CENTER OF EXCELLENCE FOR LABOR MARKET RESEARCH BAY AREA

Labor Market Analysis for Program Recommendation
Information Technology (Artificial Intelligence) Occupations
North Bay Subregion

Prepared by the Bay Region Center of Excellence for Labor Market Research

Associate Program

July 2026

Recommendation Based on Labor Market Data: ☑ Yes ☐ With Reservations ☐ No		
	Earning Wage Meets Living Wage	**Meets Demand**
Bay Region	**Entry Level Hourly Wage- $76** **Mid-Career Hourly Wage- $92** **Mid-Career Hourly Wage at or above the** **Bay Living Wage ($27)?** **☑ Yes** **☐ No**	**Demand: 11,640** **Supply: 118 (1% of Demand is Met)** **Gap: 11,522** **In-Demand?** **☑ Yes** **☐ No**
North Bay Subregion	**Entry Level Hourly Wage- $57** **Mid-Career Hourly Wage- $71** **Mid-Career Hourly Wage at or above the** **Subregion Living Wage ($24)?** **☑ Yes** **☐ No**	**Demand: 199** **Supply: 24 (12% of Demand is Met)** **Gap: 175** **In-Demand?** **☑ Yes** **☐ No**

Note: An occupation is considered to provide a living wage if the mid-career wage is at or above the amount required for a single adult to be economically self-sufficient within a specified region. As a rule of thumb, an occupation will be considered **in-demand** when the supply is less than 75% of the demand **and** the labor market gap exceeds 40 openings (a reasonable regional threshold for starting a new program), but this approach may not apply in all cases. For definitions of demand, supply, and living wage, please scroll to the bottom of the report under **Definitions**.

Recommendation

The labor market data supports this proposed program. The occupations meet both the Bay Region and North Bay subregion living wage at the entry and mid-career levels. An additional 11,522 students are needed in the Bay Region and 175 students in the North Bay subregion to complete their program. Lastly, only 1% of labor market demand is being met in the Bay Region, and 12% of demand is being met in the North Bay subregion overall. However, this is based on above middle-skill occupations meaning they require a bachelor's degree or higher.

Introduction

This report provides student outcomes data on employment and earnings for TOP 0701.00 - Information Technology, General programs 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 subregion in the state and region.

This report profiles Information Technology (Artificial Intelligence) Occupations in the 12 county Bay Region and in the North Bay subregion. The occupations classified above middle-skill occupations require a bachelor's degree or higher.

- **Computer and Information Research Scientists (15-1221):** Conduct research into fundamental computer and information science as theorists, designers, or inventors. Develop solutions to problems in the field of computer hardware and software.
  Typical Entry-Level Educational: Master's degree
  Skill Level: Above Middle-Skill
  Work Experience Required: None
  Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 3%

- **Software Developers (15-1252):** Research, design, and develop computer and network software or specialized utility programs. Analyze user needs and develop software solutions, applying principles and techniques of computer science, engineering, and mathematical analysis. Update software or enhance existing software capabilities. May work with computer hardware engineers to integrate hardware and software systems, and develop specifications and performance requirements. May maintain databases within an application area, working individually or coordinating database development as part of a team.
  Typical Entry-Level Educational: Bachelor's degree
  Skill Level: Above Middle-Skill
  Work Experience Required: None
  Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 11%

- **Data Scientists (15-2051):** Develop and implement a set of techniques or analytics applications to transform raw data into meaningful information using data-oriented programming languages and visualization software. Apply data mining, data modeling, natural language processing, and machine learning to extract and analyze information from large structured and unstructured datasets. Visualize, interpret, and report data findings. May create dynamic data reports.
  Typical Entry-Level Educational: Bachelor's degree
  Skill Level: Above Middle-Skill
  Work Experience Required: None
  Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 10%

Occupational Demand

Table 1. Employment Outlook for Information Technology (Artificial Intelligence) Occupations in the Bay Region

Occupation	2024 Jobs	2029 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	Entry Level Hourly	Mid-Career Hourly Wage
Computer and Information Research Scientists	4,147	4,431	284	7%	1,464	293	$67	$88
Software Developers	170,720	176,635	5,915	3%	50,105	10,021	$77	$93
Data Scientists	16,337	18,349	2,011	12%	6,628	1,326	$63	$80
Total	**191,204**	**199,415**	**8,211**	**4%**	**58,197**	**11,640**	**$76**	**$92**

