
Occupation-Specific Information - Software Developer

<https://www.onetonline.org/link/summary/15-1252.00>

Job-Description

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.

Sample of reported job titles: Application Developer, Application Integration Engineer, Developer, Infrastructure Engineer, Network Engineer, Software Architect, Software Developer, Software Development Engineer, Software Engineer, Systems Engineer

Tasks

- Analyze information to determine, recommend, and plan installation of a new system or modification of an existing system.
- Analyze user needs and software requirements to determine feasibility of design within time and cost constraints.
- Confer with data processing or project managers to obtain information on limitations or capabilities for data processing projects.
- Confer with systems analysts, engineers, programmers and others to design systems and to obtain information on project limitations and capabilities, performance requirements and interfaces.
- Consult with customers or other departments on project status, proposals, or technical issues, such as software system design or maintenance.
- Coordinate installation of software system.

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- Design, develop and modify software systems, using scientific analysis and mathematical models to predict and measure outcomes and consequences of design.
 - Determine system performance standards.
 - Develop or direct software system testing or validation procedures, programming, or documentation.
 - Modify existing software to correct errors, adapt it to new hardware, or upgrade interfaces and improve performance.
 - Monitor functioning of equipment to ensure system operates in conformance with specifications.
 - Obtain and evaluate information on factors such as reporting formats required, costs, or security needs to determine hardware configuration.
 - Prepare reports or correspondence concerning project specifications, activities, or status.
 - Recommend purchase of equipment to control dust, temperature, or humidity in area of system installation.
 - Specify power supply requirements and configuration.
 - Store, retrieve, and manipulate data for analysis of system capabilities and requirements.
 - Supervise and assign work to programmers, designers, technologists, technicians, or other engineering or scientific personnel.
 - Supervise the work of programmers, technologists and technicians and other engineering and scientific personnel.
 - Train users to use new or modified equipment.

Technology Skills

- Access software – Citrix cloud computing software; PuTTY
- Administration software – Software distribution management software
- Analytical or scientific software – IBM SPSS Statistics Hot technology ; Minitab Hot technology ; SAS statistical software; The MathWorks MATLAB Hot technology

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- Application server software – Docker Hot technology ; Red Hat OpenShift Hot technology ; Red Hat WildFly Hot technology ; Spring Boot Hot technology
 - Backup or archival software – Backup and archival software; Veritas NetBackup
 - Business intelligence and data analysis software – IBM Cognos Impromptu Hot technology ; MicroStrategy Hot technology ; Oracle Business Intelligence Enterprise Edition Hot technology ; Qlik Tech QlikView Hot technology
 - Cloud-based data access and sharing software – Dropbox; Google Drive Hot technology ; Microsoft SharePoint Hot technology ; Slack
 - Cloud-based management software – Amazon Web Services AWS CloudFormation Hot technology ; IBM WebSphere Hot technology ; Splunk Enterprise Hot technology
 - Communications server software – IBM Domino
 - Computer based training software – Moodle
 - Configuration management software – Perforce Helix software; Puppet Hot technology ; Visible Razor; VMware Hot technology
 - Content workflow software – Atlassian JIRA Hot technology ; Emerald Software Group Emerald Green Office
 - Customer relationship management CRM software – Blackbaud The Raiser's Edge; Oracle Eloqua; Salesforce software Hot technology
 - Data base management system software – Amazon DynamoDB Hot technology ; Elasticsearch Hot technology ; MongoDB Hot technology ; Oracle PL/SQL Hot technology
 - Data base reporting software – Microsoft SQL Server Reporting Services SSRS; Oracle Business Intelligence Discoverer; SAP Business Intelligence; SAP Crystal Reports Hot technology
 - Data base user interface and query software – Airtable; Apache Hive Hot technology ; Blackboard software; Transact-SQL Hot technology
 - Data mining software – Google Analytics Hot technology
 - Desktop communications software – Skype
 - Desktop publishing software – Adobe Systems Adobe InDesign Hot technology ; Microsoft Publisher

