

Fundamentals of the Java Programming Language (WJB-110A)

The Fundamentals of the Java Programming Language course provides students who have little or no programming experience with the basics of programming using the Java programming language. This course teaches the significance of object-oriented programming, the keywords and constructs of the Java programming language, and the steps required to create simple Java technology programs. Students taking this course receive a solid basis in the Java programming language upon which to base continued work and training.

Who Can Benefit

Students who can benefit from this course are individuals who have basic mathematical, logical, and analytical problem-solving skills and who want to begin learning the Java programming language. These students are encouraged to have had some programming experience, whether with a scripting language such as Perl or a third-generation language (such as Basic or C) prior to attending this course. These students include:

Technical writers, Web developers, technical managers, and individuals with a technical, non-programming background, such as system administrators

Novice programmers, and those programmers who prefer to start learning the Java programming language at an introductory level



Prerequisites

To succeed fully in this course, students should be able to:

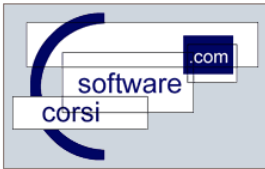
- Create and edit text files using a text editor
- Use a World Wide Web (WWW) browser
- Solve logic problems
- Describe the concept of a variable
- Execute commands using a command-line interface



Skills Gained

Upon completion of this course, students should be able to:

- Demonstrate knowledge of Java technology, the Java programming language, and the product life cycle
- Use various Java programming language constructs to create several Java technology applications



Use decision and looping constructs and methods to dictate program flow
Implement intermediate Java technology programming and object-oriented (OO) concepts in Java technology programs



Related Courses

After:

Advanced Object-Oriented Programming (WP-1203)
[Java Programming Language \(WJB-275A\)](#)



Course Content

Module 1 - Explaining Java Technology

Describe key concepts of the Java programming language
List the three Java technology product groups
Summarize each of the seven stages of the product life cycle

Module 2 - Analyzing a Problem and Designing a Solution

Analyze a problem using object-oriented analysis
Design classes from which objects will be created

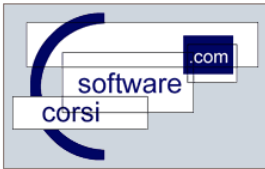
Module 3 - Developing and Testing a Java Technology Program

Identify the four components of a class in the Java programming language
Use the main method in a test class to run a Java technology program from the command line
Compile and execute a Java technology program

Module 4 - Declaring, Initializing, and Using Variables

Identify the uses for variables and define the syntax for a variable
List the eight Java programming language primitive data types
Declare, initialize, and use variables and constants according to Java programming language guidelines and coding standards
Modify variable values using operators
Use promotion and type casting

Module 5 - Creating and Using Objects



Declare, instantiate, and initialize object reference variables
Compare how object reference variables are stored in relation to primitive variables
Use a class (the String class) included in the Java Software Developers Kit (SDK)
Use the Java 2 Platform, Standard Edition (J2SE) class library specification to learn about other classes in this application programming interface (API)

Module 6 - Using Operators and Decision Constructs

Identify relational and conditional operators
Create if and if/else constructs
Use the switch construct

Module 7 - Using Loop Constructs

Create while loops
Develop for loops
Create do/while loops

Module 8 - Developing and Using Methods

Describe the advantages of methods and define worker and calling methods
Declare and invoke a method
Compare object and static methods
Use overloaded methods

Module 9 - Implementing Encapsulation and Constructors

Use encapsulation to protect data
Create constructors to initialize objects

Module 10 - Creating and Using Arrays

Code one-dimensional arrays
Set array values using the length attribute and a loop
Pass arguments to the main method for use in a program
Create two-dimensional arrays

Module 11 - Implementing Inheritance

Define and test your use of inheritance
Explain abstraction
Explicitly identify class libraries used in your code