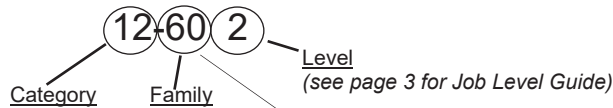


Sample Job Number Guide



10 - Executive

- 10-22 Chief Information Officer (CIO)
- 10-24 Chief Technology Officer (CTO)
- 10-25 Multi-Function Head / Director
- 10-26 Product Development / Engineering Executive
- 10-28 Product / Program Management Executive
- 10-32 Customer / Product Support Executive
- 10-34 Professional Services / Consulting Executive
- 10-42 Chief Financial Officer (CFO)
- 10-52 Top Legal Executive / General Counsel
- 10-62 Top Marketing Executive
- 10-72 Top Human Resources Executive

12 - IT Infrastructure

IT Management

- 12-20 7 IT, Director
- 12-20 6 IT, Manager

Application Engineering

- 12-30 7 Applications Engineer, Director
- 12-30 6 Applications Engineer, Manager
- 12-30 5 Applications Engineer, Chief Architect
- 12-30 4 Applications Engineer, Principal
- 12-30 3 Applications Engineer, Senior
- 12-30 2 Applications Engineer II
- 12-30 1 Applications Engineer I

Network Engineering

- 12-35 7 Network Engineering / Administration, Director
- 12-35 6 Network Engineering / Administration, Manager
- 12-35 4 Network Engineer, Principal
- 12-35 3 Network Engineer, Senior
- 12-35 2 Network Engineer II
- 12-35 1 Network Engineer I

Network Administration

- 12-40 3 Network Administrator, Senior
- 12-40 2 Network Administrator II
- 12-40 1 Network Administrator I

Systems Engineering

- 12-45 7 Systems Engineering / Administration, Director
- 12-45 6 Systems Engineering / Administration, Manager
- 12-45 4 Systems Engineer, Principal
- 12-45 3 Systems Engineer, Senior
- 12-45 2 Systems Engineer II
- 12-45 1 Systems Engineer I

Systems Administration

- 12-50 3 Systems Administrator, Senior
- 12-50 2 Systems Administrator II
- 12-50 1 Systems Administrator I

Distributed Systems

- 12-52 6 Distributed Systems, Manager
- 12-52 4 Distributed Systems, Principal
- 12-52 3 Distributed Systems, Senior
- 12-52 2 Distributed Systems II
- 12-52 1 Distributed Systems I

Architectural / Capacity Planning

- 12-55 6 Architectural / Capacity, Manager
- 12-55 4 Architectural / Capacity, Principal
- 12-55 3 Architectural / Capacity, Senior
- 12-55 2 Architectural / Capacity II
- 12-55 1 Architectural / Capacity I

Information Security / Cybersecurity

- 12-60 7 Information Security / Cybersecurity, Director
- 12-60 6 Information Security / Cybersecurity, Manager
- 12-60 4 Information Security / Cybersecurity, Principal
- 12-60 3 Information Security / Cybersecurity, Senior
- 12-60 2 Information Security / Cybersecurity II
- 12-60 1 Information Security / Cybersecurity I

Hardware Management & Support

- 12-65 6 Hardware Management & Support, Manager
- 12-65 4 Hardware Management & Support, Principal
- 12-65 3 Hardware Management & Support, Senior
- 12-65 2 Hardware Management & Support II
- 12-65 1 Hardware Management & Support I

Data / Voice Communications

- 12-70 6 Data / Voice Communications, Manager
- 12-70 4 Data / Voice Communications, Principal
- 12-70 3 Data / Voice Communications, Senior
- 12-70 2 Data / Voice Communications II
- 12-70 1 Data / Voice Communications I

IT Quality Assurance

- 12-75 6 Quality Assurance, Manager
- 12-75 4 Quality Assurance, Principal
- 12-75 3 Quality Assurance, Senior
- 12-75 2 Quality Assurance II
- 12-75 1 Quality Assurance I

Network Operations Center

- 12-85 7 Network Operations Center, Director
- 12-85 6 Network Operations Center, Manager
- 12-85 3 Network Operations Center, Senior
- 12-85 2 Network Operations Center II
- 12-85 1 Network Operations Center I

Help Desk

- 12-90 7 Help Desk, Director
- 12-90 6 Help Desk, Manager
- 12-90 3 Help Desk Specialist, Senior
- 12-90 2 Help Desk Specialist II
- 12-90 1 Help Desk Specialist I

Cloud Engineering / Infrastructure**

- 12-92 4 Cloud Engineer, Principal
- 12-92 3 Cloud Engineer, Senior
- 12-92 2 Cloud Engineer II
- 12-92 1 Cloud Engineer I

DevOps Engineering

- 12-95 7 DevOps Engineering, Director
- 12-95 6 DevOps Engineering, Manager
- 12-95 4 DevOps Engineer, Principal
- 12-95 3 DevOps Engineer, Senior
- 12-95 2 DevOps Engineer II
- 12-95 1 DevOps Engineer I

14 - Product Development / Quality Assurance

Software Engineering / Product Dev. Management

- 14-20 7 Software Engineering / Product Dev., Director
- 14-20 6 Software Engineering / Product Dev., Manager

Software Engineering

- 14-25 5 Software Engineer, Chief Architect
- 14-25 4 Software Engineer, Principal
- 14-25 3 Software Engineer, Senior
- 14-25 2 Software Engineer II
- 14-25 1 Software Engineer I

Configuration / Release Engineering

- 14-35 3 Configuration / Release Engineer, Senior
- 14-35 2 Configuration / Release Engineer II
- 14-35 1 Configuration / Release Engineer I

QA Management (Product Development)

- 14-40 7 Quality Assurance, Director
- 14-40 6 Quality Assurance, Manager

Software Developers in Test (SDET)

- 14-45 4 Software Developer in Test (SDET), Principal
- 14-45 3 Software Developer in Test (SDET), Senior
- 14-45 2 Software Developer in Test (SDET) II
- 14-45 1 Software Developer in Test (SDET) I

Software QA Engineering

- 14-50 3 Software Quality Assurance Engineer, Senior
- 14-50 2 Software Quality Assurance Engineer II
- 14-50 1 Software Quality Assurance Engineer I

UX / UI Design & Engineering

- 14-60 7 UX / UI Design & Engineering, Director
- 14-60 6 UX / UI Design & Engineering, Manager
- 14-60 4 UX / UI Designer / Engineer, Principal
- 14-60 3 UX / UI Designer / Engineer, Senior
- 14-60 2 UX / UI Designer / Engineer II
- 14-60 1 UX / UI Designer / Engineer I