Source: Lightcast 2026.1

The 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 Information Technology (Artificial Intelligence) Occupations in the North Bay Subregion

Occupation	2024 Jobs	2029 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	Entry Level Hourly	Mid-Career Hourly Wage
Computer and Information Research Scientists	49	51	1	4%	16	3	$50	$71
Software Developers	3,010	2,980	-30	-1%	777	155	$59	$73
Data Scientists	532	587	54	10%	203	41	$43	$61
Total	**3,591**	**3,618**	**27**	**1%**	**996**	**199**	**$57**	**$71**

Source: Lightcast 2026.1

North Bay Subregion includes: Marin, Napa, Solano, Sonoma Counties

Job Postings in the Bay Region and North Bay Subregion

Table 3. Number of Job Postings by Occupation for the latest 12 months

Occupation	Bay Region	North Bay
Software Developers	54,876	1,162
Computer and Information Research Scientists	15,962	233
Data Scientists	15,207	475

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Table 4a. Top Job Titles in Job Postings for Information Technology (Artificial Intelligence) Occupations in the Bay Region

Title	Bay	Title	Bay
Software Engineers	6,046	Principal Software Engineers	1,142
Machine Learning Engineers	3,615	Back End Software Engineers	1,003
Staff Software Engineers	2,113	DevOps Engineers	906
Data Scientists	2,051	Data Analysts	884
Full Stack Engineers	1,457	Software Engineering Managers	867

Title	Bay	Title	Bay
Artificial Intelligence Engineers	1,431	Software Development Engineers	805
Full Stack Software Engineers	1,302	Embedded Software Engineers	601
Solutions Architects	1,268	Site Reliability Engineers	578
Infrastructure Software Engineers	1,242	Software Engineering Interns	570

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Table 4b. Top Job Titles in Job Posting for Information Technology (Artificial Intelligence) Occupations in the North Bay Subregion

Title	North Bay	Title	North Bay
Software Engineers	165	Solutions Engineers	23
Machine Learning Engineers	82	Infrastructure Software Engineers	22
Artificial Intelligence Engineers	61	SAP PP Consultants	22
Full Stack Engineers	61	Members of Technical Staff	20
Data Scientists	49	AI Trainers	19
Data Analysts	43	Infrastructure Engineers	18
Solutions Architects	42	Pharmaceutical Engineers	15
DevOps Engineers	32	Data Analytics Scientists	14
Staff Software Engineers	32	Customer Solutions Engineers	14

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Industry Concentration

Table 5. Industries Hiring for Information Technology (Artificial Intelligence) Occupations in the Bay Region

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2024)	Jobs in Industry (2029)	% Change (2024-29)	% Occupation Group in Industry (2024)
Custom Computer Programming Services	37,352	39,280	5%	19%
Software Publishers	21,834	23,752	9%	12%
Computer Systems Design Services	20,198	21,444	6%	11%
Web Search Portals and All Other Information Services	18,327	19,294	5%	10%
Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	11,303	13,346	18%	6%
Corporate, Subsidiary, and Regional Managing Offices	8,879	10,297	16%	5%

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2024)	Jobs in Industry (2029)	% Change (2024-29)	% Occupation Group in Industry (2024)
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	7,199	7,966	11%	4%
Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	5,318	4,807	-10%	3%
Research and Development in Biotechnology (except Nanobiotechnology)	3,619	4,260	18%	2%
Semiconductor and Related Device Manufacturing	3,290	3,712	13%	2%

Source: Lightcast 2026.1

Table 6. Top Employers Posting Information Technology (Artificial Intelligence) Occupations in the Bay Region and the North Bay Subregion

Employer	Bay	Employer	North Bay
Apple	4,699	Harnham	91
Google	4,071	Acceler8 Talent	56
Amazon	1,795	Keysight	46
Nvidia	1,283	Biomarin Pharmaceutical	40
Meta	1,176	Strativ Group	27
Uber	1,149	Insight Global	24

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Educational Supply

There are seven community colleges in the Bay Region issuing 118 awards on average annually (last 3 years ending 2024-25) on TOP 0701.00 - Information Technology, General. In the North Bay subregion, there is one community college that issued 24 awards on average annually (last 3 years) on this TOP code.

There are no other CTE educational institutions in the Bay Region issuing awards on average annually (last 3 years ending 2023-24) on CIP 11.0102- Artificial Intelligence and Robotics.

