JOBS**e**Q

Occupation Report

Computer and Mathematical Occupations

El Dorado County, California

GREATER SACRAMENTO
ECONOMIC COUNCIL

Greater Sacramento Economic Council

Occupation Snapshot

6-Digit Occupation	Empl	Avg Mean Wages	LQ	3-Year Empl Change	Annual Demand	Forecast Ann Growth
Software Developers	421	$149,200	0.64	37	28	1.3%
Computer Occupations, All Other	177	$112,400	0.97	9	12	0.7%
Computer User Support Specialists	169	$96,800	0.61	11	11	0.0%
Computer Systems Analysts	107	$116,000	0.54	-4	7	0.6%
Network and Computer Systems Administrators	70	$105,800	0.55	1	3	-0.7%
Data Scientists	55	$108,300	0.71	11	5	2.8%
Web and Digital Interface Designers	46	$115,400	0.91	6	3	0.3%
Computer Programmers	45	$120,700	0.88	-21	2	-1.2%
Software Quality Assurance Analysts and Testers	45	$116,100	0.58	3	3	0.9%
Computer Network Support Specialists	36	$89,200	0.56	1	2	0.1%
Remaining Component Occupations	169	$121,000	0.54	8	12	1.3%
Computer and Mathematical Occupations	**1,339**	**$122,800**	**0.65**	**61**	**89**	**0.8%**

Computer and Mathematical Occupations

Current 1,339

Historical — Forecast

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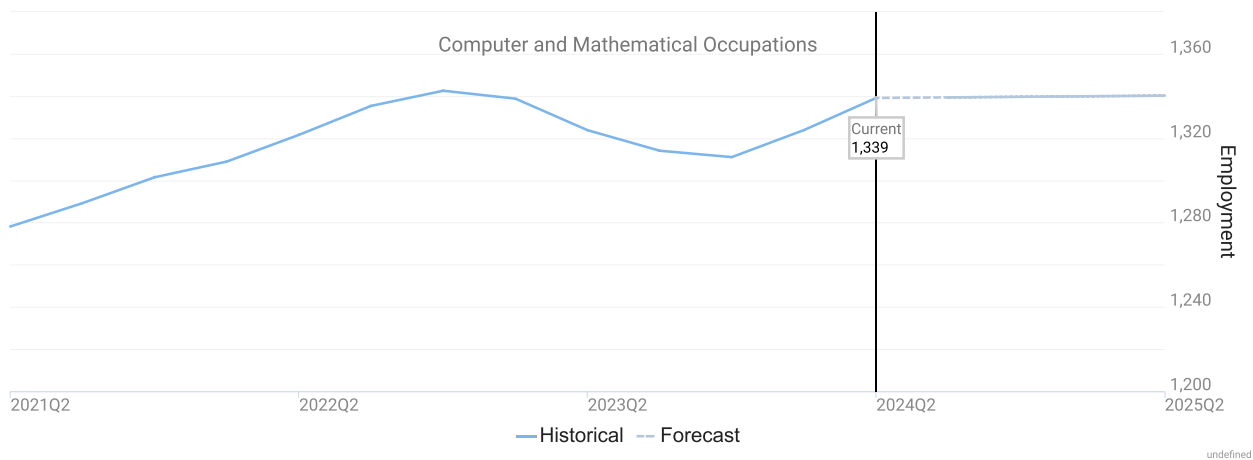
💡 "Annual Demand" is the projected need for new entrants into an occupation. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

💡 "Forecast Ann Growth" is the expected change in jobs due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix and population growth (as computed and modeled by Chmura).

Employment by Industry

Industry Title	% of Occ Empl	Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Computer Systems Design and Related Services	24.6%	329	195	44	239
Software Publishers	6.2%	83	49	16	65
Management, Scientific, and Technical Consulting Services	5.8%	78	47	11	57
Agencies, Brokerages, and Other Insurance Related Activities	4.2%	56	33	6	38
Administration of Environmental Quality Programs	3.7%	49	30	5	35
Elementary and Secondary Schools	3.1%	42	24	-3	21
Architectural, Engineering, and Related Services	3.0%	40	23	2	25
Management of Companies and Enterprises	2.8%	37	22	3	25
Depository Credit Intermediation	2.7%	37	21	3	24
Web Search Portals, Libraries, Archives, and Other Information Services	2.1%	28	16	5	21
Office Administrative Services	2.0%	27	16	4	20
Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	2.0%	27	16	4	21
Business Support Services	1.9%	26	15	1	16
Building Equipment Contractors	1.6%	22	12	-1	11
Wired and Wireless Telecommunications (except Satellite)	1.6%	21	11	-2	9
Justice, Public Order, and Safety Activities	1.4%	19	11	0	11
Executive, Legislative, and Other General Government Support	1.4%	19	11	0	11
Gambling Industries	1.3%	17	9	-2	7
General Medical and Surgical Hospitals	1.3%	17	10	1	10
Other Professional, Scientific, and Technical Services	1.3%	17	10	1	11
All Others	26.0%	348	203	18	221

