001 | 20,101 | 26% | 10.5% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 18,274 | 19,367 | 41% | 10.1% |
| Electronic Computer Manufacturing (334111) | 15,680 | 16,202 | 10% | 8.5% |
| Data Processing, Hosting, and Related Services (518210) | 7,120 | 7,736 | 41% | 4.0% |
| Other Computer Related Services (541519) | 5,111 | 5,240 | 24% | 2.7% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 4,295 | 4,575 | 14% | 2.4% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 2,417 | 2,528 | (2%) | 1.3% |
| Semiconductor and Related Device Manufacturing (334413) | 2,195 | 2,193 | (5%) | 1.1% |
| Colleges, Universities, and Professional Schools (State Government) (902612) | 1,920 | 1,996 | 12% | 1.0% |
| Temporary Help Services (561320) | 1,982 | 1,985 | 7% | 1.0% |
| Computer and Computer Peripheral Equipment and Software Merchant Wholesalers (423430) | 1,968 | 1,902 | (8%) | 1.0% |

*Source: EMSI 2019.1*

**Table 6. Top Employers Posting Adobe Applications Specialist Occupations in Bay Region and North Bay Sub-Region (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | | Employer | North Bay |
| Apple Inc. | 2,524 | Paypal | | 308 | Capital Markets Place | 416 |
| Capital Markets Placement | 1,616 | Etouch Systems Corp | | 302 | Scoop Technologies | 237 |
| Amazon | 1,536 | Redpoint Ventures | | 281 | Microsoft Corporation | 46 |
| Cisco Systems Incorporated | 1,196 | eBay | | 273 | Best Buy | 45 |
| Scoop Technologies | 947 | Wipro | | 271 | Autodesk Incorporated | 32 |
| Google Inc. | 889 | Redolent, Inc | | 266 | Revature | 31 |
| Facebook | 652 | Splunk | | 260 | Net Matrix Solutions | 24 |
| Oracle | 574 | Accenture | | 259 | Ascent | 20 |
| IBM | 562 | Infoobjects Inc | | 253 | Jobg8 | 19 |
| Workday, Inc | 522 | Bayone Solutions | | 252 | Keysight Technologies | 19 |
| Microsoft Corporation | 414 | Twitter | | 244 | Bio-Rad Laboratories | 18 |
| Vmware Incorporated | 390 | Palo Alto Networks | | 240 | Activision | 16 |
| Salesforce | 375 | Linkedin Limited | | 237 | Carbonite | 14 |
| Intel Corporation | 373 | Tesla Motors | | 236 | Nelson Group | 12 |
| Walmart / Sam's | 373 | Xoriant Incorporated | | 235 | Toys For Bob Inc | 12 |
| Nvidia Corporation | 367 | Adobe Systems | | 232 | Artizen Incorporated | 10 |
| Techfetch Com | 358 | Dell | | 228 | Keysight Technologies | 10 |
| Amazon Lab126 | 334 | Cynet Systems | | 222 | Akili Interactive Labs | 9 |
| SAP | 334 | Symantec | | 216 | General Dynamics | 9 |
| Best Buy | 311 | Xoriant | | 206 | Kavaliro | 9 |

*Source: Burning Glass*

# Educational Supply

There are seven community colleges in the Bay Region issuing 75 awards on average annually on TOP 0708.20 - Computer Support. SRJC is the only college in the North Bay Sub-Region issuing awards on this TOP code, issuing 10 awards on average annually.

**Table 7. Awards on TOP 0708.20 - Computer Support in the Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Headcount | Associates | Certificates | Total |
| Alameda | East Bay | 29 |  |  |  |
| Cabrillo | Santa Cruz & Monterey | n/a | 3 | 8 | 11 |
| Contra Costa | East Bay | n/a |  | 5 | 5 |
| Diablo Valley | East Bay | n/a | 6 | 7 | 14 |
| Gavilan | Santa Cruz & Monterey | 23 |  |  |  |
| Hartnell | Santa Cruz & Monterey | n/a | 3 | 2 | 4 |
| Monterey Peninsula | Santa Cruz & Monterey | 18 |  |  |  |
| Ohlone | East Bay | n/a | 2 | 2 | 4 |
| San Francisco | Mid-Peninsula | 260 |  | 27 | 27 |
| San Francisco College Centers | Mid-Peninsula | n/a |  |  |  |
| Santa Rosa | North Bay | 86 |  | 10 | 10 |
| **Total Bay Region** | | **416** | **14** | **61** | **75** |
| **Total North Bay Sub-Region** | | **86** | **0** | **10** | **10** |

# *Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards is 2014-17 unless there are only awards in 2016-17. The annual average for other postsecondary is for 2013-16.

# Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 19,516 annual openings for the Adobe Applications Specialist occupational cluster and 75 annual (3 year average) awards for an annual undersupply of 19,441 students. In the North Bay Sub-Region, there is also a gap with 459 annual openings and 10 annual (3 year average) awards for an annual undersupply of 449 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0708.20 - Computer Support**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay  (All CTE Programs) | Santa Rosa Junior College (All CTE Programs) | State (0708.20) | Bay (0708.20) | North Bay (0708.20) | Santa Rosa Junior College (0708.20) |
| % Employed Four Quarters After Exit | 74% | 76% | 70% | 71% | 69% | 69% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $20,775 | 18,121 | 18,121 | 13,157 | 13,157 |
| Median % Change in Earnings | 46% | 50% | 57% | 81% | 159% | 159% |
| % of Students Earning a Living Wage | 63% | 62% | 53% | 63% | 62% | 62% |

*Source: Launchboard Pipeline (version available on 2/5/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for Adobe Applications Specialist Occupations in Bay Region (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Java | 47,592 | Unit Testing | 10,224 | Extensible Markup Language (XML) | 7,119 |
| Software Engineering | 44,045 | Continuous Integration (CI) | 9,780 | Apache Hadoop | 7,114 |
| Python | 34,681 | Technical Support | 9,719 | Docker Software | 6,973 |
| Software Development | 31,864 | Web Application Dev | 9,642 | Kubernetes | 6,970 |
| SQL | 23,925 | Scrum | 9,037 | Big Data | 6,957 |
| JavaScript | 23,815 | Customer Service | 8,723 | Software Architecture | 6,748 |
| Linux | 23,295 | NoSQL | 8,548 | JavaScript Object Notation (JSON) | 6,747 |
| C++ | 19,352 | Data Structures | 8,320 | Project Management | 6,728 |
| Quality Assurance and Control | 15,644 | Agile Development | 8,209 | Machine Learning | 6,631 |
| Git | 14,081 | Microsoft C# | 8,044 | Apache Kafka | 6,338 |
| Debugging | 13,218 | MySQL | 8,014 | Relational Databases | 6,330 |
| Object-Oriented Analysis and Design | 12,311 | Scalability Design | 7,733 | Salesforce | 5,932 |
| DevOps | 12,239 | Ruby | 7,663 | Product Management | 5,877 |
| Oracle | 11,889 | PERL Scripting Language | 7,390 | jQuery | 5,856 |
| UNIX | 11,539 | AngularJS | 7,339 | React Javascript | 5,840 |

*Source: Burning Glass*

**Table 10. Certifications for Adobe Applications Specialist Occupations in the Bay Region (Feb 2018 - Jan 2018)**

Note: 94% 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 |
| Driver's License | 1,196 | Certified Salesforce Platform Developer | 192 |
| IT Infrastructure Library (ITIL) Certification | 1,175 | Certified Salesforce Administrator | 189 |
| Certified A+ Technician | 1,065 | Certified Scrum Trainer (CST) | 184 |
| Security Clearance | 809 | SANS/GIAC Certification | 148 |
| Cisco Certified Network Associate (CCNA) | 514 | Certified Information Systems Auditor (CISA) | 140 |
| Microsoft Certified Professional (MCP) | 429 | Project Management Professional (PMP) | 138 |
| ITIL Certification | 403 | Apple Certified Macintosh Technician | 137 |
| CompTIA Network+ | 367 | Certified Information Security Manager (CISM) | 118 |
| Project Management Certification | 362 | ITIL Foundation | 118 |
| Certified Information Systems Security Professional (CISSP) | 339 | Certified ScrumMaster (CSM) | 97 |
| Cisco Certified Internetwork Expert (CCIE) | 323 | Capability Model Maturity Integration (CMMI) Certification | 89 |
| Cisco Certified Network Professional (CCNP) | 318 | Automation Certification | 88 |
| Salesforce Developer | 254 | Computer Science Certification | 88 |
| Microsoft Certified Solutions Expert (MCSE) | 218 | Java Certification | 81 |
| Microsoft Certified Solutions Associate (MCSA) | 207 | Certified Salesforce Platform Developer II | 80 |
| CompTIA Security+ | 205 | Certified Scrum Professional (CSP) | 79 |

*Source: Burning Glass*

**Table 11. Education Requirements for Adobe Applications Specialist Occupations in Bay Region**

Note: 49% 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 |
| High school or vocational training | 1,854 (3%) |
| Associate Degree | 1,358 (2%) |
| Bachelor’s Degree or Higher | 64,513 (95%) |

*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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