16 - Database Development / Administration

Database Development

- 16-20 7 Database Developer, Director
- 16-20 6 Database Development, Manager
- 16-20 4 Database Developer, Principal
- 16-20 3 Database Developer, Senior
- 16-20 2 Database Developer II
- 16-20 1 Database Developer I

Database Administration

- 16-25 3 Database Administrator, Senior
- 16-25 2 Database Administrator II
- 16-25 1 Database Administrator I



(continued)

Jobs Surveyed



2021 Northwest Technology Survey

18 - Web / Internet Development

Website / Creative Development Management

- 18-20 7 Website / Creative Development, Director
- 18-20 6 Website / Creative Development, Manager

Web Development

- 18-25 4 Web Developer, Principal
- 18-25 3 Web Developer, Senior
- 18-25 2 Web Developer II
- 18-25 1 Web Developer I

Web Design

- 18-30 3 Web Designer, Senior
- 18-30 2 Web Designer II
- 18-30 1 Web Designer I

Web Producer / Content Management

- 18-35 6 Web Producer / Content, Manager
- 18-35 3 Web Producer / Content Manager, Senior
- 18-35 2 Web Producer / Content Manager II
- 18-35 1 Web Producer / Content Manager I

20 - Project / Product / Program Management

Project Management

- 20-20 7 Project Management, Director
- 20-20 6 Project Management, Manager
- 20-20 4 Project Manager, Principal
- 20-20 3 Project Manager, Senior
- 20-20 2 Project Manager II
- 20-20 1 Project Manager I

Project Coordination

- 20-25 3 Project Coordinator, Senior
- 20-25 2 Project Coordinator II
- 20-25 1 Project Coordinator I

Product Management

- 20-30 7 Product Management, Director
- 20-30 6 Product Management, Manager
- 20-30 4 Product Management, Principal
- 20-30 3 Product Manager, Senior
- 20-30 2 Product Manager II
- 20-30 1 Product Manager I

Program Management

- 20-40 7 Program Management, Director
- 20-40 6 Program Management, Manager
- 20-40 4 Program Management, Principal
- 20-40 3 Program Management, Senior
- 20-40 2 Program Management II
- 20-40 1 Program Management I

22 - Digital Marketing

Digital Marketing Management

- 22-20 7 Digital Marketing, Director
- 22-20 6 Digital Marketing, Manager

Digital Marketing

- 22-25 3 Digital Marketing Specialist, Senior
- 22-25 2 Digital Marketing Specialist II
- 22-25 1 Digital Marketing Specialist I

24 - Professional Services / Implementation / Sales Engineering

Professional Services / Consulting

- 24-20 7 Professional Services / Consulting, Director
- 24-20 6 Professional Services / Consulting, Manager
- 24-20 4 Professional Services Consultant, Principal
- 24-20 3 Professional Services Consultant, Senior
- 24-20 2 Professional Services Consultant II
- 24-20 1 Professional Services Consultant I

Implementation Engineering

- 24-25 6 Implementation, Manager
- 24-25 3 Implementation Engineer, Senior
- 24-25 2 Implementation Engineer II
- 24-25 1 Implementation Engineer I

Sales / Solutions Engineering**

- 24-30 7 Sales / Solutions Engineering, Director**
- 24-30 6 Sales / Solutions Engineering, Manager**
- 24-30 3 Sales / Solutions Engineer, Senior**
- 24-30 2 Sales / Solutions Engineer II**
- 24-30 1 Sales / Solutions Engineer I**

26 - Customer Support / Account Management

Customer Support Management

- 26-20 7 Customer Support, Director
- 26-20 6 Customer Support, Manager

Product Support Engineering

- 26-25 3 Product Support Analyst / Engineer, Senior
- 26-25 2 Product Support Analyst / Engineer II
- 26-25 1 Product Support Analyst / Engineer I

Product Support

- 26-30 4 Product Support Representative, Lead
- 26-30 3 Product Support Representative, Senior
- 26-30 2 Product Support Representative II
- 26-30 1 Product Support Representative I

Customer Service

- 26-35 4 Customer Services Representative, Lead
- 26-35 3 Customer Services Representative, Senior
- 26-35 2 Customer Services Representative II
- 26-35 1 Customer Services Representative I

Account Management

- 26-40 3 Account Manager, Senior
- 26-40 2 Account Manager II
- 26-40 1 Account Manager I

Customer Success Management

- 26-45 7 Customer Success, Director
- 26-45 6 Customer Success, Manager
- 26-45 3 Customer Success, Senior
- 26-45 2 Customer Success II
- 26-45 1 Customer Success I

28 - Business Operations

Human Resources

- 28-10 7 Human Resources, Director
- 28-10 6 Human Resources, Manager
- 28-10 3 Human Resources Generalist, Senior
- 28-10 2 Human Resources Generalist II
- 28-10 1 Human Resources Generalist I

Technology Recruiting

- 28-20 7 Recruiting, Director
- 28-20 6 Recruiting, Manager
- 28-20 3 Recruiter, Senior
- 28-20 2 Recruiter II
- 28-20 1 Recruiter I

IT Training

- 28-25 3 IT Trainer, Senior
- 28-25 2 IT Trainer II
- 28-25 1 IT Trainer I

Technical Writing

- 28-30 3 Technical Writer, Senior
- 28-30 2 Technical Writer II
- 28-30 1 Technical Writer I

Business Systems Analysis

- 28-35 7 Business Systems Analysis, Director
- 28-35 6 Business Systems Analysis, Manager
- 28-35 4 Business Systems Analyst, Principal
- 28-35 3 Business Systems Analyst, Senior
- 28-35 2 Business Systems Analyst II
- 28-35 1 Business Systems Analyst I

30 - Data Science & Analytics

Data Engineering

- 30-10 4 Data Engineer, Principal
- 30-10 3 Data Engineer, Senior
- 30-10 2 Data Engineer II
- 30-10 1 Data Engineer I

Artificial Intelligence / Machine Learning

- 30-15 5 AI / Machine Learning, Chief Architect**
- 30-15 4 AI / Machine Learning, Principal**
- 30-15 3 AI / Machine Learning, Senior**
- 30-15 2 AI / Machine Learning II**
- 30-15 1 AI / Machine Learning I**

Data Science / Big Data Analytics

- 30-20 7 Data Science, Director
- 30-20 6 Data Science, Manager
- 30-20 4 Data Scientist, Principal
- 30-20 3 Data Scientist, Senior
- 30-20 2 Data Scientist II
- 30-20 1 Data Scientist I

Business Intelligence

- 30-25 7 Business Intelligence, Director
- 30-25 6 Business Intelligence, Manager
- 30-25 4 Business Intelligence Analyst, Principal
- 30-25 3 Business Intelligence Analyst, Senior
- 30-25 2 Business Intelligence Analyst II
- 30-25 1 Business Intelligence Analyst I

