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Introduction

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Audience

- Beginners to programming who have basic mathematical, logical, and analytical problem-solving skills and who want to begin learning the Java programming language
- Novice programmers and those programmers who prefer to start learning the Java programming language at an introductory level
- Students who beginning their study to become an Oracle Certified Professional (OCP)
  - Java SE Programmer I Exam (this course)
  - Java SE Programmer II Exam (the next course)

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The audience for this course is a beginner to programming who has basic mathematical and problem-solving skills. The course is targeted at technical writers, web developers, technical managers, project managers, program managers, and individuals with a technical, nonprogramming background such as system administrators.

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Introductions

Meet your classmates and briefly introduce yourself:

- Name
- Title or position
- Company
- Experience with Java programming and Java applications
- Reasons for attending

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Course Objectives

After completing this course, you should be able to:

- Demonstrate knowledge of basic programming language concepts
- Demonstrate knowledge of the Java programming language
- Implement intermediate Java programming and object-oriented (OO) concepts

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Demonstrate knowledge of basic programming language concepts.

- Source code versus machine code
- Platform dependence and platform independence
- The use of APIs and libraries

Demonstrate knowledge of the Java programming language

- Compile and run a Java program from both the command line and from NetBeans.
- Create a Java class with fields and methods.
- Declare and use arrays.
- Use methods of the `StringBuilder`, `String`, and `ArrayList` classes.
- Display and manipulate dates using one or two classes from the new `java.time` package.
- Write conditional statements.
- Write loop statements (enhanced for, for, while, do/while), as well as nested loops.
- Implement a `try` block to handle exceptions.

Implement intermediate Java programming and object-oriented (OO) concepts

- Instantiate an object and invoke its methods
- Explain how objects vs. primitive types or references are stored in memory
- Create an inheritance hierarchy of Java classes by creating a subclass or implementing a Java Interface
- Overload a method and a constructor
- Encapsulate the fields of a class and use modifiers to control access to a field or a method
- Create superclasses, abstract classes, and Interfaces and use them as reference types
- Use a Predicate lambda expression as the argument to a method

Schedule

Day One

- Getting Started
  - Lesson 1: Introduction
  - Lesson 2: What Is a Java Program?
- The Basic Shopping Cart
  - Lesson 3: Creating a Java Main Class
  - Lesson 4: Data in a Cart
  - Lesson 5: Managing Multiple Items

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Schedule

Day Two

- Filling the Cart
  - Lesson 6: Describing Objects and Classes
  - Lesson 7: Manipulating and Formatting the Data in Your Program
- Improving Cart Efficiency
  - Lesson 8: Creating and Using Methods

Day Three

  - Lesson 9: Using Encapsulation
- Expanding the Business
  - Lesson 10: More on Conditionals
  - Lesson 11: Working with Arrays, Loops, and Dates

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Schedule

Day Four

- Lesson 12: Using Inheritance
- Lesson 13: Using Interfaces
- Lesson 14: Handling Exceptions

Day Five

- Lesson 15: Deploying and Maintaining the Soccer Application
- Lesson 16: Understanding Modularity
- Lesson 17: JShell

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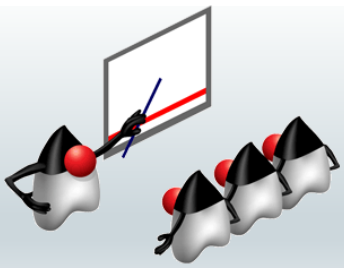
Lesson Format

Lecture / Student Guide (50%)

- Traditional slides
- Sample code
- Exercises
- Quizzes & interactive quizzes



Practices / Activity Guide (50%)

- Hands-on learning
- Work with Java code
- Larger-scale labs
- Intended for the OU Practice Environment

