

Java Programming using RAD7

CDT715

This course makes extensive use of hands-on examples and exercises to familiarize the student with the fundamentals of Java programming. IBM's Rational Application Developer 7 is used as the development platform. Emphasis is on the development of applications which illustrate object oriented programming techniques.

Audience

- Programmers who want to learn the Java language
- Mainframe programmers who want a better understanding of object-oriented programming concepts
- Programmers who will be developing applications with RAD 7

Prerequisites

- Experience with Windows is required
- Some programming experience is recommended

Learning Objectives

- Understand object oriented programming concepts
- Create Java applications utilizing the RAD 7 IDE
- Create database applications using JDBC

Teaching Methods

- Lecture
- Hands-on examples
- Supplemental hands-on exercises

Course Length

- Five days

Course Outline

QE6

Getting Started

- The RAD7 IDE
- Our first program
- System.out.println
- Escape sequences

The Java Language

- Data types
- Integer arithmetic
- Casting
- Prefix and Postfix operators
- String class
- Get input from the user
- selection: if, ternary if, switch
- iteration: for, while, do
- programmer-defined methods

Object Oriented Concepts

- Objects vs. classes
- Attributes (fields)
- Behaviors (methods)
- Implementation vs. Interface
- Private vs. public vs. protected
- Constructors: default & overloaded
- Accessor methods
- Mutator methods
- Final

Advanced OO Concepts

- Comparing objects
- Cloning objects
- Composition
- Inheritance
- Polymorphism
- Abstract classes and methods

Arrays

- Arrays of primitive data types
- Arrays of objects
- The Vector class

Exceptions

- try and catch blocks
- finally
- Effect of System.exit() within catch
- Creating your own exception
- Throwing the exception
- Handling the exception
- RuntimeException
- Nested exceptions
- The printStackTrace() method

Files

- Writing objects to a comma-delimited file
- Reading objects to a comma-delimited file
- Writing objects to a file with UTF
- Reading objects from a file written with UTF
- Writing objects to a file using serialization
- Reading objects from a file written with serialization

JDBC

- Relational database concepts
- Defining an ODBC data source
- Adding records to a database
- Reading selected records from a database
- Read all records from a database

JUnit: Unit and regression testing framework