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1

Introduction

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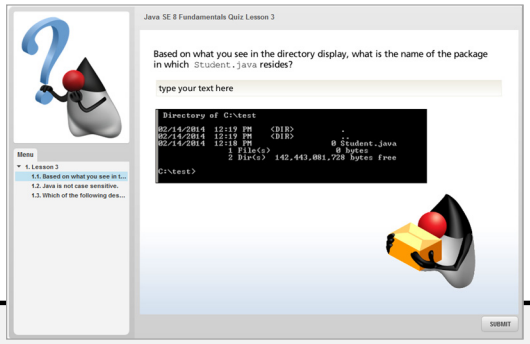
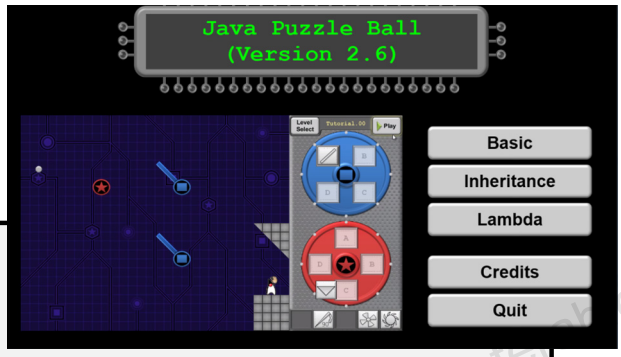
About This Course






```
12 Shirt myShirt = new Shirt();
13 Shirt yourShirt = new Shirt();
14
15 myShirt = yourShirt;
16
17 myShirt.colorCode = 'R';
18 yourShirt.colorCode = 'G';
19
20 System.out.println("Shirt color: " + myShirt.colorCode);
```

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During this course, you will:

- Write Java code using a code console and integrated development environment
- Complete interactive quizzes
- Play a game

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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 want to begin their study of the Oracle Certified Java Associate exam

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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.

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. For example, be able to describe the following:

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).
- Write 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 a hierarchy of Java classes.
- Implement inheritance by creating a subclass.
- Overload a method and a constructor.
- Encapsulate the fields of a class.
- Use modifiers to control access to a field or a method.
- Implement a Java Interface.
- Create superclasses, abstract classes, and Interfaces and use them as reference types.
- Use a Predicate lambda expression as the argument to a method.

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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

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Schedule

Day Four

- Lesson 11: Working with Arrays, Loops, and Dates

- Bringing It Home
  - Lesson 12: Using Inheritance

Day Five

- Lesson 13: Using Interfaces
- Lesson 14: Handling Exceptions
- Lesson 15: Deploying and Maintaining the Soccer Application

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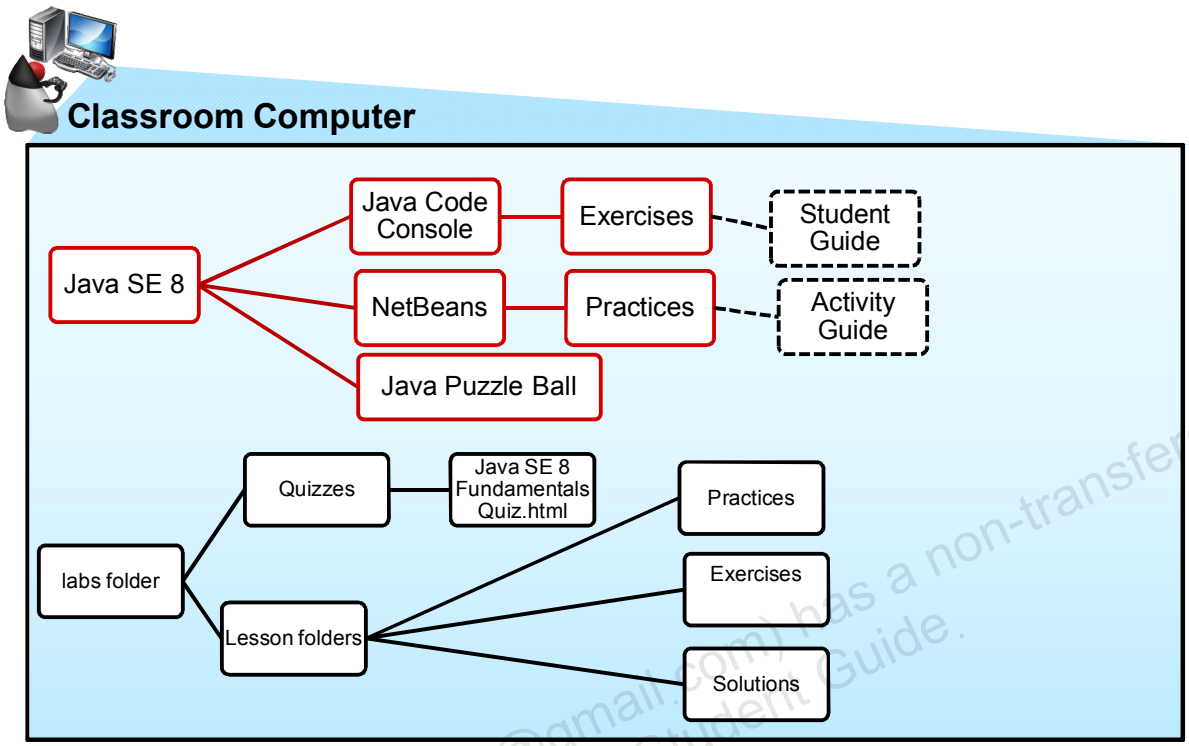
Course Environment



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

- **JDK 8:** 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 8:** 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.

- **Java API Documentation:** The API documentation is the application programming interface specification.
- **Java Code Console:** This is an IDE developed by Oracle Java Curriculum Developers that you use to perform short coding exercises.
- **Interactive Quizzes:** The quizzes are self-paced and help you remember the key points learned in each lesson.
- **Java Puzzle Ball:** This game is available for you to play on your machines. It will be used to introduce and reinforce concepts taught in the course.

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Test Your Lab Machines

1. Go to your lab machine.
2. Open the Firefox browser.
3. Enter http://localhost:8080/JavaCC.
4. Click the Cloud IDE link.

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To ensure that your lab environment is working, access your lab machine and start the Java Code Console.

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How Do You Learn More After the Course?

To find more resources, bookmark the URL:

Oracle.com/oll/java

Look for the *Java SE 8 Fundamentals Collection*.

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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.

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Quiz

a. What is your name?
b. What do you do for a living, and where do you work?
c. What is the most interesting place you have visited?
d. Why are you interested in Java?

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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 8 Fundamentals*.

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