The industry distribution indicates the industries in which workers in the occupation(s) are primarily found.

"10-Year Empl Growth" may show industries with positive as well as negative growth; this would indicate that the occupation(s) being examined are expected to expand within some industries while contracting in others.
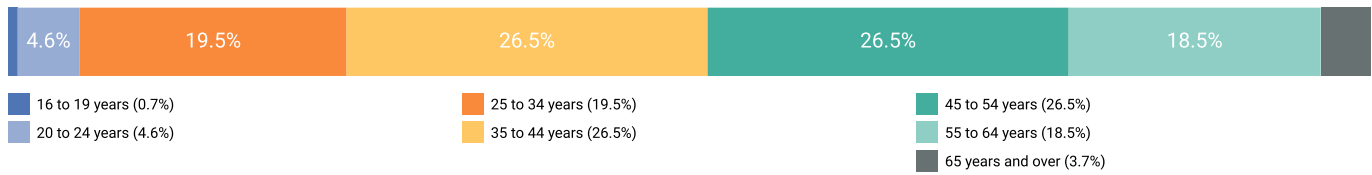
Wages

Mean

$122,800

Entry Level

$71,600

Experienced

$148,300
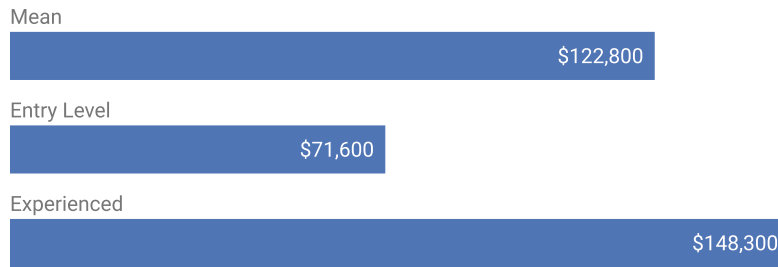
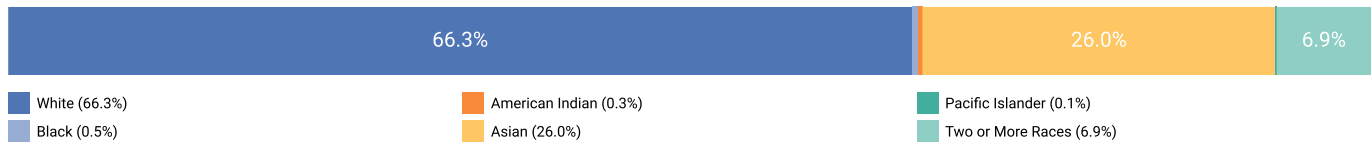| Occupation	Mean	Median	Entry Level	Experienced
Computer and Information Research Scientists	$199,400	$178,600	$118,700	$239,700
Database Architects	$153,900	$154,600	$103,700	$179,000
Software Developers	$149,200	$145,400	$100,700	$173,500
Mathematical Science Occupations, All Other	$139,800	$153,600	$70,700	$174,400
Computer Network Architects	$136,400	$134,300	$85,900	$161,700
Information Security Analysts	$134,000	$133,300	$83,000	$159,500
Mathematicians	$132,500	$140,700	$92,100	$152,700
Actuaries	$129,800	$113,900	$88,700	$150,400
Computer Programmers	$120,700	$108,700	$72,700	$144,700
Software Quality Assurance Analysts and Testers	$116,100	$114,700	$71,300	$138,500

Occupation wages here utilize BLS OEWS data, imputed and brought forward by Chmura.

