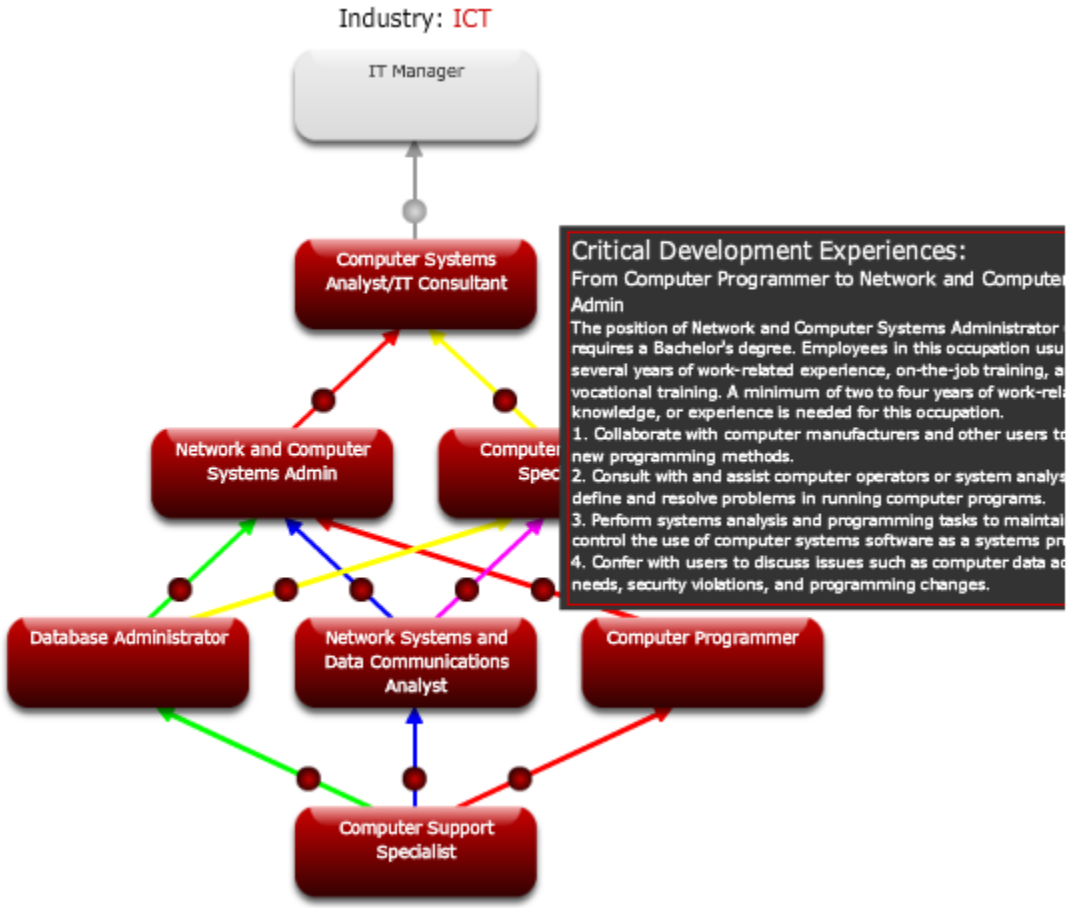
Sample Career Ladder & Exploration



Career: Computer Software Engineers, Applications

JOB DESCRIPTION

Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team.

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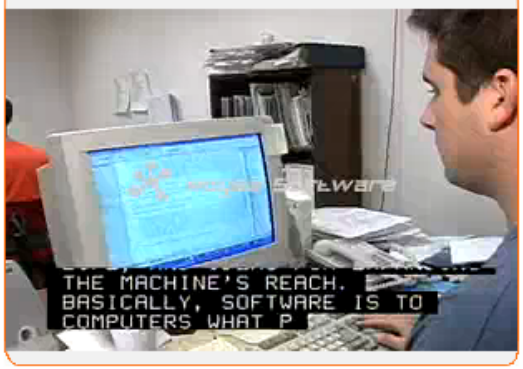
CAREER VIDEO



JOB REQUIREMENTS

Education: Most of these occupations require a four-year bachelor's degree, but some do not.

