

# Computer Scientists and their Roles

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## WHAT'S COVERED

Recall that software engineers are an important part of the software development team, due to their ability to function in multiple roles. Computer scientists are also able to serve in multiple roles on a software development team. However, what makes them important to the arena of I.T. is the ability of the computer scientist to provide guidance on how best to implement software, or make use of the technology that already resides within an organization. In this tutorial, we will take a closer look at the computer scientist and how that role fits into the software development team.

Our discussion will break down as follows:

## 1. Computer Scientists

**Computer science** is best described as a branch of knowledge that deals with the theory behind computers and how they work. A computer scientist, therefore, is someone who has a broad theoretical understanding of how computers work, and the theories associated with computation and information. Typically, computer scientists do not work on, or engineer, computer hardware. Instead, computer scientists work on the development of algorithms and models that guide the function of software applications. Computer scientists also work in the areas of software development, data structures, computer graphics, and programming languages. Because of their broad base of computing knowledge, computer scientists are also able to work in the area of information technology.



### TERM TO KNOW

#### **Computer Science**

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## 2. Computer Scientists on a Development Team

When working in the I.T. arena, businesses are more likely to include a computer scientist on a development team when guidance is needed as to how to make best use of I.T. However, the computer scientist is more than prepared to step into almost any role on a development team. Listed below are some of the common roles that the computer scientist may fill on a software development team.

Role	Responsibility
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Database Administrator	Manages the databases for an organization. This person creates and maintains databases that are used as part of applications or the data warehouse. The DBA also consults with systems analysts and programmers on projects that require access to, or the creation of, databases.
System Administrator	Responsible for managing the users, user accounts, and system settings on a computer network. The systems administrator is also responsible, in part, for overseeing the security of an organization's computer network. Monitors the network to insure system, application, and data availability and security.
Programming Language Specialist	Responsible for making language recommendations to analysts. Responsible for the design and implementation of programming languages into an I.T. software project.

### 3. Education and Training

Role	Education and Training
Database Administrator	Most database administrators have a bachelor's degree in management information systems (MIS) or a computer-related field. There are some instances in which a master's degree focusing on data or database management is preferable, such as with organizations that have large databases.
System Administrator	Most system administrators hold a bachelor's degree in information technology. Because administrators work with computer hardware and equipment, a degree in computer engineering or electrical engineering is acceptable as well.
Programming Language Specialist	Most computer programmers have a bachelor's degree in computer science; however, some employers hire workers who have an associate's degree. To be considered a program language specialist, a master's degree in computer programming, with five to seven years of work experience as a programmer in a business environment, is highly advisable. Most get a master's degree in computer science or a related subject.



#### SUMMARY

The world of information technology is changing so fast that new roles are being created all the time, and roles that existed for decades are being phased out. The role of the computer scientist within information technology is to provide theoretical insight to businesses and organizations, as to how they can best utilize their information. In this tutorial, we examined the role of **computer scientists** on the software **development team**.

Source: Derived from Chapter 9 of "Information Systems for Business and Beyond" by David T. Bourgeois. Some sections removed for brevity.

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