Table 7. Community College Awards on TOP 0701.00 - Information Technology, General in the Bay Region

College	Subregion	Associate Degree	Low unit Certificate	Total
Chabot	East Bay	7	1	8
Contra Costa	East Bay	8	17	25
Diablo Valley	East Bay	21	14	35
Laney	East Bay	0	7	7
Los Medanos	East Bay	0	3	3
Ohlone	East Bay	5	11	16
Santa Rosa	North Bay	0	24	24
Total	**-**	**41**	**77**	**118**

Source: Data Mart

College	Subregion	Associate Degree	Low unit Certificate	Total

Note: The annual average for awards is 2022-23 to 2024-25.

Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay Region with 11,640 annual openings for the Information Technology (Artificial Intelligence) occupational cluster and 118 annual (3-year average) awards for an annual undersupply of 11,522 students. In the North Bay subregion, there is also a gap with 199 annual openings and 24 annual (3-year average) awards for an annual undersupply of 175 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0701.00 - Information Technology, General

Metric Outcomes	Bay All CTE Program	State 0701.00	Bay 0701.00	North Bay 0701.00
Students with a Job Closely Related to Their Field of Study	75%	70%	72%	65%
Median Annual Earnings for SWP Exiting Students	$58,379	$42,290	$49,711	$44,676
Median Change in Earnings for SWP Exiting Students	31%	29%	31%	20%
Exiting Students Who Attained the Living Wage	50%	43%	42%	44%

Source: DataVista Program Median of 2020 to 2022.

Skills, Certifications and Education

Table 9. Top Skills in Job Postings for Information Technology (Artificial Intelligence) Occupations in the Bay Region

Skill	Posting	Skill	Posting
Python (Programming Language)	38,103	Amazon Web Services	16,831
Computer Science	37,622	Automation	16,048
Artificial Intelligence	33,217	SQL (Programming Language)	15,859
Software Engineering	31,723	C++ (Programming Language)	14,834
Scalability	30,960	Debugging	14,071
Machine Learning	29,382	Java (Programming Language)	12,810
Workflow Management	21,331	CI/CD	12,231
Software Development	19,008	Algorithms	11,346
Application Programming Interface (API)	18,513	Data Science	11,333
Pipelines	17,643	Kubernetes	10,831

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Table 10. Certifications in Job Postings for Information Technology (Artificial Intelligence) Occupations in the Bay Region

Certification	Posting	Certification	Posting
Salesforce Certification	329	Automotive Service Excellence (ASE) Certification	133
Epic EMR Certification	257	GIAC Certifications	108
Oracle Certification	168	SAP Certification	105
Project Management Professional Certification	135		

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Table 11. Education Requirements for Information Technology (Artificial Intelligence) Occupations in the Bay Region

Education Level	Job Postings	% of Total
High school or GED	509	1%
Associate degree	864	1%
Bachelor's degree & higher	81,717	98%

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Note: 43% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample.

Methodology

Occupations for this report were identified by use of job descriptions and skills listed in O*Net. Labor demand data is sourced from Lightcast occupation and job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CCCCO Data Mart and CTE Launchboard.

Definitions

Demand refers to average annual openings which includes a combination of both new jobs and replacement jobs between 2024 to 2029. New jobs represent the total number of additional workers required in an occupation, calculated as the difference between the current number of workers and the projected number of unfilled positions. Replacements are jobs that will need to be filled by new hires due to existing workers leaving the occupation. The average annual openings figure is derived by dividing total openings (2024 to 2029) by five years.

Supply refers to the average number of graduates between academic years 2021–2022 and 2023–2024. Graduates include students from community colleges, other two-year private and public institutions, as well as four-year institutions.

Living wage refers to the amount of income required for working families to meet basic needs at a minimally adequate level, considering family composition, ages of children, and geographic differences in costs based on the Self-Sufficiency Standard methodology.

Entry-level wages are the hourly earnings paid to workers who are newly entering an occupation.

Mid-career wages are the hourly earnings paid to workers who have accumulated several years of experience in an occupation, reflecting increased productivity, skill proficiency, and responsibility beyond entry-level roles but short of late-career or senior positions.

Sources

O*Net Online
Lightcast
CTE LaunchBoard www.calpassplus.org
Statewide CTE Outcomes Survey
Employment Development Department Unemployment Insurance Dataset
CCCCO Data Mart

Contacts

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