Skill Set Alignment
Fundamentals of Java Programming

This document lists the skills that students learn in the Fundamentals of Java Programming course aligned to a job cluster. This curriculum helps to prepare students for the Sun Certified Java 2 Programmer certification. Employers, Academies, and students may use this document to communicate current knowledge, or to identify skills demonstrated at a work setting. Another valuable use of this information is as a list of proficiencies expected through work experience.

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Name of Business/Employer	Name of Student
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Street Address	Street Address
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City State Zip	City State Zip
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Phone	Phone

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Employment Supervisor's Name and Position

Background Java Programming Skills
- The Java environment basics
- Entering data at runtime for the Java program
- Understanding programming error messages

Java language elements
- Documentation
- Where and when of data storage
- Concept of data types
- Syntax
- Object creation, mutability and destruction

Java language operators and control structures
- Object operations
- Numeric data and operations
- Concepts of casting and conversion
- Character and string data
- Control structures - decision making and repetition
- Exploring the java.lang.System class member in and out
- Dissecting sample code

Basics of Defining and using classes
- Four steps to creating objects
- Encapsulation

- Attributes (class and instance)
- Constructors
- Method types and syntax
- Data available in a method
- Java type lifespan – creation, mutability and destruction

System, Strings , String Buffer, Math and Wrapper classes

- Input selection and repetition using System, String and String buffer classes
- Wrapper classes
- Math class
- Working with dates

Classes and Inheritance

- Access modifiers and inheritance
- Overriding
- Inheritance and constructors
- Extending classes
- Polymorphism and dynamic binding

Arrays

- Declaring and initialize an Array object
- Using Arrays and Multidimensional arrays

Understanding packages

- Exploring the API packages
- Packages and names in your programs
- Packaging classes

Creating GUI applications using AWT

- Reviewing the AWT
- Steps to create a GUI
- GUI functionality

Creating applets and graphics

- Applet and AWT class hierarchies
- Applet methods and components
- Applet components
- Graphics methods

Exceptions

- How exception handling works
- Dealing with exceptions
- Structuring a method the execution sequence
- Overriding exceptions

Streams, files and Stream output

- Understanding files
- Input and Output classes

Collections

- The java.util package

Threads

- The lifecycle of a thread
- Creating and running threads
- Managing threads