

# Program Market Demand

4 Programs

Emsi Q3 2018 Data Set

September 2018

College of San Mateo



3401 CSM Drive  
San Mateo, California 94402  
650.358.6880

# Parameters

## Programs

| Code    | Description   |
|---------|---|
| 10.0303 | Prepress/Desktop Publishing and Digital Imaging Design                |
| 10.0304 | Animation, Interactive Technology, Video Graphics and Special Effects |
| 11.0801 | Web Page, Digital/Multimedia and Information Resources Design         |
| 11.0803 | Computer Graphics   |

## Regions

| Code | Description              |
|------|--------------------------|
| 6001 | Alameda County, CA       |
| 6013 | Contra Costa County, CA  |
| 6075 | San Francisco County, CA |
| 6081 | San Mateo County, CA     |
| 6085 | Santa Clara County, CA   |

## Education Levels

Any

## Completions Year

2015

## Jobs Timeframe

2017 - 2024

## Job Postings Timeframe

Sep 2016 - Aug 2018

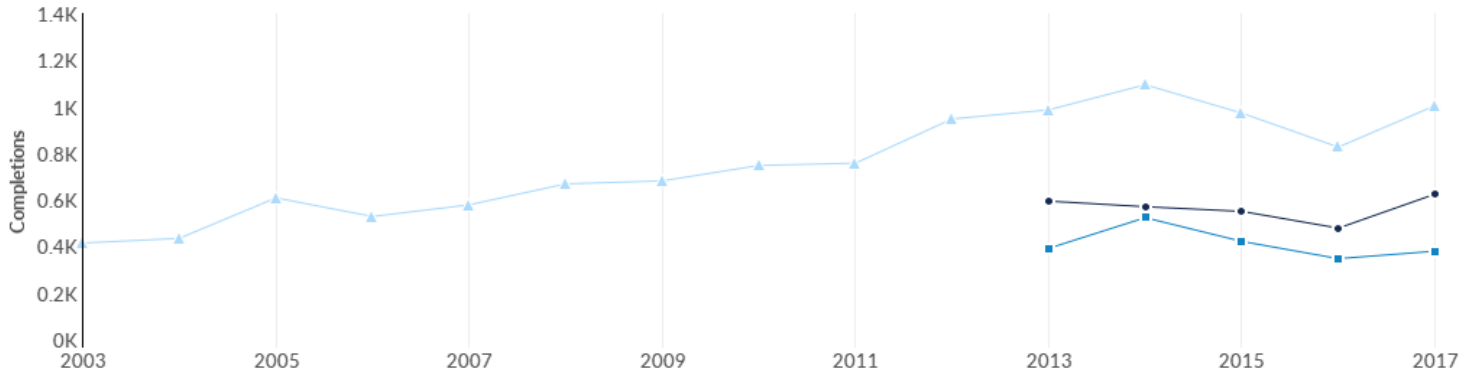
# Program Overview



|                                 | Completions<br>(2015) | %<br>Completions | Institutions<br>(2015) | %<br>Institutions |
|---------------------------------|-----------------------|------------------|------------------------|-------------------|
| ● All Programs                  | 973                   | 100%             | 20                     | 100%              |
| ● Distance Offered Programs     | 551                   | 57%              | 2                      | 10%               |
| ● Non-Distance Offered Programs | 422                   | 43%              | 19                     | 95%               |

| Institution  | Completions (2015) | Growth % YOY (2015) | Market Share (2015) |
|--|--------------------|---------------------|---------------------|
| Academy of Art University  | 527                | -7.7%               | 54.2%               |
| Berkeley City College  | 82                 | -14.6%              | 8.4%                |
| City College of San Francisco                                    | 59                 | -28.0%              | 6.1%                |
| SAE Expression College   | 54                 | -3.6%               | 5.5%                |
| Cogswell College   | 39                 | 116.7%              | 4.0%                |
| College of San Mateo   | 36                 | 89.5%               | 3.7%                |
| Argosy University-The Art Institute of California-San Francisco  | 32                 | -51.5%              | 3.3%                |
| Ohlone College   | 23                 | -32.4%              | 2.4%                |
| Canada College   | 22                 | 4.8%                | 2.3%                |
| California College of the Arts                                   | 16                 | -30.4%              | 1.6%                |
| Diablo Valley College  | 15                 | -16.7%              | 1.5%                |
| Argosy University-The Art Institute of California-Silicon Valley | 12                 | -47.8%              | 1.2%                |
| Gavilan College  | 10                 | 25.0%               | 1.0%                |
| Santa Clara University   | 10                 | -16.7%              | 1.0%                |
| Mission College  | 9                  | -18.2%              | 0.9%                |
| West Valley College  | 9                  | -30.8%              | 0.9%                |
| Las Positas College  | 6                  | 100.0%              | 0.6%                |
| San Jose City College  | 6                  | 100.0%              | 0.6%                |
| De Anza College  | 3                  | -25.0%              | 0.3%                |
| Skyline College  | 3                  | -57.1%              | 0.3%                |

# Regional Trends



|                                 | 2013 Completions | 2015 Completions | % Change |
|---------------------------------|------------------|------------------|----------|
| ● Distance Offered Programs     | 595              | 551              | -7.4%    |
| ■ Non-Distance Offered Programs | 392              | 422              | +7.7%    |
| ▲ All Programs                  | 987              | 973              | -1.4%    |