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- Development environment software – Advanced business application programming ABAP Hot technology ; Apache Ant Hot technology ; Common business oriented language COBOL Hot technology ; Go Hot technology
 - Device drivers or system software – Microsoft DirectX
 - Document management software – Adobe Systems Adobe Acrobat Hot technology ; Document management system software
 - Electronic mail software – Google Gmail; IBM Notes Hot technology ; Microsoft Exchange Hot technology ; Microsoft Outlook Hot technology
 - Enterprise application integration software – Atlassian Bamboo Hot technology ; Extensible markup language XML Hot technology ; Microsoft SQL Server Integration Services SSIS Hot technology ; Oracle Fusion Middleware Hot technology
 - Enterprise resource planning ERP software Hot technology – Microsoft Dynamics GP Hot technology ; NetSuite ERP Hot technology ; Oracle Hyperion Hot technology ; Oracle JD Edwards EnterpriseOne Hot technology
 - Enterprise system management software – IBM Power Systems software
 - Expert system software – Ansible software Hot technology
 - File versioning software – Apache Subversion; Git Hot technology ; Version control software
 - Filesystem software – File server software
 - Financial analysis software – Delphi Technology; Oracle E-Business Suite Financials
 - Graphical user interface development software – Graphical user interface GUI builder software; Graphical user interface GUI design software; Salesforce Visualforce Hot technology
 - Graphics or photo imaging software – Adobe Systems Adobe Creative Cloud Hot technology ; JamBoard; SmugMug Flickr Hot technology ; Trimble SketchUp Pro Hot technology
 - Information retrieval or search software – Apache Avro; LexisNexis
 - Instant messaging software – Blink; GroupMe
 - Internet protocol IP multimedia subsystem software – Voice over internet protocol VoIP system software Hot technology
 - Metadata management software – CA Erwin Data Modeler; Talend Data Fabric
 - Network conferencing software – LogMeIn GoToWebinar

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- Network monitoring software – Nagios Hot technology ; Wireshark Hot technology
 - Network operation system software – IBM z/OS operating systems
 - Network security and virtual private network VPN equipment software – Virtual private networking VPN software Hot technology
 - Object or component oriented development software – Apache Groovy Hot technology ; Apache Spark Hot technology ; Objective C Hot technology ; Scala Hot technology
 - Object oriented data base management software – Hibernate ORM; PostgreSQL Hot technology
 - Office suite software – LibreOffice; Microsoft Office Hot technology
 - Operating system software – Microsoft Windows Server Hot technology ; Oracle Solaris Hot technology ; Red Hat Enterprise Linux Hot technology ; UNIX Shell Hot technology ; 19 more
 - Platform interconnectivity software – Migration software
 - Portal server software – Apache HTTP Server Hot technology
 - Presentation software – Google Slides; Microsoft PowerPoint Hot technology
 - Process mapping and design software – Microsoft Visio Hot technology
 - Program testing software – Fault testing software; Hewlett Packard LoadRunner; JUnit Hot technology ; Selenium Hot technology ; 20 more
 - Project management software – Confluence Hot technology ; Microsoft Project Hot technology ; Microsoft Teams; Oracle Primavera Enterprise Project Portfolio Management Hot technology
 - Requirements analysis and system architecture software – IBM Rational RequisitePro; Requirements management software; Unified modeling language UML Hot technology
 - Spreadsheet software – Google Sheets; Microsoft Excel Hot technology
 - Storage networking software – Amazon Simple Storage Service S3 Hot technology ; Storage area network SAN software
 - Transaction security and virus protection software – Encryption software; McAfee; NortonLifeLock cybersecurity software
 - Transaction server software – Customer information control system CICS; IBM Middleware; Microsoft Internet Information Services (IIS); Object Management Group Object Request Broker

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- Video conferencing software – FaceTime; Google Meet; LogMeIn GoToMeeting; Zoom
 - Video creation and editing software – Adobe Systems Adobe After Effects Hot technology ; Flipgrid; Screencastify; YouTube Hot technology
 - Web page creation and editing software – Adobe Systems Adobe Dreamweaver; Google Sites; LinkedIn Hot technology ; Social media sites Hot technology
 - Web platform development software – Backbone.js Hot technology ; Microsoft ASP.NET Core MVC Hot technology ; React Hot technology ; Spring Framework Hot technology
 - Word processing software – 3M Post-it App; Google Docs Hot technology ; Microsoft OneNote; Microsoft Word Hot technology

Detailed Work Activities

- Advise others on analytical techniques.
- Analyze business or financial data.
- Analyze data to identify or resolve operational problems.
- Analyze data to identify trends or relationships among variables.
- Analyze data to inform operational decisions or activities.
- Apply mathematical principles or statistical approaches to solve problems in scientific or applied fields.
- Determine appropriate methods for data analysis.
- Develop procedures to evaluate organizational activities.
- Develop scientific or mathematical models.
- Prepare analytical reports.
- Prepare data for analysis.
- Prepare graphics or other visual representations of information.
- Present research results to others.
- Select resources needed to accomplish tasks.
- Update technical knowledge.

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- Write computer programming code.