When this report is run for an occupation group, the table above displays up to the top ten detailed occupations which have the highest average wages within the occupation group.
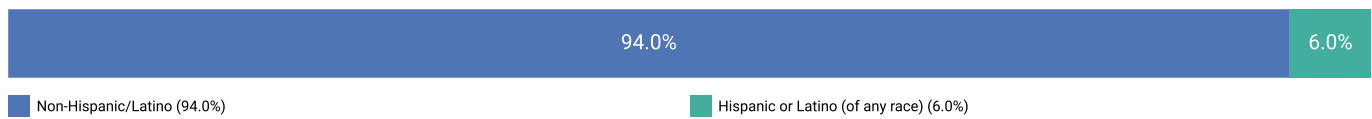
Occupation Demographics

Age

4.6%	19.5%	26.5%	26.5%	18.5%	

- ■ 16 to 19 years (0.7%)
- ■ 20 to 24 years (4.6%)
- ■ 25 to 34 years (19.5%)
- ■ 35 to 44 years (26.5%)
- ■ 45 to 54 years (26.5%)
- ■ 55 to 64 years (18.5%)
- ■ 65 years and over (3.7%)

Race

66.3%		26.0%	6.9%

- ■ White (66.3%)
- ■ Black (0.5%)
- ■ American Indian (0.3%)
- ■ Asian (26.0%)
- ■ Pacific Islander (0.1%)
- ■ Two or More Races (6.9%)

Ethnicity

94.0%	6.0%

- ■ Non-Hispanic/Latino (94.0%)
- ■ Hispanic or Latino (of any race) (6.0%)

Gender

77.7%	22.3%

- ■ Male (77.7%)
- ■ Female (22.3%)

Education and Training Requirements

12.6%		83.7%	

- ■ Short-term OJT, no exp, no award (0.0%)
- ■ Moderate-term OJT, no exp, no award (12.6%)
- ■ Long-term training, no exp, no award (0.0%)
- ■ Previous work experience, no award (0.0%)
- ■ 2-year degree or certificate (2.7%)
- ■ Bachelor's degree (83.7%)
- ■ Postgraduate degree (1.1%)

Education Profile

Educational Attainment

8.7%	8.8%	53.8%	22.1%	

- ■ < High School (0.3%)
- ■ High School (3.0%)
- ■ Some College (8.7%)
- ■ Two-Year (8.8%)
- ■ Four-Year (53.8%)
- ■ Master's (22.1%)
- ■ PhD (3.2%)
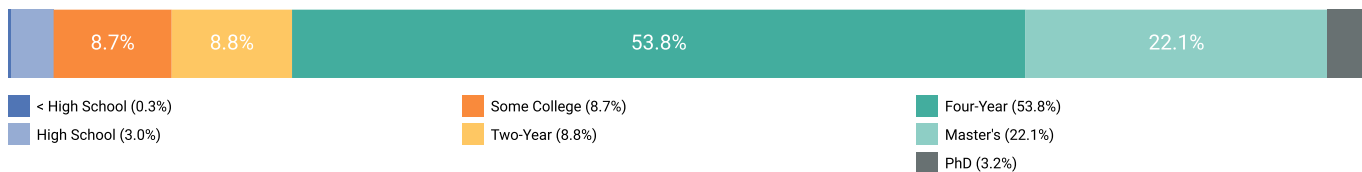
Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Software Developers	Bachelor's degree	None	None
Computer Occupations, All Other	Bachelor's degree	None	None
Computer User Support Specialists	Some college, no degree	None	Moderate-term on-the-job training
Computer Systems Analysts	Bachelor's degree	None	None
Network and Computer Systems Administrators	Bachelor's degree	None	None
Data Scientists	Bachelor's degree	None	None
Web and Digital Interface Designers	Bachelor's degree	None	None
Computer Programmers	Bachelor's degree	None	None
Software Quality Assurance Analysts and Testers	Bachelor's degree	None	None
Computer Network Support Specialists	Associate's degree	None	Moderate-term on-the-job training

💡 The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this occupation(s) in aggregate.

💡 The table indicates typical education and training requirements rather than the mix of attainment of workers in such positions.

# Postsecondary Programs Linked to Computer and Mathematical Occupations

Program	Awards
Lake Tahoe Community College	
Computer Systems Networking and Telecommunications	6
Mathematics, General	4
Web Page, Digital/Multimedia and Information Resources Design	0

The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.