# Job Postings vs. Hires

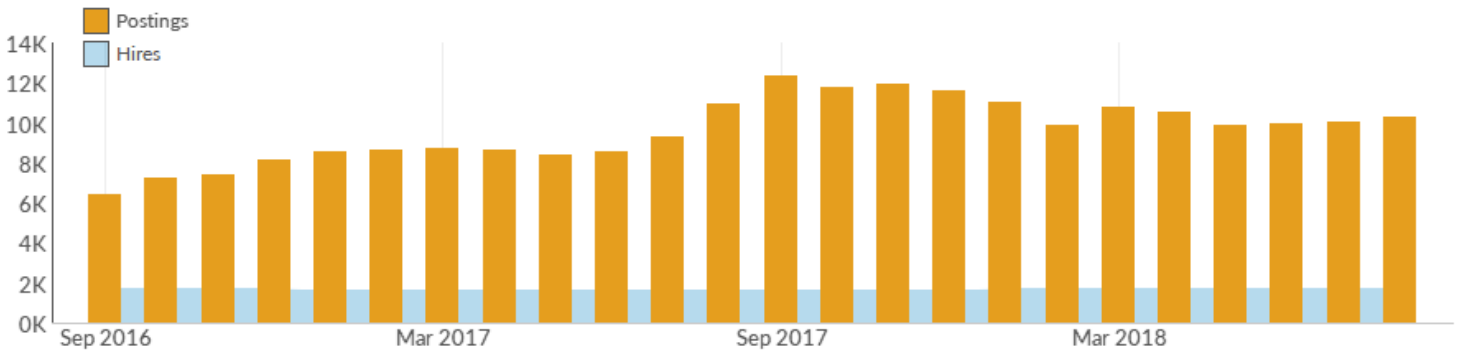
9,634

Avg. Monthly Postings (Sep 2016 - Aug 2018)

1,715


Avg. Monthly Hires (Sep 2016 - Aug 2018)

In an average month, there were 9,634 unique job postings for 8 Occupations, and 1,715 actually hired. This means there was approximately 1 hire for every 6 unique job postings for 8 Occupations.



| Occupation                       | Avg Monthly Postings (Sep 2016 - Aug 2018) | Avg Monthly Hires (Sep 2016 - Aug 2018) |
|----------------------------------|--|---|
| Web Developers                   | 4,749                                      | 304                                     |
| Information Security Analysts    | 2,007                                      | 130                                     |
| Graphic Designers                | 1,556                                      | 340                                     |
| Computer Programmers             | 861  | 470                                     |
| Computer Network Architects      | 267  | 291                                     |
| Multimedia Artists and Animators | 183  | 147                                     |
| Prepress Technicians and Workers | 6  | 16                                      |
| Desktop Publishers               | 4  | 16                                      |

## Job Postings Summary

|  |  |  |
|--|--|--|
| <p>82,880<br/>Unique Postings<br/>315,163 Total Postings</p> | <p>4 : 1<br/>Posting Intensity<br/><br/>Regional Average: 4 : 1</p> | <p>30 days<br/>Median Posting Duration<br/>Regional Average: 33 days</p> |
|--|--|--|

There were 315,163 total job postings for your selection from September 2016 to August 2018, of which 82,880 were unique. These numbers give us a Posting Intensity of 4-to-1, meaning that for every 4 postings there is 1 unique job posting.

This is close to the Posting Intensity for all other occupations and companies in the region (4-to-1), indicating that they are putting average effort toward hiring for this position.

## Target Occupations

|   |  |   |                                     |
|---|--|---|-------------------------------------|
| <p>49,421</p> <p>Jobs (2017)</p> <p>94% <span style="color: green;">above</span> National average</p> | <p><span style="color: green;">+15.8%</span></p> <p>% Change (2017-2024)</p> <p>Nation: <span style="color: green;">+6.5%</span></p> | <p>\$43.17/hr</p> <p>Median Hourly Earnings</p> <p>Nation: \$31.75/hr</p> | <p>5,013</p> <p>Annual Openings</p> |
|---|--|---|-------------------------------------|

| Occupation                       | 2017 Jobs | Annual Openings | Median Hourly Earnings | Growth (2017 - 2024)                       | Location Quotient (2017) |
|----------------------------------|-----------|-----------------|------------------------|--|--------------------------|
| Computer Programmers             | 13,181    | 1,052           | \$49.36/hr             | <span style="color: green;">+9.10%</span>  | 2.11                     |
| Graphic Designers                | 10,582    | 1,138           | \$25.01/hr             | <span style="color: green;">+7.51%</span>  | 1.54                     |
| Web Developers                   | 9,352     | 1,090           | \$40.91/hr             | <span style="color: green;">+26.82%</span> | 2.46                     |
| Computer Network Architects      | 7,980     | 747             | \$66.33/hr             | <span style="color: green;">+17.24%</span> | 2.12                     |
| Multimedia Artists and Animators | 4,074     | 410             | \$38.22/hr             | <span style="color: green;">+12.15%</span> | 3.64                     |
| Information Security Analysts    | 3,314     | 468             | \$56.41/hr             | <span style="color: green;">+43.00%</span> | 1.30                     |
| Prepress Technicians and Workers | 476       | 55              | \$22.29/hr             | <span style="color: red;">-4.41%</span>    | 0.65                     |
| Desktop Publishers               | 463       | 53              | \$25.38/hr             | <span style="color: green;">+1.73%</span>  | 1.41                     |



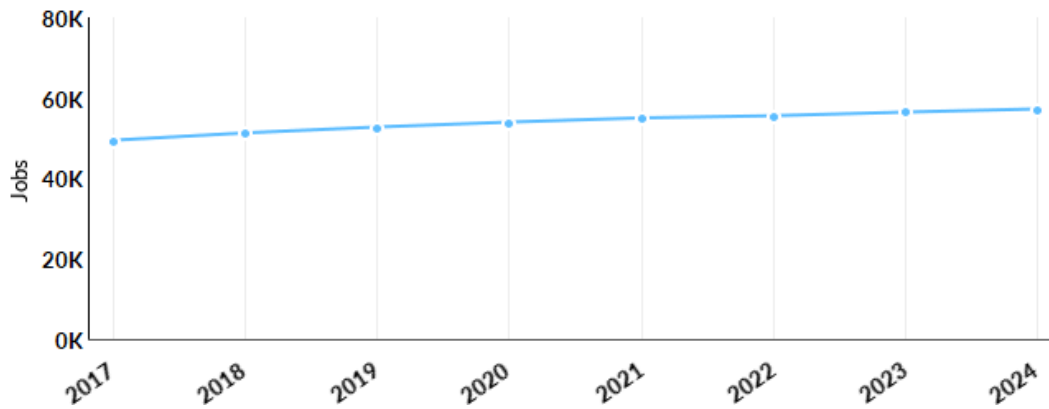
# Growth

49,421  
2017 Jobs

57,207  
2024 Jobs

7,786  
Change (2017-2024)