Reporting Analyst

- 30-30 3 Reporting Analyst, Senior
- 30-30 2 Reporting Analyst II
- 30-30 1 Reporting Analyst I

** Revised - 2021

Job Level Guide



2021 Northwest Technology Survey

Job Level	Scope of Responsibility	Knowledge & Skills	Independent Judgment	Typical Experience for Professional / Exempt Level Jobs	Typical Experience for Administrative / Non-Exempt Level Jobs
7 Director	Manages and directs work efforts of others, and have managerial-level direct reports. Directs broad functional area and usually has budget responsibilities.	In-depth comprehensive knowledge and understanding of department and functional area. Typically directs a large functional area or entire business unit. Must have strong leadership skills.	Extensive latitude for independent judgment and decision making.	The typical incumbent will have 8-10+ years experience, including 2-5 years management experience.	N/A
6 Manager	Manages / supervises work efforts of others. Assesses performance and has hiring/ firing authority.	Comprehensive knowledge and understanding of department and functional area. Must have strong leadership skills.	Significant latitude for independent judgment and decision making.	The typical incumbent will have 6+ years experience, including leadership experience.	N/A
5 Architect Level	Expert level role. Works independently and is self-directed. Is typically used only in highly technical or scientific fields.	Extremely high level of knowledge and skills. Considered the expert or "guru" in their respective field. This position is usually reserved for select individuals, and has significant barriers to entry. Most individuals will never reach this level.	Extensive latitude for independent judgment and decision making.	The typical incumbent will have 15+ years experience.	N/A
4 Principal Level	Principal level role. Works under very minimal to no supervision. Is typically used in highly technical, scientific or consulting fields.	Extensive knowledge and skills. Considered an expert in their respective field. Typically acts as lead and provides technical leadership to the group. This position is usually held by a limited number of key individuals.	Significant latitude for independent judgment and decision making.	The typical incumbent will have 10+ years experience.	N/A
3 Senior Level	Advanced or Senior level role. Works under minimal supervision.	Advanced knowledge and skills. Works on complex projects. act as lead or mentor over less experienced individuals.	Wide latitude for independent judgment and decision making.	The typical incumbent will have 6-9 years experience.	The typical incumbent will have 4+ years experience.
2 Intermediate Level	Intermediate level role. Works under moderate supervision.	Intermediate level knowledge and skills. Works on moderately complex projects and assignments.	Moderate latitude for independent judgment and decision making.	The typical incumbent will have 3-6 years experience.	The typical incumbent will have 2-4 years experience.
1 Associate Level	Entry level role. Works under close supervision.	Basic to intermediate level knowledge and skills. Works on simple projects and assignments.	Little latitude for independent judgment and decision making.	The typical incumbent will have 0-3 years experience.	The typical incumbent will have 0-2 years experience.

Years of experience is a general guideline of the typical amount of experience it take an average incumbent to reach that level. An incumbent's actual experience should not be used as a primary factor in determining the appropriate job level because skill acquisition rates can vary significantly amongst individuals.

26-40 1	Account Manager I	26-35 1	Customer Services Representative I	22-25 3	Digital Marketing Specialist, Senior
26-40 2	Account Manager II	26-35 2	Customer Services Representative II	22-20 7	Digital Marketing, Director
26-40 3	Account Manager, Senior	26-35 4	Customer Services Representative, Lead	22-20 6	Digital Marketing, Manager
30-15 1	AI / Machine Learning I**	26-35 3	Customer Services Representative, Senior	12-52 1	Distributed Systems I
30-15 2	AI / Machine Learning II**	26-45 1	Customer Success I	12-52 2	Distributed Systems II
30-15 5	AI / Machine Learning, Chief Architect**	26-45 2	Customer Success II	12-52 6	Distributed Systems, Manager
30-15 4	AI / Machine Learning, Principal**	26-45 7	Customer Success, Director	12-52 4	Distributed Systems, Principal
30-15 3	AI / Machine Learning, Senior**	26-45 6	Customer Success, Manager	12-52 3	Distributed Systems, Senior
12-30 1	Applications Engineer I	26-45 3	Customer Success, Senior	12-65 1	Hardware Management & Support I
12-30 2	Applications Engineer II	26-20 7	Customer Support, Director	12-65 2	Hardware Management & Support II
12-30 5	Applications Engineer, Chief Architect	26-20 6	Customer Support, Manager	12-65 6	Hardware Management & Support, Manager
12-30 7	Applications Engineer, Director	12-70 1	Data / Voice Communications I	12-65 4	Hardware Management & Support, Principal
12-30 6	Applications Engineer, Manager	12-70 2	Data / Voice Communications II	12-65 3	Hardware Management & Support, Senior
12-30 4	Applications Engineer, Principal	12-70 6	Data / Voice Communications, Manager	12-90 1	Help Desk Specialist I
12-30 3	Applications Engineer, Senior	12-70 4	Data / Voice Communications, Principal	12-90 2	Help Desk Specialist II
12-55 1	Architectural / Capacity I	12-70 3	Data / Voice Communications, Senior	12-90 3	Help Desk Specialist, Senior
12-55 2	Architectural / Capacity II	30-10 1	Data Engineer I	12-90 7	Help Desk, Director
12-55 6	Architectural / Capacity, Manager	30-10 2	Data Engineer II	12-90 6	Help Desk, Manager
12-55 4	Architectural / Capacity, Principal	30-10 4	Data Engineer, Principal	28-10 1	Human Resources Generalist I
12-55 3	Architectural / Capacity, Senior	30-10 3	Data Engineer, Senior	28-10 2	Human Resources Generalist II
30-25 1	Business Intelligence I	30-20 7	Data Science, Director	28-10 3	Human Resources Generalist, Senior
30-25 2	Business Intelligence II	30-20 6	Data Science, Manager	28-10 7	Human Resources, Director
30-25 7	Business Intelligence, Director	30-20 1	Data Scientist I	28-10 6	Human Resources, Manager
30-25 6	Business Intelligence, Manager	30-20 2	Data Scientist II	24-25 1	Implementation Engineer I
30-25 4	Business Intelligence, Principal	30-20 4	Data Scientist, Principal	24-25 2	Implementation Engineer II
30-25 3	Business Intelligence, Senior	30-20 3	Data Scientist, Senior	24-25 3	Implementation Engineer, Senior
28-35 1	Business Systems Analysis I	16-25 1	Database Administrator I	24-25 6	Implementation, Manager
28-35 2	Business Systems Analysis II	16-25 2	Database Administrator II	12-60 1	Information Security / Cybersecurity I
28-35 7	Business Systems Analysis, Director	16-25 3	Database Administrator, Senior	12-60 2	Information Security / Cybersecurity II
28-35 6	Business Systems Analysis, Manager	16-20 1	Database Developer I	12-60 7	Information Security / Cybersecurity, Director
28-35 4	Business Systems Analysis, Principal	16-20 2	Database Developer II	12-60 6	Information Security / Cybersecurity, Manager
28-35 3	Business Systems Analysis, Senior	16-20 7	Database Developer, Director	12-60 4	Information Security / Cybersecurity, Principal
10-42	Chief Financial Officer (CFO)	16-20 4	Database Developer, Principal	12-60 3	Information Security / Cybersecurity, Senior
10-22	Chief Information Officer (CIO)	16-20 3	Database Developer, Senior	28-25 1	IT Trainer I
10-24	Chief Technology Officer (CTO)	16-20 6	Database Development, Manager	28-25 2	IT Trainer II
12-92 1	Cloud Engineer I	12-95 1	DevOps Engineer I	28-25 3	IT Trainer, Senior
12-92 2	Cloud Engineer II	12-95 2	DevOps Engineer II	12-20 7	IT, Director
12-92 4	Cloud Engineer, Principal	12-95 4	DevOps Engineer, Principal	12-20 6	IT, Manager
12-92 3	Cloud Engineer, Senior	12-95 3	DevOps Engineer, Senior	10-25	Multi-Function Head / Director
14-35 1	Configuration / Release Engineer I	12-95 7	DevOps Engineering, Director		
14-35 2	Configuration / Release Engineer II	12-95 6	DevOps Engineering, Manager		
14-35 3	Configuration / Release Engineer, Senior	22-25 1	Digital Marketing Specialist I		
10-32	Customer / Product Support Executive	22-25 2	Digital Marketing Specialist II		