Among postsecondary programs at schools located in El Dorado County, California, the sampling above identifies those most linked to Computer and Mathematical Occupations. For a complete list see JobsEQ®, http://www.chmuraecon.com/jobseq

RTI (Job Postings)

Active Job Ads by Date

■ Dec 11, 2023 to Dec 1, 2024   ☐ Dec 12, 2022 to Dec 3, 2023
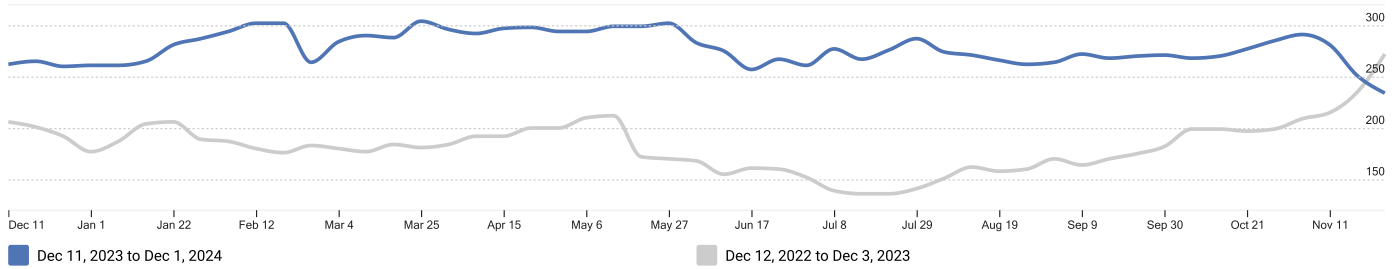
💡 Online job ads are a timely indicator of local demand. Occupation assignments shown below are made by Chmura based upon analysis of job titles and job descriptions. Top employers and listed job requirements are shown on the following pages.

Occupations

SOC	Occupation	Active Job Ads	
15-1252.00	Software Developers	326	
15-1232.00	Computer User Support Specialists	188	
15-1244.00	Network and Computer Systems Administrators	125	
15-1299.08	Computer Systems Engineers/Architects	125	
15-1299.09	Information Technology Project Managers	68	
15-1253.00	Software Quality Assurance Analysts and Testers	66	
15-1211.00	Computer Systems Analysts	46	
15-1212.00	Information Security Analysts	46	
15-1221.00	Computer and Information Research Scientists	43	
15-2031.00	Operations Research Analysts	19	

Locations

Location	Active Job Ads	
Folsom, California	623	
El Dorado Hills, California	199	
Folsom, CA 95630	48	
Auburn, California	28	
95630	25	
Folsom, California 95630	25	
95762	17	
Placerville, CA 95667	16	
Placerville, California	14	
South Lake Tahoe, California	13	

Employers

Employer Name	Active Job Ads	
Intel Corporation	203	
Micron Technology	54	
Blue Shield of California	47	
CrowdDoing	46	
Intel	34	
PowerSchool Group LLC	32	
Keeper Security, Inc.	25	
AMD	23	
Sierra Nevada Corporation (SNC)	22	
California ISO	19	

Hard Skills

Skill Name	Active Job Ads	
Computer Programming/Coding	282	
Python	235	
Agile	184	
Linux	153	
Personal Computers (PC)	148	
Structured Query Language (SQL)	134	
Graphics Processing Unit (GPU)	127	
Java	114	
C++	98	
Microsoft Office	98	

Job Titles

Job Title	Active Job Ads	
GPU Software Development Engineer	14	
Software Engineer II	12	
GPU Design Verification Engineer	8	
Project Coordinator	8	
Analog Product Development Engineer	7	
Computer Technician	5	
Design Verification Engineer	5	
Front-End SoC Design Engineer - Client Product Development	5	
Game Tester	5	
HBM Design Engineer - Member of Technical Staff	5	

Education Levels

Minimum Education Level	Active Job Ads	
Bachelor's degree	563	
High school diploma or equivalent	62	
Master's degree	61	
Associate's degree	43	
Doctoral or professional degree	7	
Unspecified/other	382	

Programs

Program Name	Active Job Ads	
Computer Science	419	
Computer Engineering	151	
Electrical Engineering	144	
Engineering	97	
STEM	69	
Information Technology	57	
Information Systems	29	
Software Engineering	27	
Electrical	22	
Mathematics	21	