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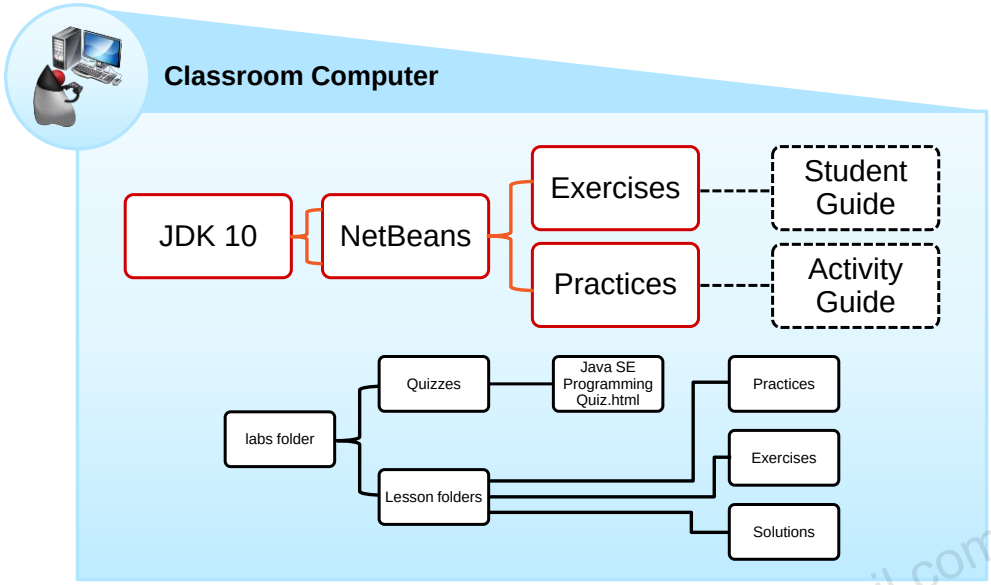
Course Environment



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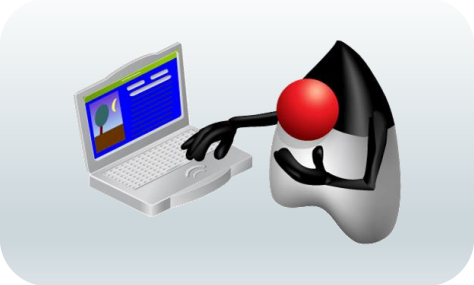
In this course, the following products are preinstalled for the lesson practices:

- **JDK 10:** The Java SE Development Kit includes the command-line Java compiler (`javac`) and the Java Runtime Environment (JRE), which supplies the `java` command needed to execute Java applications.
- **Firefox:** A web browser is used to view the HTML documentation (Javadoc) for the Java SE Platform libraries.
- **NetBeans :** The NetBeans IDE is a free and open-source software development tool for professionals who create enterprise, web, desktop, and mobile applications.
- **Student Guide:** The guide contains the instructional material for all the topics discussed in class and includes appendices with additional information. It also includes some introductory instructions for completing the exercises and practices.
- **Activity Guide:** These are resources to use during the practice portions of the course. The Activity Guide has instructions for completing the practices.
- **Lab Folder:** The lab folder includes interactive quizzes, practices, exercises, and solution files.

How Do You Learn More After the Course?

- In the Oracle Learning Library, there is a list of resources that you can use to learn more about Java programming. Look for the collection on the oracle.com/oll/java page.
- *Oracle Learning Library:*
  - http://www.oracle.com/goto/oll



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Additional Resources

Resource	Website
Education and Training	http://education.oracle.com
Product Documentation	http://www.oracle.com/technology/documentation
Product Downloads	http://www.oracle.com/technology/software
Product Articles	http://www.oracle.com/technology/pub/articles
Product Support	http://www.oracle.com/support
Product Forums	http://forums.oracle.com
Product Tutorials	http://www.oracle.com/technology/obe
Sample Code	http://www.oracle.com/technology/sample_code

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The table in the slide lists web resources where you can obtain additional information about Java.

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Additional Resources

Resource	Website
Java Documentation	https://docs.oracle.com/javase
API Documentation	https://docs.oracle.com/javase/10/docs/api/index.html

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Summary

In this lesson, you reviewed the course objectives and the tentative class schedule. You met your fellow students, and you saw an overview of the computer environment that you will use during the course.

Enjoy the next five days of *Java SE Programming I*

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