15.8%  
% Change (2017-2024)



| Occupation                                 | 2017 Jobs | 2024 Jobs | Change | % Change |
|--|-----------|-----------|--------|----------|
| Information Security Analysts (15-1122)    | 3,314     | 4,739     | 1,425  | 43%      |
| Computer Programmers (15-1131)             | 13,181    | 14,380    | 1,199  | 9%       |
| Web Developers (15-1134)                   | 9,352     | 11,860    | 2,508  | 27%      |
| Computer Network Architects (15-1143)      | 7,980     | 9,356     | 1,376  | 17%      |
| Multimedia Artists and Animators (27-1014) | 4,074     | 4,569     | 495    | 12%      |
| Graphic Designers (27-1024)                | 10,582    | 11,377    | 795    | 8%       |
| Desktop Publishers (43-9031)               | 463       | 471       | 8      | 2%       |
| Prepress Technicians and Workers (51-5111) | 476       | 455       | -21    | -4%      |

# Percentile Earnings

\$27.79/hr

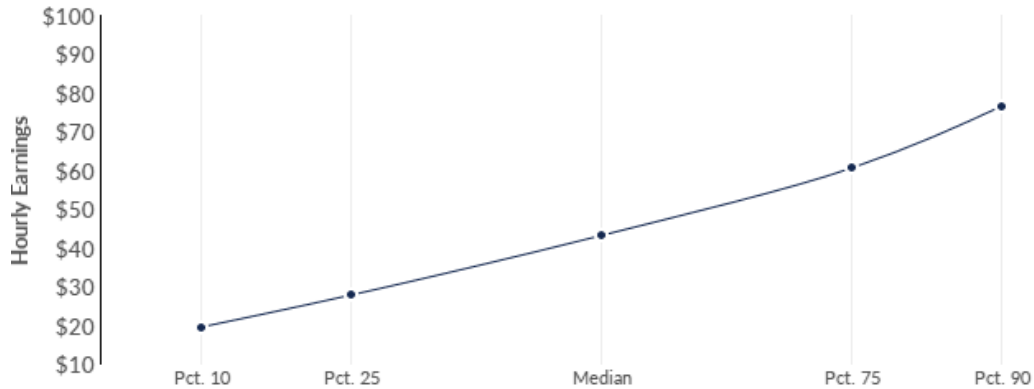
25th Percentile Earnings

\$43.17/hr

Median Earnings
















\$60.61/hr



75th Percentile Earnings




| Occupation                                 | 25th Percentile Earnings | Median Earnings | 75th Percentile Earnings |
|--|--------------------------|-----------------|--------------------------|
| Information Security Analysts (15-1122)    | \$43.12                  | \$56.41         | \$69.23                  |
| Computer Programmers (15-1131)             | \$35.97                  | \$49.36         | \$60.98                  |
| Web Developers (15-1134)                   | \$25.43                  | \$40.91         | \$58.55                  |
| Computer Network Architects (15-1143)      | \$50.93                  | \$66.33         | \$82.05                  |
| Multimedia Artists and Animators (27-1014) | \$25.31                  | \$38.22         | \$49.51                  |
| Graphic Designers (27-1024)                | \$18.81                  | \$25.01         | \$35.84                  |
| Desktop Publishers (43-9031)               | \$18.33                  | \$25.38         | \$30.98                  |
| Prepress Technicians and Workers (51-5111) | \$17.93                  | \$22.29         | \$27.25                  |

# Top Companies Posting

| Company                                     | Total/Unique (Sep 2016 - Aug 2018) | Posting Intensity  | Median Posting Duration |
|---|------------------------------------|--|-------------------------|
| Freelancers                                 | 4,240 / 2,338                      | 2 : 1     | 17 days                 |
| Cybercoders, Inc.                           | 16,385 / 1,925                     | 9 : 1     | 39 days                 |
| Oracle Corporation                          | 4,053 / 1,674                      | 2 : 1     | 49 days                 |
| Apple Inc.                                  | 3,916 / 953                        | 4 : 1     | 54 days                 |
| Robert Half International Inc.              | 7,378 / 906                        | 8 : 1     | 23 days                 |
| Aquent LLC                                  | 2,138 / 737                        | 3 : 1     | 31 days                 |
| Creative Circle LLC                         | 6,816 / 705                        | 10 : 1    | 32 days                 |
| Deloitte LLP                                | 2,805 / 671                        | 4 : 1     | 51 days                 |
| ACCENTURE, INC.                             | 1,955 / 571                        | 3 : 1     | 48 days                 |
| International Business Machines Corporation | 2,730 / 529                        | 5 : 1     | 42 days                 |
| Workbridge Associates                       | 687 / 511                          | 1 : 1     | 305 days                |
| Central Business Solutions LLC              | 581 / 475                          | 1 : 1   | 48 days                 |
| Facebook, Inc.                              | 1,092 / 432                        | 3 : 1   | 39 days                 |
| Infoobjects Inc.                            | 979 / 408                          | 2 : 1   | 7 days                  |
| Virtual Vacations                           | 408 / 384                          | 1 : 1   | 12 days                 |
| Google Inc.                                 | 1,032 / 365                        | 3 : 1   | 54 days                 |
| Kforce Inc.                                 | 1,909 / 326                        | 6 : 1   | 59 days                 |
| Cisco Systems, Inc.                         | 1,588 / 324                        | 5 : 1   | 39 days                 |
| Salesforce.com, Inc.                        | 2,360 / 317                        | 7 : 1   | 45 days                 |
| Pharmalynx LLC                              | 5,639 / 304                        | 19 : 1  | 12 days                 |
| Wells Fargo & Company                       | 2,446 / 304                        | 8 : 1   | 22 days                 |
| Collabera Inc.                              | 1,391 / 302                        | 5 : 1   | 31 days                 |
| Uber Technologies, Inc.                     | 766 / 285                          | 3 : 1   | 47 days                 |
| Reqroute Inc                                | 1,072 / 281                        | 4 : 1   | 42 days                 |