Top Skill and Certification Gaps

Top 10 Skill Gaps in El Dorado County, California

Name	Candidates	Openings	Gap
Agile	11	19	-7
Atlassian JIRA	6	11	-6
Git	3	9	-6
Python	9	13	-5
Atlassian Bitbucket	0	4	-4
Microsoft Azure	5	9	-4
Google	1	5	-4
Scrum	5	9	-3
Docker	1	4	-3
Amazon Web Services (AWS)	5	7	-2

Top 10 Certification Gaps in El Dorado County, California

Name	Candidates	Openings	Gap
Cisco Certified Network Associate (CCNA)	0	2	-2
Vmware Certified Professional (VCP)	0	1	-1
Microsoft Certified IT Professional (MCITP)	0	1	-1
Cisco Certified Network Professional (CCNP)	0	1	-1
Secret Clearance	0	1	0
Microsoft Certified Solutions Expert (MCSE)	0	1	0
Certified ScrumMaster (CSM)	0	1	0
Certified Information Systems Auditor (CISA)	1	1	0
Certified Information Systems Security Professional (CISSP)	2	1	0
Certified Information Security Manager (CISM)	1	0	1

Skill and certifications gaps can help inform employee development programs, as well as provide a comparison of the needs of regional employers to the supply.
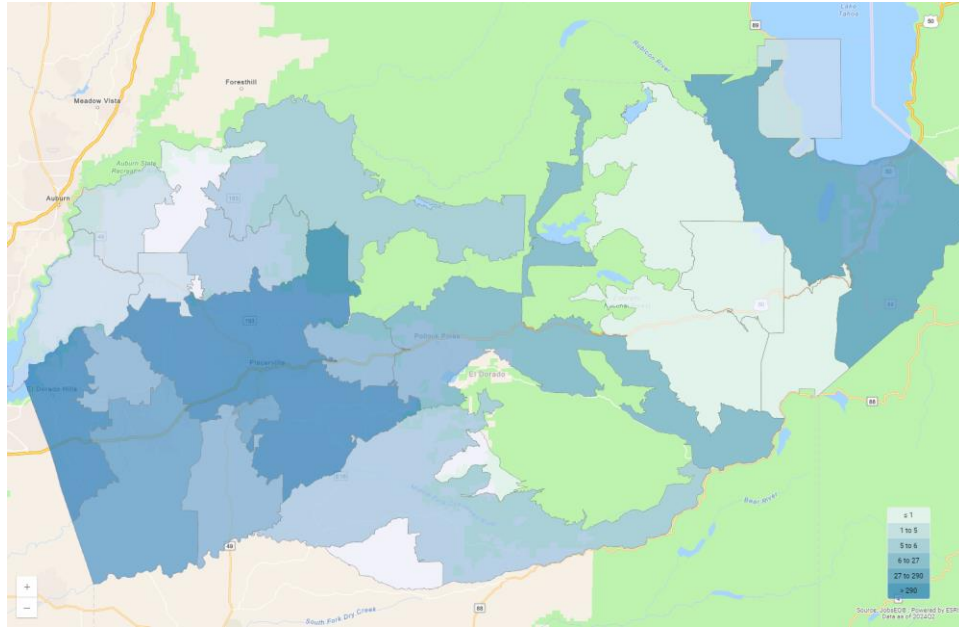
Occupation Gaps

Supply Deficit | Supply Surplus

Software Developers ($149,200)
−2

Computer Occupations, All Other ($112,400)
−1

Data Scientists ($108,300)
−1
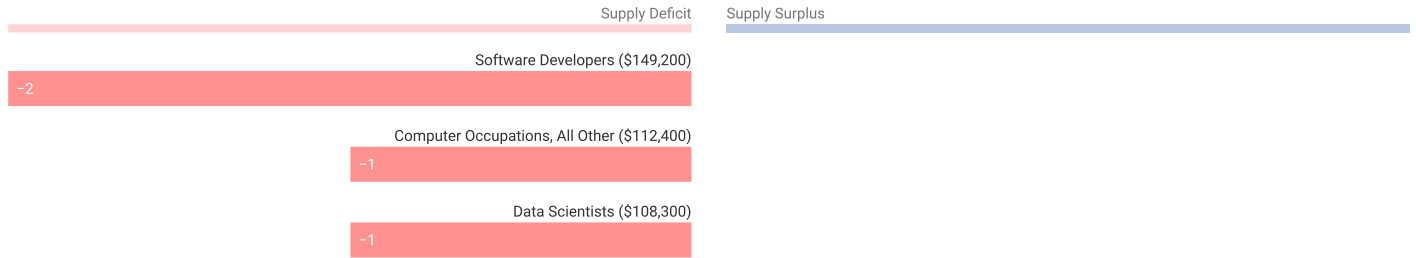
The above are the potential average annual gaps over 10 years. Many variables go into this analysis, but at its core it is based on a forecast comparing occupation demand growth to the local population growth and the projected educational attainment of those residents. When an area, for example, has an occupation expected to grow quickly but the educational requirement for the occupation does not match well with the educational attainment of its residents, there is a high potential for an occupation shortfall in the region. Alternatively, slow-growing or contracting occupations often represent potential supply surpluses.