(continued)

(continued)

Jobs Surveyed (in alphabetical order)



2021 Northwest Technology Survey

12-40 1	Network Administrator I	20-25 3	Project Coordinator, Senior	12-45 1	Systems Engineer I
12-40 2	Network Administrator II	20-20 7	Project Management, Director	12-45 2	Systems Engineer II
12-40 3	Network Administrator, Senior	20-20 6	Project Management, Manager	12-45 4	Systems Engineer, Principal
12-35 1	Network Engineer I	20-20 1	Project Manager I	12-45 3	Systems Engineer, Senior
12-35 2	Network Engineer II	20-20 2	Project Manager II	12-45 7	Systems Engineering / Administration, Director
12-35 4	Network Engineer, Principal	20-20 4	Project Manager, Principal	12-45 6	Systems Engineering / Administration, Manager
12-35 3	Network Engineer, Senior	20-20 3	Project Manager, Senior	28-30 1	Technical Writer I
12-35 7	Network Engineering / Administration, Director	12-75 1	Quality Assurance I	28-30 2	Technical Writer II
12-35 6	Network Engineering / Administration, Manager	12-75 2	Quality Assurance II	28-30 3	Technical Writer, Senior
12-85 1	Network Operations Center I	14-40 7	Quality Assurance, Director	10-72	Top Human Resources Executive
12-85 2	Network Operations Center II	12-75 6	Quality Assurance, Manager	10-52	Top Legal Executive / General Counsel
12-85 7	Network Operations Center, Director	14-40 6	Quality Assurance, Manager	10-62	Top Marketing Executive
12-85 6	Network Operations Center, Manager	12-75 4	Quality Assurance, Principal	14-60 7	UX / UI Design & Engineering, Director
12-85 3	Network Operations Center, Senior	12-75 3	Quality Assurance, Senior	14-60 6	UX / UI Design & Engineering, Manager
10-28	Product / Program Management Executive	28-20 1	Recruiter I	14-60 1	UX / UI Designer / Engineer I
10-26	Product Development / Engineering Executive	28-20 2	Recruiter II	14-60 2	UX / UI Designer / Engineer II
20-30 7	Product Management, Director	28-20 3	Recruiter, Senior	14-60 6	UX / UI Designer / Engineer, Principal
20-30 6	Product Management, Manager	28-20 7	Recruiting, Director	14-60 3	UX / UI Designer / Engineer, Senior
20-30 4	Product Management, Principal	28-20 6	Recruiting, Manager	18-30 1	Web Designer I
20-30 1	Product Manager I	30-30 1	Reporting Analyst I	18-30 2	Web Designer II
20-30 2	Product Manager II	30-30 2	Reporting Analyst II	18-30 3	Web Designer, Senior
20-30 3	Product Manager, Senior	30-30 3	Reporting Analyst, Senior	18-25 1	Web Developer I
26-25 1	Product Support Analyst / Engineer I	24-30 1	Sales / Solutions Engineer I**	18-25 2	Web Developer II
26-25 2	Product Support Analyst / Engineer II	24-30 2	Sales / Solutions Engineer II**	18-25 4	Web Developer, Principal
26-25 3	Product Support Analyst / Engineer, Senior	24-30 3	Sales / Solutions Engineer, Senior**	18-25 3	Web Developer, Senior
26-30 1	Product Support Representative I	24-30 7	Sales / Solutions Engineering, Director**	18-35 1	Web Producer / Content Manager I
26-30 2	Product Support Representative II	24-30 6	Sales / Solutions Engineering, Manager**	18-35 2	Web Producer / Content Manager II
26-30 4	Product Support Representative, Lead	14-45 1	Software Developer in Test (SDET) I	18-35 3	Web Producer / Content Manager, Senior
26-30 3	Product Support Representative, Senior	14-45 2	Software Developer in Test (SDET) II	18-35 6	Web Producer / Content, Manager
10-24	Professional Services / Consulting Executive	14-45 4	Software Developer in Test (SDET), Principal	18-20 7	Website / Creative Development, Director
24-20 7	Professional Services / Consulting, Director	14-45 3	Software Developer in Test (SDET), Senior	18-20 6	Website / Creative Development, Manager
24-20 6	Professional Services / Consulting, Manager	14-25 1	Software Engineer I		
24-20 1	Professional Services Consultant I	14-25 2	Software Engineer II		
24-20 2	Professional Services Consultant II	14-25 5	Software Engineer, Chief Architect		
24-20 4	Professional Services Consultant, Principal	14-25 4	Software Engineer, Principal		
24-20 3	Professional Services Consultant, Senior	14-25 3	Software Engineer, Senior		
20-40 1	Program Management I	14-20 7	Software Engineering / Product Dev., Director		
20-40 2	Program Management II	14-20 6	Software Engineering / Product Dev., Manager		
20-40 7	Program Management, Director	14-50 1	Software Quality Assurance Engineer I		
20-40 6	Program Management, Manager	14-50 2	Software Quality Assurance Engineer II		
20-40 4	Program Management, Principal	14-50 3	Software Quality Assurance Engineer, Senior		
20-40 3	Program Management, Senior	12-50 1	Systems Administrator I		
20-25 1	Project Coordinator I	12-50 2	Systems Administrator II		
20-25 2	Project Coordinator II	12-50 3	Systems Administrator, Senior		



244 benchmark positions

** Revised - 2021



2021 Northwest Technology Survey

Job Definitions (see page 3 for Job Level Definitions)

- Positions should be matched by first identifying the **Job Family** which best describes the position's **primary** function, and then matching the **appropriate Job Level within that family**.
- Each Job Family typically represents a different technology discipline or occupational group. These job families are functional, not necessarily organizational, although many organizations align their reporting relations and departments along functional lines.

