Intro to Java for Non-Programmers

Course Summary

Description

This course is geared towards individuals who want to be able to speak intelligently about Java and understand Java code and syntax. Past students who have benefited from this course include professionals in the areas of quality assurance, technical writing/documentation, project managers, and other technical-related fields.

Objectives

At the end of this course, students will be able to:

- Understand the importance of Java and how it is being used today in software development
- Understand object oriented programming (OOP) versus procedural programming.
- Become familiar with OOAD methodologies and how to analyze and design an application from an object-oriented viewpoint.
- Understand classes, objects, attributes, and behaviors
- Use UML to visually depict the classes in a problem domain
- Become familiar with the Java language and tools using Java 2.
- Become familiar with Java's built-in data types and the java.lang.String class.
- Be able to write a class in Java, including determining the appropriate member variables and methods
- Learn how to make decisions in Java using the if/else and switch statements.
- Learn how to perform repetition in Java using for and while loops.
- Understand arrays
- Become familiar with inheritance
- Understand Java applets and how to write and display one in a web page.

Topics

- Introduction to Java
- Object Oriented Analysis & Design
- The Java Programming Language
- Classes & Objects
- Methods
- Control Structures
- Arrays
- Inheritance
- Applets

Audience

This course is designed for IT professionals who need to understand the Java programming language and do not have prior programming experience.

Prerequisites

There are no prerequisites for this course.

Duration

Five days

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Course Outline

I. An Introduction to Java
- A. Java Overview: What Java is and why it is so popular today
- B. The Lifecycle of Other Programs: A look at how programs are developed in other languages
- C. The Lifecycle of a Java Program: A look at how Java programs are developed
- D. Performance Issues: Translating vs. Interpreting
- E. A Simple Java Program: Writing a class in Java with a main() in it
- F. The Java Development Kit: The tools used to create a Java program
- G. Writing a Java Program: The details of creating and running a Java program

II. Object Oriented Analysis & Design
- A. OOP and Procedural Languages: Today's common programming languages
- B. Writing a Program Procedurally: An overview of how procedural programs are designed
- C. Writing a Program Using Objects: An overview of OOP
- D. Classes and Object: The fundamental components of an object-oriented program
- E. An Introduction to OOAD: Object Oriented Analysis and Design
- F. UML: The Unified Modeling Language

III. The Java Programming Language
- A. Java Keywords: The Java language
- B. Identifiers: Names used to identify the various parts of a program, like names of classes, methods and fields
- C. The Built-in Data Types: The way Java stores data
- D. The String Class: A useful class in Java.
- E. Declaring Variables: Allocating memory for data
- F. Arithmetic Operators: The syntax of the Java operators and their order of operation
- G. Parameters and Return Values: How to determine if a method needs parameters and/or a return value

IV. Classes and Objects
- A. Classes and Objects: An object is an instance of a class
- B. Writing a Class in Java: Determining fields and methods
- C. Instantiating Objects: The "new" keyword
- D. Using Objects: The dot operator
- E. Understanding References: Understanding the difference between a reference and an object

V. Methods
- A. Methods: The signature of a method
- B. Invoking Methods: Using the dot operator
- C. Passing References by Value: Understanding call-by-value
- D. Invoking Methods: The dot operator
- E. Local Variables vs. Member Variables: Understanding the difference
- F. Constructors: A special type of method that allows an object to be initialized when it is instantiated

VI. Control Structures
- A. Flow of Control: Java's control structures
- B. Comparison Operators
- C. Boolean Expressions: Logic and the Boolean operators
- D. The if Statement: The basic tool for making decisions
- E. The if/else Statement: Extending an if statement
- F. The switch Statement: Another decision maker
- G. The while Loop: Repeating code
- H. The do/while Loop: A variation of the while loop
- I. The for Loop: Useful for repeating a specific number of tasks

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VII. Arrays

A. Arrays: Contiguous memory for storing data
B. Array References
C. Array Objects: Instantiating arrays
D. Arrays of Primitive Data Types
E. Arrays of Objects

VIII. Inheritance

A. Inheritance: Creating new classes from existing classes
B. The "is a" Relationship: Determining when inheritance is a good design
C. The extends Keyword: Implementing inheritance in Java
D. What Gets Inherited: Understanding what a child inherits from its parent
E. Single Inheritance: A child can only have one parent
F. Method Overriding: A child class overriding a behavior of the parent class

IX. Applets

A. An Overview of Applets: A Java program that runs in a web browser
B. The Applet Class: The parent class of all applets
C. The Methods of the Applet Class: init() start(), stop(), destroy() and paint()
D. Embedding an Applet in a Webpage: The <applet> tag in HTML.
E. The Graphics Class: Used for drawing in the applet
F. Parameters: Allows the HTML to pass data to the applet

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