Expereince: A considerable amount of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.

Training: Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.

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RELATED CAREER

Computer Support Specialists

Mathematical Technicians

Electronic Drafters

Aerospace Engineering and Operations Technicians

Computer Science Teachers, Postsecondary

Computer, Automated Teller, and Office Machine Repairers

Electrical and Electronics Repairers, Commercial and Industrial Equipment

Numerical Tool and Process Control Programmers

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JOB TASKS

Importance %age	Task Description
81	Modify existing software to correct errors, allow it to adapt to new hardware, or to improve its performance.
77	Develop and direct software system testing and validation procedures, programming, and documentation.
75	Confer with systems analysts, engineers, programmers and others to design system and to obtain information on project limitations and capabilities, performance requirements and interfaces.
73	Analyze user needs and software requirements to determine feasibility of design within time and cost constraints.
72	Design, develop and modify software systems, using scientific analysis and mathematical models to predict and measure outcome and consequences of design.
68	Store, retrieve, and manipulate data for analysis of system capabilities and requirements.
67	Consult with customers about software system design and maintenance.
66	Supervise the work of programmers, technologists and technicians and other engineering and scientific personnel.
65	Coordinate software system installation and monitor equipment functioning to ensure specifications are met.
55	Obtain and evaluate information on factors such as reporting formats required, costs, and security needs to determine hardware configuration.
55	Determine system performance standards.
48	Train users to use new or modified equipment.
47	Specify power supply requirements and configuration.
42	Recommend purchase of equipment to control dust, temperature, and humidity in area of system installation.

MORE……

Career: Computer Software Engineers, Applications

WORK ACTIVITIES

Importance %age	Activity Description
98	**Interacting With Computers** **Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.** • adjust computer operation system • check hardware or software to determine reliability • develop or maintain databases • install hardware, software, or peripheral equipment • program computers for electronic engineering applications • program computers using existing software • program mainframe computer • revise or correct errors in computer programs, software, or systems • test computer programs or systems • use computer programming language • use computers to enter, access or retrieve data • use spreadsheet software • write computer software, programs, or code
85	**Thinking Creatively** **Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions.** • design computer hardware or software interface • design data processing systems • design data security systems • design electronic equipment • design hardware or software systems • develop mathematical or computer languages • develop mathematical simulation models
83	**Making Decisions and Solving Problems** **Analyzing information and evaluating results to choose the best solution and solve problems.** • resolve engineering or science problems
80	**Getting Information** **Observing, receiving, and otherwise obtaining information from all relevant sources.** • read blueprints • read schematics • read technical drawings

MORE……

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MAJOR SKILLS

Complex Problem Solving
Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
Programming
Writing computer programs for various purposes.
Systems Analysis
Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.
Judgment and Decision Making
Considering the relative costs and benefits of potential actions to choose the most appropriate one.
Systems Evaluation
Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.

MAJOR ABILITIES

Problem Sensitivity
The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
Deductive Reasoning
The ability to apply general rules to specific problems to produce answers that make sense.
Inductive Reasoning
The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
Oral Expression
The ability to communicate information and ideas in speaking so others will understand.
Category Flexibility
The ability to generate or use different sets of rules for combining or grouping things in different ways.

Career: Computer Software Engineers, Applications

KNOWLEDGE

Importance %age	Area Of Knowledge
74	**Computers and Electronics** Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
54	**Mathematics** Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
49	**English Language** Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
40	**Engineering and Technology** Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
29	**Customer and Personal Service** Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
28	**Education and Training** Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.
27	**Administration and Management** Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
26	**Design** Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
20	**Telecommunications** Knowledge of transmission, broadcasting, switching, control, and operation of telecommunications systems.
20	**Communications and Media** Knowledge of media production, communication, and dissemination techniques and methods. This includes alternative ways to inform and entertain via written, oral, and visual media.