|                                   |             |        |   |          |
|-----------------------------------|-------------|--------|---|----------|
| Teksystems, Inc.                  | 2,384 / 269 | 9 : 1  |    | 21 days  |
| Anthem, Inc.                      | 667 / 265   | 3 : 1  |    | 28 days  |
| Flexton Inc.                      | 555 / 263   | 2 : 1  |    | 15 days  |
| SAP SE                            | 2,494 / 240 | 10 : 1 |    | 40 days  |
| Jobspring Partners                | 338 / 231   | 1 : 1  |    | 186 days |
| RANDSTAD HOLDING nv               | 2,107 / 224 | 9 : 1  |    | 34 days  |
| University of California          | 1,131 / 223 | 5 : 1  |    | 49 days  |
| Xoriant Corporation               | 583 / 220   | 3 : 1  |    | 23 days  |
| Synergisticit                     | 371 / 217   | 2 : 1  |    | 30 days  |
| Apex Systems, Inc.                | 2,692 / 207 | 13 : 1 |    | 46 days  |
| Gap Inc.                          | 1,414 / 205 | 7 : 1  |    | 50 days  |
| Kanand Corporation                | 369 / 185   | 2 : 1  |    | 7 days   |
| Amazon.com, Inc.                  | 768 / 184   | 4 : 1  |    | 51 days  |
| The Creative Group                | 756 / 176   | 4 : 1  |  | 22 days  |
| Vmware, Inc.                      | 649 / 172   | 4 : 1  |  | 49 days  |
| Akroya Inc.                       | 2,073 / 170 | 12 : 1 |  | 36 days  |
| Experis Us, Inc.                  | 697 / 169   | 4 : 1  |  | 24 days  |
| Adobe Systems Incorporated        | 363 / 156   | 2 : 1  |  | 37 days  |
| Enterprise Solutions, Inc.        | 418 / 154   | 3 : 1  |  | 32 days  |
| Intel Corporation                 | 720 / 146   | 5 : 1  |  | 45 days  |
| Palo Alto Networks Inc.           | 469 / 142   | 3 : 1  |  | 55 days  |
| Williams-Sonoma, Inc.             | 1,277 / 140 | 9 : 1  |  | 56 days  |
| NIGEL FRANK INTERNATIONAL LIMITED | 490 / 139   | 4 : 1  |  | 57 days  |
| Tekishub Consulting Services LLC  | 235 / 138   | 2 : 1  |  | 5 days   |
| Hired                             | 426 / 136   | 3 : 1  |  | 17 days  |
| Alpha Net Consulting LLC          | 339 / 133   | 3 : 1  |  | 12 days  |

# Top Posted Job Titles

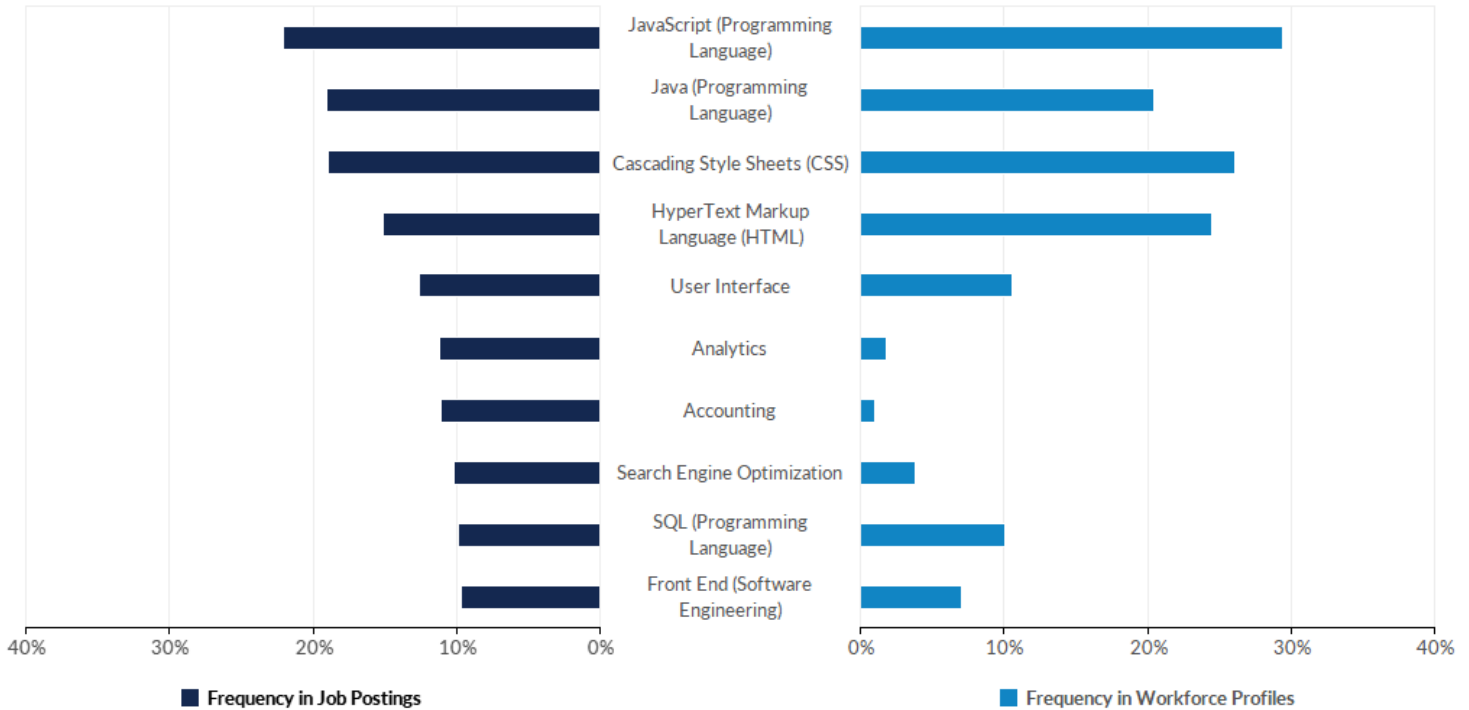
| Job Title                                | Total/Unique (Sep 2016 - Aug 2018) | Posting Intensity   | Median Posting Duration |
|--|------------------------------------|---|-------------------------|
| Java Developer                           | 39,037 / 9,709                     | 4 : 1    | 20 days                 |
| Front-End Developer                      | 17,920 / 4,476                     | 4 : 1    | 30 days                 |
| Web Developer                            | 16,798 / 4,298                     | 4 : 1    | 32 days                 |
| Graphic Designer                         | 13,044 / 3,666                     | 4 : 1    | 32 days                 |
| Security Engineer                        | 19,654 / 3,654                     | 5 : 1    | 42 days                 |
| Sales Representative                     | 4,319 / 2,676                      | 2 : 1    | 15 days                 |
| Information Security Analyst             | 10,953 / 2,660                     | 4 : 1    | 36 days                 |
| Visual Designer                          | 8,003 / 1,985                      | 4 : 1    | 45 days                 |
| Designer                                 | 4,104 / 1,461                      | 3 : 1    | 33 days                 |
| PHP Developer                            | 7,063 / 1,428                      | 5 : 1    | 22 days                 |
| .Net Developer                           | 4,966 / 1,385                      | 4 : 1    | 21 days                 |
| Software Engineer                        | 3,998 / 1,065                      | 4 : 1   | 33 days                 |
| User Experience Designer                 | 4,005 / 1,015                      | 4 : 1  | 39 days                 |
| JavaScript Developer                     | 3,871 / 996                        | 4 : 1  | 30 days                 |
| Programmer                               | 3,212 / 896                        | 4 : 1  | 30 days                 |
| User Interface Developer                 | 3,274 / 877                        | 4 : 1  | 31 days                 |
| Ruby on Rails Developer                  | 3,922 / 850                        | 5 : 1  | 33 days                 |
| Artist                                   | 2,024 / 745                        | 3 : 1  | 43 days                 |
| Production Designer                      | 2,396 / 709                        | 3 : 1  | 39 days                 |
| Web Designer (Computer and Mathematical) | 2,104 / 705                        | 3 : 1  | 31 days                 |
| Content Developer                        | 2,301 / 633                        | 4 : 1  | 34 days                 |
| Mobile Software Engineer                 | 1,305 / 533                        | 2 : 1  | 27 days                 |
| Oracle Developer                         | 1,661 / 527                        | 3 : 1  | 14 days                 |
| Information Security Architect           | 1,833 / 492                        | 4 : 1  | 41 days                 |
| HTML Developer                           | 1,332 / 483                        | 3 : 1  | 25 days                 |

