Summary Report for:
15-1121.00 - Computer Systems Analysts

Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software.


Also see: Informatics Nurse Specialists

Tasks

Expand or modify system to serve new purposes or improve work flow.
Test, maintain, and monitor computer programs and systems, including coordinating the installation of computer programs and systems.
Develop, document and revise system design procedures, test procedures, and quality standards.
Provide staff and users with assistance solving computer related problems, such as malfunctions and program problems.
Review and analyze computer printouts and performance indicators to locate code problems, and correct errors by correcting codes.

Tools & Technology

Tools used in this occupation:
- Desktop computers
- Mainframe computers
- Notebook computers
- Personal digital assistant PDAs or organizers — Personal digital assistants PDA

Technology used in this occupation:
- Configuration management software — HyperSpace software; Perforce Helix software ; Puppet ; Wise Solutions software
- Database management system software — Apache Hadoop ; MongoDB ; MySQL software ;
Sybase SQL Server

**Development environment software** — Adobe Systems Adobe ActionScript🔥; Apache Maven🔥; IBM Rational Rose XDE Developer; Symantec Visual Cafe

**Object or component oriented development software** — C++🔥; Distributed component object model DCOM software; Objective C🔥; Python🔥

**Program testing software** — Compatibility testing software; Defect tracking software; Hewlett Packard LoadRunner🔥; Usability testing software

**Web platform development software** — AJAX🔥; Enterprise JavaBeans🔥; Microsoft Active Server Pages ASP; PHP: Hypertext Preprocessor🔥

🔥 Hot Technology — a technology requirement frequently included in employer job postings.

**Knowledge**

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**Computers and Electronics** — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.

**English Language** — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.

**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.

**Mathematics** — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

**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.

**Skills**

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**Critical Thinking** — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

**Active Listening** — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

**Reading Comprehension** — Understanding written sentences and paragraphs in work related documents.

**Speaking** — Talking to others to convey information effectively.

**Systems Analysis** — Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.

**Abilities**

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**Information Ordering** — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

**Oral Comprehension** — The ability to listen to and understand information and ideas presented through spoken words and sentences.

**Problem Sensitivity** — The ability to tell when something is wrong or is likely to go wrong. It does not
involves solving the problem, only recognizing there is a problem.

- **Category Flexibility** — The ability to generate or use different sets of rules for combining or grouping things in different ways.
- **Deductive Reasoning** — The ability to apply general rules to specific problems to produce answers that make sense.

**Work Activities**

- **Interacting With Computers** — Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.
- **Making Decisions and Solving Problems** — Analyzing information and evaluating results to choose the best solution and solve problems.
- **Processing Information** — Compiling, coding, categorizing, calculating, tabulating, auditing, or verifying information or data.
- **Getting Information** — Observing, receiving, and otherwise obtaining information from all relevant sources.
- **Documenting/Recording Information** — Entering, transcribing, recording, storing, or maintaining information in written or electronic/magnetic form.

**Detailed Work Activities**

- Manage information technology projects or system activities.
- Develop testing routines or procedures.
- Evaluate utility of software or hardware technologies.
- Monitor computer system performance to ensure proper operation.
- Modify software programs to improve performance.

**Work Context**

- **Electronic Mail** — 100% responded “Every day.”
- **Face-to-Face Discussions** — 74% responded “Every day.”
- **Importance of Being Exact or Accurate** — 65% responded “Extremely important.”
- **Telephone** — 71% responded “Every day.”
- **Spend Time Sitting** — 62% responded “Continually or almost continually.”

**Job Zone**

- **Title** Job Zone Four: Considerable Preparation Needed
- **Education** Most of these occupations require a four-year bachelor's degree, but some do not.
- **Related Experience** 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.
Job Training  Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.

Job Zone Examples  Many of these occupations involve coordinating, supervising, managing, or training others. Examples include accountants, sales managers, database administrators, teachers, chemists, art directors, and cost estimators.

SVP Range  (7.0 to < 8.0)

Education

<table>
<thead>
<tr>
<th>Percentage of Respondents</th>
<th>Education Level Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Associate's degree</td>
</tr>
<tr>
<td>26</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>10</td>
<td>Post-baccalaureate certificate</td>
</tr>
</tbody>
</table>

This occupation may require a background in the following science, technology, engineering, and mathematics (STEM) educational disciplines:

Computer Science  —  Computer and Information Sciences, General; Computer Systems Analysis/Analyst

Credentials

Find Training  Find Certifications  Find Apprenticeships

Interests

Interest code: ICR

Investigative  —  Investigative occupations frequently involve working with ideas, and require an extensive amount of thinking. These occupations can involve searching for facts and figuring out problems mentally.

Conventional  —  Conventional occupations frequently involve following set procedures and routines. These occupations can include working with data and details more than with ideas. Usually there is a clear line of authority to follow.

Realistic  —  Realistic occupations frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many of the occupations require working outside, and do not involve a lot of paperwork or working closely with others.

Work Styles

Attention to Detail  —  Job requires being careful about detail and thorough in completing work tasks.

Analytical Thinking  —  Job requires analyzing information and using logic to address work-related issues and
problems.

- **Dependability** — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- **Integrity** — Job requires being honest and ethical.
- **Adaptability/Flexibility** — Job requires being open to change (positive or negative) and to considerable variety in the workplace.

**Work Values**

- **Working Conditions** — Occupations that satisfy this work value offer job security and good working conditions. Corresponding needs are Activity, Compensation, Independence, Security, Variety and Working Conditions.
- **Achievement** — Occupations that satisfy this work value are results oriented and allow employees to use their strongest abilities, giving them a feeling of accomplishment. Corresponding needs are Ability Utilization and Achievement.
- **Independence** — Occupations that satisfy this work value allow employees to work on their own and make decisions. Corresponding needs are Creativity, Responsibility and Autonomy.

**Related Occupations**

- 15-1132.00 **Software Developers, Applications**
- 15-1133.00 **Software Developers, Systems Software**
- 15-1141.00 **Database Administrators**
- 15-1143.00 **Computer Network Architects**
- 15-1199.01 **Software Quality Assurance Engineers and Testers**

**Wages & Employment Trends**

- **Median wages (2015)** $41.25 hourly, $85,800 annual
- **State wages**
- **Employment (2014)** 568,000 employees
- **Projected growth (2014-2024)** Much faster than average (14% or higher)
- **Projected job openings (2014-2024)** 191,600
- **State trends**
- **Top industries (2014)** Professional, Scientific, and Technical Services
  Finance and Insurance

Job Openings on the Web

Sources of Additional Information

Disclaimer: Sources are listed to provide additional information on related jobs, specialties, and/or industries. Links to non-DOL Internet sites are provided for your convenience and do not constitute an endorsement.

- Association for Computing Machinery (ACM), 2 Penn Plaza, Suite 701, New York, NY 10121-0701. Phone: (800) 342-6626.
- Computing Technology Industry Association (CompTIA), 1815 S. Meyers Rd., Suite 300, Oakbrook Terrace, IL 60181-5228. Phone: (630) 678-8300. Fax: (630) 268-1384.
- Institute for Certification of Computing Professionals (ICCP), 2350 E. Devon Ave., Suite 115, Des Plaines, IL 60018-4610. Phone: (847) 299-4227. Fax: (847) 299-4280.
- National Workforce Center for Emerging Technologies (NWCET), Bellevue Community College, 3000 Landerholm Circle SE, N258, Bellevue, WA 98007-6484. Phone: (425) 564-4229. Fax: (425) 564-6193.