EXAMPLE:

12 - IT Infrastructure (Category)

12-35 - Network Engineering (Job Family)

12-35 3 Network Engineer, Senior (Job Level)

Job Descriptions

10 - Executive Jobs

10-22 Chief Information Officer (CIO)

Responsible for the development, maintenance and management of all information systems infrastructure, both internal, as well as those developed to support product and/or customer transactions, such as ASP services/SaaS (software as a service). Typically manages the company data center, networks, hardware and software, servers and desktop systems, email systems, intranets and internet access. Manages Information Systems (IS) staff, and is usually responsible for evaluation and procurement of systems hardware and software, in addition to developing systems, capacity plans and internal technical support and maintenance. Common job title: Chief Information Officer (CIO).

10-24 Chief Technology Officer (CTO)

Responsible for the overall technical leadership and strategic technical direction of the company. Provides technical leadership in setting the strategy with regard to technical and product architecture issues and choice of technical methods or technology standards. Working with related executives, develops strategy and plans to achieve the company's strategic technical goals and develops plans and standards to reach those objectives. May maintain responsibility for overall product development efforts. Typically reports to the President and/or CEO. Common job titles: Chief Technical Officer, Chief Technology Officer.

 **Milliman**
in association with ...



10-25 Multi-Function Head / Director

Not Top Information Technology position.

This is the "multi-function head" or director that has functional responsibility for two or more job families (functional departments). May oversee IT infrastructure. Typically, several (function heads) or managers will report to this position and this position will report to the top level IT job.

Plans, directs, and controls operation of assigned functional departments to achieve goals with budgeted funds and available personnel. Determines overall objectives, establishes policies, and delegates assignments to subordinate managers. Evaluates actual project/program progress against plans and directs corrective actions. Integrates activities between assigned departments and with other major organizational segments. This position typically requires 12 or more years experience in multiple IT disciplines, including at least 5 years management experience. NOTE: This benchmark is typical only within large IT organizations.

10-26 Product Development / Engineering Executive

Responsible for the design and development of the company's technology products. Directs the overall product development and enhancement efforts. May also have responsibility for project management and quality assurance in addition to engineering. Works with other key technical executives in the development and/or selection of technologies and architecture approaches. Develops technical and product management goals and timetables. Common job titles: VP of Engineering, VP of Product Development, VP of Software Development, VP of Hardware Development, VP of Research & Development.

10-28 Product / Program Management Executive

Manages and directs the product and/or program management functions for the Company's products. Works with cross-functional teams in product design and development, project and program management and others to ensure product goals are met. Coordinates product market planning, release schedules, product marketing efforts and end user product desires. May also be involved in business relationships and partnerships related to product management efforts. Typically reports to the CEO or COO. Common job titles: VP of Product Management, VP of Program Management.

10-32 Customer / Product Support Executive

Responsible for the company's customer support services, technical product support functions and related functions (which may include field engineering and/or product installation functions). Establishes policies and programs to support and achieve the company's objectives in these areas. Common job titles: VP of Product Support, Technical Support or Customer Service.

10-34 Professional Services / Consulting Executive

Responsible for all aspects of the corporation's technical consulting efforts, including achievement of revenue and profit goals, staffing, training, management of consulting engagements and consulting staff. May act as lead consultant on key projects. Is responsible for directing consulting project bidding/proposals and may lead sales efforts on some large accounts. Tracks the effectiveness of consulting efforts, develops and implements consulting efforts and strategy. Is involved in sales-related efforts to secure consulting contracts/projects. Common job titles: Managing Director of Consulting, VP of Consulting, VP of Professional Services, Consulting Practice Director.

10-42 Chief Financial Officer (CFO)

Responsible for company's overall financial plans and policies as well as its accounting practices and conduct of relationship with lending institutions, shareholders, and financial community. Provides direction for financial functions such as accounting, budgeting, credit, insurance, tax and treasury. Typically reports to the Chief Executive Officer.

10-52 Top Legal Executive / General Counsel

Plans and directs the legal events, obligations, and interests of the company. Evaluates company's practices, policies, and activities to ensure they meet regulatory requirements. Provides guidance and legal counsel, interprets and prepares legal documents, and manages company's legal defense. Oversees the Corporate Legal Secretary and supervises the legal staff. Typically reports to the Top Administrative Officer or Chief Executive Officer.

10-62 Top Marketing Executive

Plans and implements marketing policies and programs for the company's product(s) and/or service(s). Develops and evaluates the marketing strategy to ensure it strategically aligns with the company's current objectives and long-term goals. Directs and manages the efforts of marketing personnel. Typically reports to the Chief Operating Officer or Chief Executive Officer. This position is intended to be the most senior position in marketing.

10-72 Top Human Resources Executive

Plans and implements organizational-wide policies, procedures, and programs for all areas of human resource management, such as employment, employee relations, benefits, compensation, training, ADA and EEO compliance, labor relations, organizational development, safety, and security. Typically reports to the Top Administrative Officer, Chief Operating Officer, or Chief Executive Officer.

12 - IT Infrastructure

12-20 - IT Management

Develops, manages and maintains the company's internal information systems infrastructure. Manages company enterprise systems, application software, database management, networking hardware and software, servers and desktop systems, email and internet communications. Evaluates the company's IT needs and procures the needed hardware and software. Responsible for developing systems and capacity planning. Oversees internal customer technical support. Manages and provides leadership to departmental staff.

12-30 - Application Engineering

Customizes and configures software applications to fit with the company's proprietary software or other existing commercial applications. Develops code to meet requirements and specifications of applications. Performs testing, troubleshooting and debugging of applications.

12-35 - Network Engineering

Responsible for the engineering, configuration and installation of the company's internal data communication systems. Designs, evaluates and installs internet, data communications systems and voice systems (including IP and VOIP). Must have extensive knowledge of data communications systems, internet and telecommunication protocols, remote access systems, hardware systems, routers, switches, firewall, remote access systems, cloud-based solutions, etc. Typically requires a degree in computer science or engineering or equivalent training and experience.

12-40 - Network Administration

Maintains and supports the company's internal data communication systems. Troubleshoots and fixes network related issues and problems. Administers, installs and troubleshoots internet and data communications systems and voice systems (including IP and VOIP). Must have a working knowledge of data communications systems, internet and telecommunication protocols, remote access systems, hardware systems, routers, switches, firewall, voice mail, cloud-based solutions, etc.