|   |             |       |  |         |
|---|-------------|-------|--|---------|
| Security Consultant   | 1,664 / 476 | 3 : 1 |  | 36 days |
| Salesforce Developer  | 2,123 / 455 | 5 : 1 |  | 25 days |
| Cloud Engineer Architect                                      | 1,779 / 452 | 4 : 1 |  | 43 days |
| Information Security Engineer                                 | 2,202 / 450 | 5 : 1 |  | 36 days |
| Cyber Security Engineer                                       | 2,546 / 438 | 6 : 1 |  | 37 days |
| Network Architect   | 1,928 / 436 | 4 : 1 |  | 33 days |
| Information Security Specialist                               | 1,579 / 424 | 4 : 1 |  | 31 days |
| Production Artist   | 1,682 / 420 | 4 : 1 |  | 33 days |
| SQL Developer   | 1,319 / 418 | 3 : 1 |  | 15 days |
| C/C++ Developer   | 1,662 / 384 | 4 : 1 |  | 29 days |
| Technical Lead  | 1,719 / 376 | 5 : 1 |  | 29 days |
| Design Engineer (Architecture and Engineering)                | 981 / 366   | 3 : 1 |  | 33 days |
| Web Manager   | 2,013 / 351 | 6 : 1 |  | 37 days |
| Python Developer  | 1,193 / 330 | 4 : 1 |  | 19 days |
| Project Manager (Computer and Mathematical)                   | 1,130 / 327 | 3 : 1 |  | 27 days |
| SAN Engineer  | 1,093 / 320 | 3 : 1 |  | 18 days |
| User Interface (UI) Designer                                  | 968 / 307   | 3 : 1 |  | 36 days |
| Digital Designer  | 930 / 295   | 3 : 1 |  | 34 days |
| Junior Software Engineer                                      | 610 / 291   | 2 : 1 |  | 33 days |
| Web Specialist  | 1,188 / 289 | 4 : 1 |  | 31 days |
| Cyber Security Analyst  | 1,861 / 287 | 6 : 1 |  | 48 days |
| SharePoint Developer  | 970 / 285   | 3 : 1 |  | 20 days |
| Web Designer (Arts, Design, Entertainment, Sports, and Media) | 1,015 / 285 | 4 : 1 |  | 30 days |
| Research Analyst (Life, Physical, and Social Science)         | 838 / 274   | 3 : 1 |  | 23 days |
| Network Engineer  | 1,125 / 264 | 4 : 1 |  | 36 days |

The following provides insight into the supply and demand of relevant skills by comparing the frequency of skills present in job postings against skills present in today's workforce. Along with Emsi's job posting analytics, this comparison leverages Emsi's dataset of more than 100M online resumés and profiles. All resumés and profiles used in these comparisons have been updated within the last three years.

\*The skills associated with workforce profiles represent workers of all education and experience levels.