The potential supply shortfall is an underlying force that the market needs to resolve one way or another, such as by employers recruiting from further distances for these occupations, wages going up to attract more candidates, and/or increased demand and wages enticing more local residents to get training for these occupations. While this an important analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, and award and skill gap analyses.

Geographic Distribution

Top ZCTAs by Place of Work for Computer and Mathematical Occupations, 2024Q2

Region	Employment
ZCTA 95762	651
ZCTA 95667	291
ZCTA 96150	157
ZCTA 95682	143
ZCTA 95619	28
ZCTA 95709	18
ZCTA 95672	10
ZCTA 95726	8
ZCTA 95623	7
ZCTA 95633	6
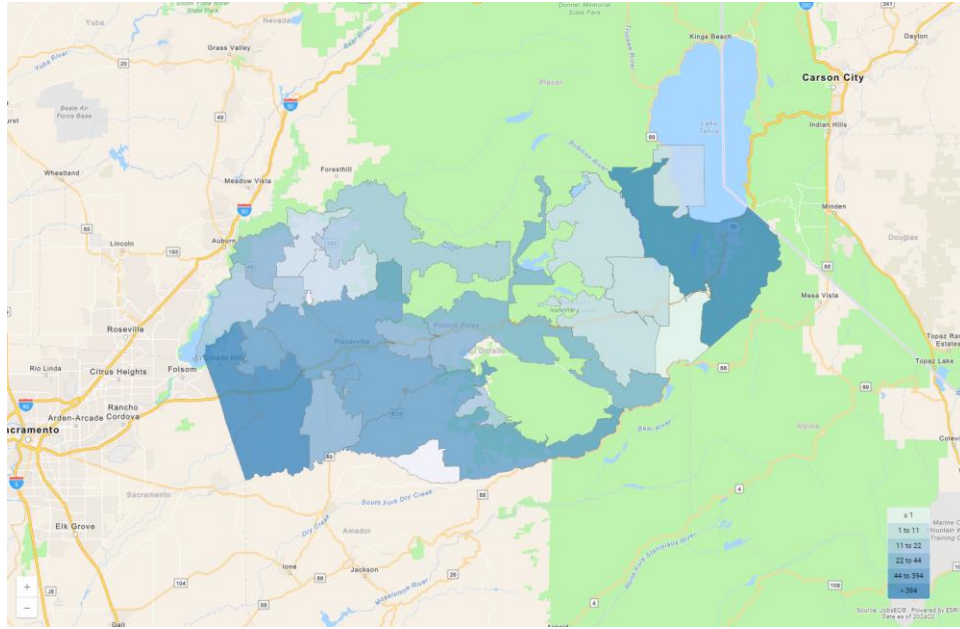
Top ZCTAs by Place of Residence for Computer and Mathematical Occupations, 2024Q2

Region	Employment
ZCTA 95762	1,373
ZCTA 95682	469
ZCTA 96150	395
ZCTA 95667	277
ZCTA 95672	110
ZCTA 95684	51
ZCTA 95619	44
ZCTA 95709	43
ZCTA 95726	42
ZCTA 95614	28

"Place of work" employment is based upon the location of employers for these workers. "Place of residence" data refers to the home locations of the workforce, which is typically the preferred data set to use when calculating labor availability within a drive-time or radius of a potential worksite.