12-45 - Systems Engineering

Responsible for the engineering, configuration and installation of the company's internal servers, operating systems and computer systems. Designs, evaluates and installs various operating systems (OSs), including Unix, Linux and/or Microsoft systems.

12-50 - Systems Administration

Maintains and supports the company's internal servers, operating systems (OSs) and computer systems. Administers, installs and troubleshoots various operating systems, including Unix, Linux and/or Microsoft systems for reliability, stability and performance. Performs day-to-day systems maintenance tasks, such as system back up, recovery and file maintenance. Installs new software releases and systems patches, configures software and resolves technical problems on UNIX based and/or Microsoft operating systems.

12-52 - Distributed Systems

Provides analysis, design, implementation and end user support of distributed systems. Analyzes computing needs and designs hardware and software architectures for client server, microcomputer, minicomputer, and local area network environments. Administers and supports networked systems. Provides problem resolution, consulting and software training to end users. Controls licenses, purchase agreements and software upgrades. Lower levels within this job family may concentrate on administration, support, and training.

12-55 - Architectural / Capacity Planning

Conceives and designs a long-term IT environment in order to plan for future acquisitions and technologies. Analyzes and develops resource utilization profiles. Determines growth trends, makes projections on future growth, and calculates computer system capacity necessary to support anticipated growth. Recommends appropriate data storage models and mediums to most effectively utilize hardware and software configurations.

12-60 - Information Security / Cybersecurity

Responsible for the security of technology and information systems, including internal IT systems, ecommerce, and web or cloud-based systems. Responsible for cyber resilience. Safeguards systems from attacks by unauthorized users and designs countermeasures against security breaches. Researches and evaluates new and emerging security trends and technologies, and makes recommendations on best practices for the protection of information. Evaluates security threats, assesses potential impact to the business, and implements strategies to detect and generate alerts on security incidents. Ensures compliance with security regulations and privacy laws.

12-65 - Hardware Management & Support

Provides for the purchase, installation, and maintenance of IT hardware for the organization (servers, desktops, printers, etc.). Analyzes business requirements; evaluates and recommends hardware options and capabilities. Negotiates and documents hardware acquisition from vendors. Performs equipment order processing, inventory and configuration management, and invoice control. Coordinates the maintenance, repair and replacement of hardware. Requires knowledge of environmental, mechanical and electrical systems in an IT environment.

12-70 - Data / Voice Communications

Designs, implements, and maintains the organization's data and/or voice communications systems. Analyzes business needs of the user and recommends solution to the hardware and/or software systems. Researches and recommends appropriate system solutions to meet user requirements. Prepares detailed specifications and flowcharts for implementation of new internal programs or modifications to vendor software. Coordinates system installations with vendors and with systems software programmers. Provides regulatory monitoring and data network analyses to support short and long range planning.

12-75 - IT Quality Assurance

Provides quality assurance support to the development, maintenance or enhancement of systems through testing, problem reporting and analysis, and participation in system implementation. Analyzes system requirements and creates test data and test plans to ensure that new and revised systems meet the customers' needs.

12-85 - Network Operations Center

Maintains and supports the activities of the Network Operations Center (NOC). Responsible for the daily performance and availability of the organization's network. Proactively monitors, troubleshoots, diagnoses, and escalates application, network, and service related issues per established procedures and service levels.

12-90 - Help Desk

Provides internal technical support to employees using computer systems. Analyzes, troubleshoots and resolves support issues related to desktop or laptop hardware or software, network services, remote access, software applications, etc. Sets up computer workstations, configures and installs software. May inventory and purchase computer equipment and software.

12-92 - Cloud Engineering / Infrastructure**

Develops, implements, and maintains the company's cloud-based information systems infrastructure. Responsible for the architectural framework and implementation of cost-effective cloud-based solutions following DevOps practices. Creates cloud technology roadmaps that align with overall company strategy. Analyzes cloud infrastructure needs and recommends solutions that are reliable, scalable and secure. May work on private, public or hybrid cloud infrastructures. May move on-premise solutions to cloud solutions.

12-95 - DevOps Engineering

Responsible for the Development Operations (DevOps) function. Works collaboratively with Software Engineering and IT functions to develop, deploy and maintain the organization's software and/or systems. Automates and streamlines operations and processes to rapidly release reliable applications faster and more frequently. Builds and maintains tools for deployment and testing in stable and scalable production environments. Responsible for the design, implementation, and support of large scale infrastructure across multiple cloud solutions. Requires a strong knowledge of agile methodology and continuous integration and delivery. DevOps function strives to achieve improved deployment frequency for faster time to market, shortened lead time between fixes, and quicker recovery time in the event of a new release failure. May include site reliability functions.

14 - Product Development / Quality Assurance

14-20 - Software Engineering / Product Dev. Management

Manages and oversees the engineering and product development function, including the creation, development and design of the company's products. Scope may involve one or multiple areas of engineering disciplines, i.e. software, hardware, configuration, UI, etc. May have responsibility for overseeing QA and or project or product management as well. Provides leadership to associated staff and manages departmental budget.

14-25 - Software Engineering

Designs and develops software applications for new products or product enhancements. Develops code to meet requirements and specifications of application. Performs testing, troubleshooting and debugging of application throughout the development process. Investigates emerging technologies, identifies new product opportunities and establishes parameters for product direction and design. Includes applications for mobile devices, cloud-based solutions and other platforms.

14-35 - Configuration / Release Engineering

Manages the build and installation process for software products, including the development of internal programs for automating the configuration management process, compilation of installation program, documentation and testing of installation procedures. Writes scripts and more advanced programs for automating build and installation processes/procedures. Tracks releases, change requests, test procedures and results. Works with QA/ software testing and development functions to ensure quality product releases.

14-40 - QA Management (Product Development)

Manages the activities of the QA (or software testing) function. Oversees all aspect of QA (testing) including the evaluation and selection of software testing products. Develops testing methodologies and ensures quality standards are met. Provides technical leadership in the development of test plans and projects. Manages associated staff and budget.

14-45 - Software Developers in Test (SDET)

Performs software testing on products developed by the software engineering team, and utilizes software engineering skills to resolve issues. Debugs software products by applying systematic tests to ensure products meet requirements and quality standards. Develops code to rework and repair issues discovered during the testing process. Incumbents in this job possess both software engineering and software quality assurance skill sets.

14-50 - Software QA Engineering

Performs software testing on products developed by the software engineering team. Debugs software products by applying systematic tests to ensure products meet requirements and quality standards. Develops and executes test plans and procedures. Communicates product issues to engineering team and may work collaboratively to resolve issues.