## Top Hard Skills



## Top Hard Skills

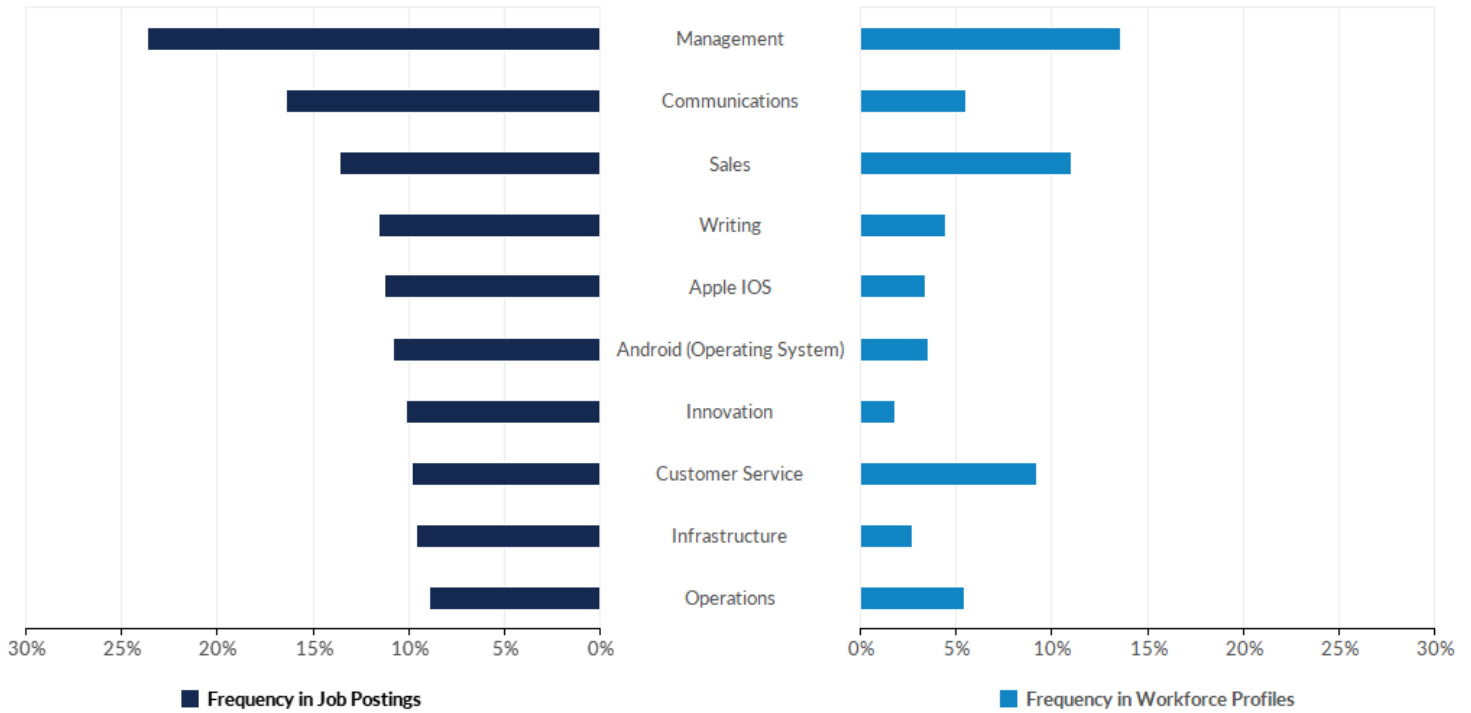
| Skill                             | Frequency in Postings | Postings with Skill / Total Postings (Sep 2016 - Aug 2018) | Frequency in Profiles | Profiles with Skill / Total Profiles (2016 - 2018) |
|-----------------------------------|-----------------------|--|-----------------------|--|
| JavaScript (Programming Language) | 22%                   | 18,279 / 82,880  | 29%                   | 13,591 / 46,260                                    |
| Java (Programming Language)       | 19%                   | 15,749 / 82,880  | 20%                   | 9,457 / 46,260                                     |
| Cascading Style Sheets (CSS)      | 19%                   | 15,700 / 82,880  | 26%                   | 12,081 / 46,260                                    |
| HyperText Markup Language (HTML)  | 15%                   | 12,487 / 82,880  | 24%                   | 11,325 / 46,260                                    |
| User Interface                    | 13%                   | 10,432 / 82,880  | 11%                   | 4,906 / 46,260                                     |
| Analytics                         | 11%                   | 9,283 / 82,880   | 2%                    | 851 / 46,260                                       |
| Accounting                        | 11%                   | 9,146 / 82,880   | 1%                    | 473 / 46,260                                       |

|   |     |                |     |                 |
|---|-----|----------------|-----|-----------------|
| Search Engine Optimization              | 10% | 8,432 / 82,880 | 4%  | 1,765 / 46,260  |
| SQL (Programming Language)              | 10% | 8,187 / 82,880 | 10% | 4,670 / 46,260  |
| Front End (Software Engineering)        | 10% | 8,042 / 82,880 | 7%  | 3,278 / 46,260  |
| Language Translation                    | 9%  | 7,703 / 82,880 | 1%  | 446 / 46,260    |
| Graphic Design                          | 8%  | 6,764 / 82,880 | 24% | 11,015 / 46,260 |
| HTML5                                   | 8%  | 6,739 / 82,880 | 9%  | 4,264 / 46,260  |
| Adobe Photoshop                         | 8%  | 6,605 / 82,880 | 26% | 12,111 / 46,260 |
| JQuery                                  | 8%  | 6,605 / 82,880 | 10% | 4,612 / 46,260  |
| Java Platform Enterprise Edition (J2EE) | 7%  | 6,073 / 82,880 | 2%  | 876 / 46,260    |
| Web Development                         | 7%  | 6,001 / 82,880 | 14% | 6,643 / 46,260  |
| Adobe Illustrator                       | 7%  | 5,797 / 82,880 | 22% | 10,319 / 46,260 |
| Agile Software Development              | 7%  | 5,653 / 82,880 | 6%  | 2,572 / 46,260  |
| Spring Framework                        | 5%  | 4,492 / 82,880 | 2%  | 1,065 / 46,260  |
| Web Services                            | 5%  | 4,483 / 82,880 | 4%  | 1,784 / 46,260  |
| PHP (Scripting Language)                | 5%  | 4,479 / 82,880 | 13% | 6,224 / 46,260  |
| Software Development                    | 5%  | 4,213 / 82,880 | 6%  | 2,867 / 46,260  |
| Amazon Web Services                     | 5%  | 4,150 / 82,880 | 2%  | 869 / 46,260    |
| Ruby On Rails                           | 5%  | 4,031 / 82,880 | 11% | 5,312 / 46,260  |
| Vulnerability                           | 5%  | 3,987 / 82,880 | 1%  | 442 / 46,260    |
| Python (Programming Language)           | 5%  | 3,980 / 82,880 | 14% | 6,657 / 46,260  |
| Extensible Markup Language (XML)        | 5%  | 3,949 / 82,880 | 7%  | 3,102 / 46,260  |
| Prototyping                             | 4%  | 3,697 / 82,880 | 3%  | 1,227 / 46,260  |
| Software Engineering                    | 4%  | 3,575 / 82,880 | 6%  | 2,659 / 46,260  |
| Ajax (Programming Language)             | 4%  | 3,499 / 82,880 | 5%  | 2,409 / 46,260  |
| C (Programming Language)                | 4%  | 3,493 / 82,880 | 13% | 5,798 / 46,260  |
| QuarkXPress Design Software             | 4%  | 3,466 / 82,880 | 4%  | 1,665 / 46,260  |



