Exam 98-388: Introduction to Programming using Java

This is an entry level certification that is intended for application developers working with Java. The MTA exams are targeted at secondary and immediate post-secondary level students of software development, and other entry-level software developers. The code in the 98-388: Introduction to Programming Using Java exam, uses Java SE. The syntax used in this exam is compatible with Java 6 SE through the most recent release.

These Java developers and students require instruction and/or hands-on experience (150 hours) with Java, are familiar with its features and capabilities, and understand how to write, debug and maintain well-formed, well documented Java code.

Microsoft
Technology Associate

Objective Domain

Understand Java Fundamentals

- Describe the use of main in a Java application.
  - **Signature of main, why it is static; how to consume an instance of your own class; command-line arguments**
- Perform basic input and output using standard packages.
  - **Print statements; importing and using the Scanner class**
- Evaluate the scope of a variable.
  - **Declaring a variable within a block, class, method**

Work with Data Types, Variables, and Expressions

- Declare and use primitive data type variables.
  - **Data types include byte, char, int, double, short, long, float, boolean; identify when precision is lost; initialization; how primitives differ from wrapper object types such as Integer and Boolean**
- Construct and evaluate code that manipulates strings.
  - **String class and string literals, comparisons, concatenation, case and length; String.format methods; string operators; converting a primitive data type to a string; the immutable nature of strings; initialization; null**
- Construct and evaluate code that creates, iterate, and manipulates arrays and array lists.
  - **One- and two-dimensional arrays, including initialization, null, size, iterating elements, accessing elements; array lists, including adding and removing elements, traversing the list**

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Work with Data Types, Variables, and Expressions

- Construct and evaluate code that performs parsing, casting and conversion.
  - **Implementing code that casts between primitive data types, converts primitive types to equivalent object types, or parses strings to numbers**
- Construct and evaluate arithmetic expressions.
  - **Arithmetic operators, assignment, compound assignment operators, operator precedence**

Implement Flow Control

- Construct and evaluate code that uses branching statements.
  - **If, else, else if, switch; single-line vs. block; nesting; logical and relational operators**
- Construct and evaluate code that uses loops.
  - **While, for, for each, do while; break and continue; nesting; logical, relational, and unary operators**

Perform Object-Oriented Programming

- Construct and evaluate a class definition.
  - **Constructors; constructor overloading; one class per .java file; this keyword; inheritance and overriding at a basic level**
- Declare, implement, and access data members in a class.
  - **Private, public, protected; instance data members; static data members; using static final to create constants; describe encapsulation**
- Declare, implement, and access methods.
  - **Private, public, protected; method parameters; return type; void; return value; instance methods; static methods; overloading**
- Instantiate and use a class object in a program.
  - **Instantiation; initialization; null; accessing and modifying data members; accessing methods; accessing and modifying static members; importing packages and classes**

Compile and Debug Code

- Troubleshoot syntax errors, logic errors, and runtime errors.
  - **Print statement debugging; output from the javac command; analyzing code for logic errors; console exceptions after running the program; evaluating a stack trace**
- Implement exception handling.
  - **Try catch finally; exception class; exception class types; displaying exception information**