El Dorado County, California Regional Map
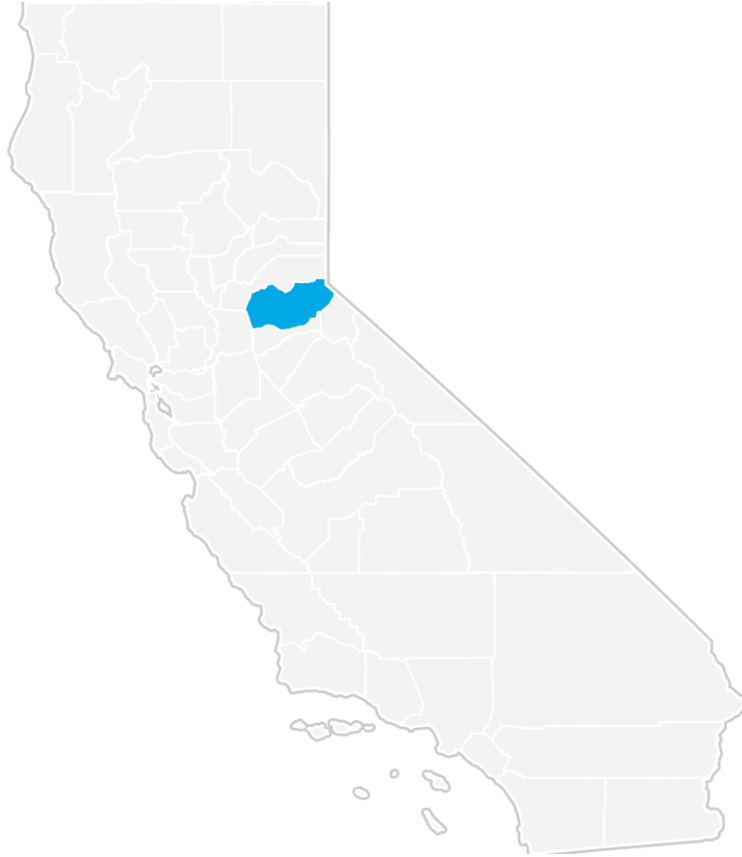
Data Notes

- Occupation employment by default indicates employment by place of work. Occupation employment is as of 2024Q2 and is based on industry employment and local staffing patterns calculated by Chmura and utilizing BLS OEWS data. Employment forecasts are modeled by Chmura and are consistent with BLS national-level 10-year forecasts. Wages by occupation are as of 2024Q2, utilizing BLS OEWS data, imputed and brought forward by Chmura. Entry-level and experienced wages are derived from these source data, computed by Chmura.

- Industry employment is as of 2024Q2 and is based upon BLS QCEW data, imputed by Chmura where necessary, and supplemented by additional sources including Census ZBP data.

- Education and training requirements are from the BLS. Educational attainment mix and other occupation demographics data are modeled by Chmura for 2024Q2 using regional occupation employment from JobsEQ, ZCTA-level demographics data from the Census Bureau, and national occupation-demographics patterns from the BLS.

- Postsecondary awards are per the NCES and are for the 2022-2023 academic year. Any programs shown are linked with the occupation(s) being analyzed via the program-occupation crosswalk, which may not be comprehensive. Any programs shown reflect only data reported to the NCES; reporting is required of all Title IV schools. Training providers that do not report data to the NCES are not reflected.

- Job ads data are online job posts from the Real-Time Intelligence (RTI) data set, produced by Chmura and gleaned from over 40,000 websites. Data reflect ads active during the 12-month period ending 12/10/2024 and advertised for any Zip Code Tabulation Area in or intersecting with the region for which this report was produced. Historical ad volume is revised as additional data are made available and processed. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures and exclude ads from staffing companies.

- For skill and certification gaps, openings and candidates are based upon regional occupation demand (growth plus separations) and the percent of skill demand and supply. Skill demand mix data are per a one-year sample of RTI data; skill supply data are estimated using a five-year sample of resumes data; both data sets compiled as of July 2022. Data may be based, at least in part, on data from broader geographies; see the Skill Gaps analytic export for more details.

- Occupation gaps are modeled by Chmura, indicating long-term potential supply and demand mismatches in a region due, in part, to job demand and labor pool dynamics, including educational attainment and projected growth.

- Occupation employment by place of residence is as of 2024Q2 and modeled by Chmura based upon occupation employment by place of work and commuting patterns. Commuting patterns are derived from source data from the Census Bureau, occupation-specific commuting tendencies, and updated to reflect more recent population and employment estimates.

- Figures may not sum due to rounding.

FAQ

What is (LQ) location quotient?

Location quotient is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is annual demand?

Annual demand is the sum of the annual projected growth demand and separation demand. Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. Growth demand is the increase or decrease of jobs expected due to expansion or contraction of the overall number of jobs.