|                                |    |                |     |                |
|--------------------------------|----|----------------|-----|----------------|
| Operating Systems              | 4% | 3,436 / 82,880 | 4%  | 1,659 / 46,260 |
| Linux                          | 4% | 3,427 / 82,880 | 6%  | 2,890 / 46,260 |
| Adobe Creative Suite           | 4% | 3,341 / 82,880 | 17% | 7,989 / 46,260 |
| Node.js                        | 4% | 3,339 / 82,880 | 4%  | 1,761 / 46,260 |
| Hibernate (Java)               | 4% | 3,331 / 82,880 | 2%  | 797 / 46,260   |
| Web Design                     | 4% | 3,301 / 82,880 | 17% | 7,973 / 46,260 |
| C++ (Programming Language)     | 4% | 3,298 / 82,880 | 14% | 6,267 / 46,260 |
| User Experience                | 4% | 3,285 / 82,880 | 9%  | 4,108 / 46,260 |
| Adobe InDesign                 | 4% | 3,265 / 82,880 | 16% | 7,475 / 46,260 |
| .NET Framework                 | 4% | 3,248 / 82,880 | 2%  | 747 / 46,260   |
| C Sharp (Programming Language) | 4% | 3,229 / 82,880 | 6%  | 2,925 / 46,260 |
| Web Applications               | 4% | 3,204 / 82,880 | 6%  | 2,608 / 46,260 |
| Authorization (Computing)      | 4% | 3,034 / 82,880 | 1%  | 302 / 46,260   |
| MySQL                          | 4% | 2,964 / 82,880 | 8%  | 3,904 / 46,260 |
| Model View Controller          | 4% | 2,937 / 82,880 | 3%  | 1,247 / 46,260 |
| Information Systems            | 3% | 2,838 / 82,880 | 1%  | 347 / 46,260   |
| Scripting                      | 3% | 2,765 / 82,880 | 1%  | 377 / 46,260   |

## Top Common Skills



## Top Common Skills

| Skill                      | Frequency in Postings | Postings with Skill / Total Postings (Sep 2016 - Aug 2018) | Frequency in Profiles | Profiles with Skill / Total Profiles (2016 - 2018) |
|----------------------------|-----------------------|--|-----------------------|--|
| Management                 | 24%                   | 19,587 / 82,880  | 14%                   | 6,283 / 46,260                                     |
| Communications             | 16%                   | 13,620 / 82,880  | 5%                    | 2,538 / 46,260                                     |
| Sales                      | 14%                   | 11,257 / 82,880  | 11%                   | 5,121 / 46,260                                     |
| Writing                    | 12%                   | 9,609 / 82,880   | 4%                    | 2,065 / 46,260                                     |
| Apple IOS                  | 11%                   | 9,305 / 82,880   | 3%                    | 1,587 / 46,260                                     |
| Android (Operating System) | 11%                   | 8,980 / 82,880   | 4%                    | 1,644 / 46,260                                     |
| Innovation                 | 10%                   | 8,393 / 82,880   | 2%                    | 842 / 46,260                                       |
| Customer Service           | 10%                   | 8,142 / 82,880   | 9%                    | 4,269 / 46,260                                     |
| Infrastructure             | 10%                   | 7,971 / 82,880   | 3%                    | 1,265 / 46,260                                     |
| Operations                 | 9%                    | 7,372 / 82,880   | 5%                    | 2,507 / 46,260                                     |
| Information Technology     | 9%                    | 7,098 / 82,880   | 7%                    | 3,254 / 46,260                                     |
| Leadership                 | 7%                    | 6,024 / 82,880   | 9%                    | 4,021 / 46,260                                     |

|                                   |    |                |     |                |
|-----------------------------------|----|----------------|-----|----------------|
| Research                          | 7% | 6,010 / 82,880 | 12% | 5,425 / 46,260 |
| Problem Solving                   | 7% | 6,002 / 82,880 | 2%  | 818 / 46,260   |
| Integration                       | 7% | 5,924 / 82,880 | 4%  | 1,913 / 46,260 |
| Presentations                     | 6% | 5,160 / 82,880 | 7%  | 3,091 / 46,260 |
| Computer Sciences                 | 5% | 4,115 / 82,880 | 1%  | 666 / 46,260   |
| Application Development           | 5% | 3,761 / 82,880 | 1%  | 651 / 46,260   |
| Microsoft Windows                 | 4% | 3,001 / 82,880 | 6%  | 2,870 / 46,260 |
| Written Communication             | 3% | 2,755 / 82,880 | 0%  | 75 / 46,260    |
| Verbal Communication Skills       | 3% | 2,602 / 82,880 | 0%  | 20 / 46,260    |
| Interpersonal Skills              | 3% | 2,500 / 82,880 | 0%  | 142 / 46,260   |
| Creativity                        | 3% | 2,482 / 82,880 | 0%  | 0 / 46,260     |
| Mentorship                        | 3% | 2,314 / 82,880 | 1%  | 491 / 46,260   |
| Troubleshooting (Problem Solving) | 3% | 2,297 / 82,880 | 4%  | 1,665 / 46,260 |
| Project Management                | 3% | 2,192 / 82,880 | 7%  | 3,383 / 46,260 |
| Data Analysis                     | 3% | 2,089 / 82,880 | 4%  | 1,662 / 46,260 |
| Governance                        | 2% | 1,831 / 82,880 | 1%  | 249 / 46,260   |
| Editing                           | 2% | 1,828 / 82,880 | 6%  | 2,913 / 46,260 |
| Financial Services                | 2% | 1,724 / 82,880 | 1%  | 244 / 46,260   |
| Time Management                   | 2% | 1,570 / 82,880 | 2%  | 803 / 46,260   |
| Driving                           | 2% | 1,549 / 82,880 | 0%  | 199 / 46,260   |
| Social Media                      | 2% | 1,526 / 82,880 | 11% | 5,136 / 46,260 |
| Investigation                     | 2% | 1,360 / 82,880 | 0%  | 210 / 46,260   |
| Microsoft Excel                   | 1% | 1,216 / 82,880 | 9%  | 4,104 / 46,260 |
| Coordinating                      | 1% | 1,205 / 82,880 | 1%  | 681 / 46,260   |
| Microsoft PowerPoint              | 1% | 1,014 / 82,880 | 8%  | 3,634 / 46,260 |
| Microsoft Office                  | 1% | 1,013 / 82,880 | 13% | 5,787 / 46,260 |