14-60 - UX / UI Design & Engineering

Researches, designs and develops human-centered designs for web-based or mobile applications, software products and/or other technology products to improve the end user experience. Collaborates with product development, product/program management, product marketing and/or customers to align user requirements and specification with product design and/or business objectives. Creates intuitive and functional user interfaces and experiences using various techniques and design concepts such as wireframes, storyboarding and prototyping to demonstrate desired look and feel. Builds prototypes and conducts user testing to ensure product meets desired outcomes and objectives. May utilize or participate in field studies, usability tests, focus groups, expert reviews and customer surveys.

16 - Database Development / Administration

16-20 - Database Development

Designs and develops databases and database applications. Creates the conceptual design of the database and builds it to meet system requirements and specifications. Evaluates and establishes the capacity planning, database security and maintenance protocols. May build or assist with the building of interfaces and business applications to integrate databases with other applications. May be involved in capacity planning, performance tuning, backup, recovery, security administration and troubleshooting. May investigate emerging technologies and identify and recommend new product or technology opportunities.

16-25 - Database Administration

Maintains and supports the company's database systems and data warehouses. Handles day-to-day maintenance and administration tasks such as installations, upgrades, configurations, backup, recovery and troubleshooting. May also be involved in capacity planning, performance tuning and light development work.

18 - Web / Internet Development

18-20 - Website / Creative

Development Management

Responsible for the overall design and content of company website(s). Working with other business units and cross-functional teams, establishes and communicates content requirements and manages overall site content needs. Maintains relationships with content partners and other outside vendors. Evaluates content and makes decisions regarding various content alternatives. Manages and provides leadership to departmental staff.

18-25 - Web Development

Designs and develops websites and web-based applications for the creation and enhancement of the company's (or client's) websites and ecommerce presence. Develops the back-end code of the websites and may manage back-end technical and operational aspects of a company's web presence. May also develop front-end code and functionality for the website by building compelling user experience interfaces. Working with cross-functional teams, assists in the development of site specifications and requirements. Develops interfaces with back-end databases, ecommerce engines, email systems, and other related applications and systems. Ensures adequate security of the company site and underlying systems. May manage Web servers and related hardware and software, internet security and communications.

18-30 - Web Design

Designs and creates company websites. Generally focused on the visual look and feel, operation and functionality of the website. Creates the graphics, animation and functionality of the site. Designs the page layout, graphics, icons, color schemes, etc. May perform front-end development and maintenance programming for web pages and web applications.

18-35 - Web Producer / Content Management

Responsible for creating and managing the content of the company's websites. Involved in the planning and development of website plans and specifications. Works with content writers, editors and other departments such as marketing, strategic alliances, product management, etc. to integrate a variety of content and achieve an intriguing website and positive user experience.

20 - Project / Product / Program Management

20-20 - Project Management

Provides project leadership and direction to technical teams in the development of technical systems and products. Working with cross-functional teams, develops product/system specifications and requirements for various systems and application development projects. Ensures projects are completed on schedule and within budget. Develops, defines and executes project plans, schedules, budgets and deliverables. Identifies needed resources for projects, defines and assigns project roles, monitors the product/program/project from initiation through delivery, and interfaces with external and/or internal customers. Requires a strong technical knowledge base and/or previous technical development experience.

20-25 - Project Coordination

Works in conjunction with the Project Managers to coordinate and track progress throughout the project lifecycle and to ensure project goals and objectives are accomplished within the prescribed timeframe and budgetary parameters. Tracks and documents project deliverables, and prepares status reports for management, clients or project personnel. Communicates with the various individuals or departments to ensure deliverables are met and that the project is on schedule.

NOTE for the following 2 Job Families: 20-30 and 20-40

Product Managers and Program Managers often have overlapping functions. The primary differentiation is the level of specialization and emphasis. Product Managers tend to be more marketing and marketplace focused, while program managers tend to be more technical and development focused, toward product specification and delivery to meet market and end-user demands.

20-30 - Product Management

Responsible for the development of the company's product strategy, vision, product planning and execution throughout the product's life cycle, including its launch into the marketplace. Develops business and product plans and develops product positioning in the marketplace. Oversees and monitors competitive activity and identifies customer needs. Collaborates with the marketing/sales functions and external customers to define product requirements, capabilities, functionalities and desires. Works with product development, sales and other functional areas to develop new products or enhance existing products or product lines. In some organizations, may contribute to the technical specification development process and ongoing technical product development. Responsible for product launches and related planning. Requires a strong knowledge of product marketing concepts and techniques, and expert knowledge of company and competitor products and related technologies.

20-40 - Program Management

Responsible for key aspects of product development, design specifications, product research and conceptualization. Works with cross-functional teams from marketing, development, project management and others in the technical development, design, prototyping and completion/release of technical products. Responsibilities include technical and/or product functionality definition, work plans and scheduling, issues resolution, client and end-user interaction, process improvement and development team leadership.

22 - Digital Marketing

22-20 - Digital Marketing Management

Oversees and manages the company's digital marketing programs in support of the organization's overall marketing strategy. Designs and develops online marketing strategies and implements plans through associated staff. Areas of oversight may include email marketing, social networking & media, search engine marketing, affiliate marketing, online merchandising, etc. Develops and manages online content partnerships and vendor relationships.

22-25 - Digital Marketing

Performs a variety of digital marketing duties in support of the overall marketing and digital marketing strategy. Areas of involvement may include email marketing, social networking & media, online promotions, search engine marketing & optimization, etc. Performs duties such as developing email marketing campaigns, administering online promotions, maintaining social networking accounts (i.e., Facebook, LinkedIn, Twitter, etc.) and executing digital advertising. May perform analysis on search engine optimization and website metrics.

24 - Professional Services / Implementation / Sales Engineering

24-20 - Professional Services / Consulting

Provides expertise and guidance in the evaluation and determination of customized and configured hardware/software products, software solutions, internet-based solutions or other systems solutions to fit customer requirements. Analyzes, and delivers recommendations for products and solutions. Defines specifications and plans the delivery and implementation of products and solutions to work efficiently with customer's infrastructure. May perform and deliver work remotely from own workplace, or travel to customer site. May be involved in sales-related efforts to secure consulting contracts/projects. Incumbents are often times measured and compensated based on utilization or billable hours.

24-25 - Implementation Engineering

Provides oversight and support for the implementation of complex hardware, software or systems solution projects. Analyzes, defines and plans the delivery and implementation of the products. Works with the customer to implement, configure and test the product or system, and troubleshoot and resolve any related issues. Maintains involvement with project and customer from initiation through final stages of implementation and until the customer is fully up and running. May also remain engaged with customer after implementation to assist with subsequent issues, such as upgrades, maintenance and usability issues. May perform work remotely or at customer site. May also be responsible for initial customer training and support issues.