|                     |    |              |    |                |
|---------------------|----|--------------|----|----------------|
| Decision Making     | 1% | 993 / 82,880 | 0% | 121 / 46,260   |
| Prioritization      | 1% | 970 / 82,880 | 0% | 130 / 46,260   |
| Critical Thinking   | 1% | 957 / 82,880 | 0% | 229 / 46,260   |
| Microsoft Antivirus | 1% | 927 / 82,880 | 0% | 120 / 46,260   |
| Data/Record Logging | 1% | 842 / 82,880 | 1% | 443 / 46,260   |
| Apple iPhone        | 1% | 819 / 82,880 | 2% | 763 / 46,260   |
| Proposal (Business) | 1% | 788 / 82,880 | 0% | 179 / 46,260   |
| Mathematics         | 1% | 711 / 82,880 | 1% | 487 / 46,260   |
| Apple OS X          | 1% | 704 / 82,880 | 2% | 1,142 / 46,260 |
| Telecommuting       | 1% | 676 / 82,880 | 0% | 12 / 46,260    |
| Teaching            | 1% | 652 / 82,880 | 5% | 2,120 / 46,260 |
| Program Management  | 1% | 633 / 82,880 | 3% | 1,319 / 46,260 |

# Top Qualifications

| Qualification  | Postings with Qualification |
|--|-----------------------------|
| Certified Information Systems Security Professional    | 3,565                       |
| Certified Information Security Manager                 | 2,431                       |
| Global Information Assurance Certification             | 917                         |
| Certified Ethical Hacker                               | 869                         |
| Cisco Certified Network Professional                   | 499                         |
| Certified In Risk And Information Systems Control      | 485                         |
| GIAC Certified Incident Handler                        | 481                         |
| Cisco Certified Network Associate                      | 406                         |
| CompTIA Security+                                      | 375                         |
| Cisco Certified Internetwork Expert                    | 361                         |
| GIAC Security Essentials Certification                 | 335                         |
| GIAC Certified Intrusion Analyst                       | 315                         |
| Offensive Security Certified Professional              | 288                         |
| Cisco Certified Security Professional                  | 221                         |
| GIAC Certified Forensics Analyst                       | 192                         |
| Certificate Of Cloud Security Knowledge                | 154                         |
| Qualified Security Assessor                            | 118                         |
| Master Of Business Administration (MBA)                | 109                         |
| Systems Security Certified Practitioner                | 105                         |
| Certified Secure Software Lifecycle Professional       | 99                          |
| Microsoft Certified Systems Engineer                   | 97                          |
| Forensic Examiner Certification                        | 85                          |
| Certified In The Governance Of Enterprise IT           | 84                          |
| Reverse Engineering Malware Certification              | 84                          |
| Certified Internal Auditor                             | 76                          |
| Information Systems Security Architecture Professional | 74                          |

|  |    |
|--|----|
| Juniper Networks Certified Internet Expert                   | 69 |
| Cisco Certified Design Professional                          | 67 |
| Computer Hacking Forensic Investigator                       | 54 |
| Microsoft Certified Systems Administrator (MCSA)             | 47 |
| Cisco Certified Voice Professional                           | 46 |
| Microsoft Certified Professional                             | 45 |
| Certification In Control Self-Assessment                     | 43 |
| Cisco Certified Internetwork Expert Security (CCIE Security) | 43 |
| Systems And Network Auditor Certification                    | 43 |
| Information Systems Security Engineering Professional        | 40 |
| Cisco Certified Network Associate Security (CCNA Security)   | 32 |
| CompTIA Network+   | 32 |
| Certified Computer Examiner                                  | 31 |
| Cisco Certified Network Professional Voice                   | 30 |
| EC Council Certified Security Analyst                        | 30 |
| VMware Certified Professional (VCP)                          | 30 |
| GIAC Security Leadership Certification                       | 28 |
| Cisco Certified Internetwork Expert (CCIE) Voice             | 27 |
| Juniper Networks Certified Internet Associate                | 27 |
| Internet And Computing Core Certification                    | 26 |
| Juniper Networks Certified Internet Specialist               | 25 |
| Juniper Network Certified Internet Professional (JNCIP)      | 22 |
| Physical Security Professional                               | 21 |
| Cisco Certified Design Expert (CCDE)                         | 20 |

# Appendix A - Data Sources and Calculations

## Institution Data

The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

## Emsi Job Postings

Job postings are collected from various sources and processed/enriched to provide information such as standardized company name, occupation, skills, and geography.

## Occupation Data

Emsi occupation employment data are based on final Emsi industry data and final Emsi staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level Emsi earnings by industry.

## Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

## State Data Sources

This report uses state data from the following agencies: California Labor Market Information Department