24-30 - Sales / Solutions Engineering**

Provides information and advice regarding technical products, services and/or medical devices and offers solutions advice during pre-sales discussions with customers. Prepares and performs product demonstrations, answers complex technical questions and provides workable solutions to help close sales opportunities. Works with engineering and other technical staff to develop customized prototypes and solutions, in accordance with the prospective customer's product and business requirements. May provide post-sales consulting and installation support.

26 - Customer Support / Account Mgmt

26-20 - Customer Support Management

Manages and oversees the customer services and support function, including but not limited to the areas of product support engineering, product support and customer services. Ensures level of customer service meets company standards and customer expectations. Provides leadership to associated staff and manages departmental budgets.

26-25 - Product Support Engineering

Provides highly technical and/or complex problem support and resolution for technical products and programs. This role works at a more complex level than the Product Support Representative, and handles issues escalated from that group, as well as from other sources. May work with other engineers and developers to research and help resolve highly technical issues and problems. Note: This role is for professional level engineers engaged in more complex and/or system level technical support issues/problems. This is typically an exempt level job.

26-30 - Product Support

Provides technical assistance and support to customers on company related products and services. Works with customers to troubleshoot and resolve problems and issues. Addresses various technical problems in product installation, set-up, configuration, usability, etc. May utilize customer relationship management (CRM) databases and/or an internal knowledgebase to collect and provide information. Note: This is a nonexempt level job.

26-35 - Customer Service

Provides non-technical assistance and support to customers on various customer related issues. Addresses issues such as service initiation, billing, general customer inquiries and simple support issues. May provide some light technical support not requiring advanced technical knowledge. May utilize customer relationship management (CRM) databases and/or an internal knowledgebase to collect and provide information. Note: This is a nonexempt level job. The Customer Service roles are similar to the Product Support roles, except they are less focused on technical issues and rather providing ongoing customer support.

26-40 - Account Management

Maintains the ongoing business relationship with key clients and customers in order to preserve a productive long-term relationship. Works to resolve any issues or concerns and ensure customer satisfaction. May be involved in contract renewals, add-on sales, upgrades or up-selling of existing accounts.

26-45 - Customer Success Management

Builds the post-sale relationship with clients through consultative partner relationships to drive increased adoption and utilization of company products. Possesses a deep knowledge of company products, related-industry and client needs to help customer achieve maximum benefit and value of current company product offerings and/or recommend new products or services. Maintains a proactive and innovative relationship with the client and is responsible for sustaining client retention results. May be involved in upselling, cross-selling or contract renewals. May be responsible for client onboarding, training or user implementations.

28 - Business Operations

28-10 - Human Resources

Human Resources Management: Manages and oversees the organization's human resources function, including employee relations, recruiting, training, compensation, benefits, performance management, organizational development, strategic planning, succession planning, etc. Provides leadership to associated staff and manages departmental budgets.

Human Resources Generalist: Performs a multitude of human resources related functions and activities. Areas of involvement may include employee relations, recruiting, training, compensation, benefits, EEO/Affirmative Action, etc. Partners with management teams to implement and support HR strategies, programs and initiatives. Serves as a resource to managers and employees on HR related topics.

28-20 - Technology Recruiting

Performs recruitment efforts to support the company's staffing plans by sourcing, screening and interviewing candidates. Works with hiring managers to identify requirements of the job and desired competencies. Identifies and determines appropriate recruiting sources and advertising avenues. Interviews and screens candidates. Assists managers in negotiating employment offers and compensation packages. Maintains relationships with outside recruitment agencies. May manage electronic recruiting/staffing software application and/or electronic recruitment process. Note: This role has responsibility for technical recruiting, but may recruit for non-technical roles in the company as well.

28-25 - IT Training

Develops and conducts IT training programs for company management and staff. Conducts assigned workshops using adult learning techniques to facilitate development of management skills and communication of company policies and practices. Researches available training sources for appropriate content and method information. May track training effectiveness and problem areas and make policy/training recommendations.

28-30 - Technical Writing

Produces various forms of technical documentation for hardcopy, multi-media or web-based publications. Documents may include internal and external technical manuals, tutorials, end-user documentation and help files. Works with various technical staff to gather data for documentation. Translates technical information into user-friendly manuals and online documents for technical and non-technical users.

28-35 - Business Systems Analysis

Applies a thorough knowledge of the needs of a business unit and knowledge of systems technology to identify and design improvements for computer based systems. Conducts operational and organizational studies on business units. Analyzes structure and flow of work through unit and recommends changes to improve operations. Provides consultation to business unit management to determine solutions to business problems. Coordinates functional requirements of business unit and technical solutions with systems personnel to develop the most cost effective solution. Devises test plans, builds test data, and tests new or enhanced application functions. Develops and delivers training and operating procedures. Has extensive experience in the business functions supported and some IT skill and knowledge. May or may not be within the IT department.

30 - Data Science & Analytics

30-10 - Data Engineering

Develops, constructs, tests and maintains architectures, such as databases and large-scale processing systems. Recommends and implements ways to improve data reliability, efficiency, and quality. Develops data set processes for data modeling, mining, and production. Ensures the architecture and quantitative output meets the needs of the data science and analytics teams and supports the requirements of the business.

30-15 - Artificial Intelligence / Machine Learning**

Develops classifiers and tools leveraging machine learning (ML), data regression, and rules-based models to provide a unified solution to a variety of big data problems. Researches improvements to ML algorithms. Suggests, identifies and produces requirements that may include visual object detection, speech recognition, machine translation and text analysis. Applies expert software development skills to a wide range of ML-related coding projects.

30-20 - Data Science / Big Data Analytics

Designs and develops programs and methods to consolidate and analyze data from structured and/or unstructured data sources to generate innovative solutions and predictive modeling. Identifies and produces meaningful insights from complex, multi-dimensional datasets "big data" through the knowledge and application of data mining, machine learning, pattern recognition and learning, predictive analytics, advanced algorithms and statistical modeling. Applies predictive modeling and advanced algorithms to create actionable insights and solutions to apply to business products, services or solutions.

30-25 - Business Intelligence

Responsible for leading the strategic design and maintenance of business intelligence applications. Ensures that the use of business intelligence applications enhances business decision making capabilities. Serves as the primary resource for data extracts, data management and queries from multiple databases. Analyzes and evaluates the competitive business landscape, provides competitive intelligence and makes recommendations. Gathers and studies structured data from technology applications and data warehouses, and provides strategic insight to assist with business decisions regarding products, customers and competitors. Provides recommendations to organizational leaders on competitive approaches.

30-30 - Reporting Analyst

Supports operations through data-driven analysis and reporting. Creates and maintains reports and dashboards to track and measure performance. Presents key findings and recommendations of analysis projects. Proficient with data analysis tools and descriptive statistical techniques and methods.