

List of Certification Skills for

Computer Programming II

- ✓ Design, implement & analyze solutions to problems
- ✓ Use and implement commonly used algorithms
- ✓ Develop and select appropriate algorithms and data structures to solve new problems
- ✓ Write solutions fluently in an object-oriented paradigm
- ✓ Write, run, test & debug solutions in the Java programming language, utilizing standard Java library classes and interfaces from the AP Java subset
- ✓ Read and understand programs consisting of several classes and interacting objects
- ✓ Read and understand a description of the design and development process leading to such a program
- ✓ Understand the ethical and social implications of computer use
- ✓ Program Implementation
 - Implementation techniques
 - Programming constructs
 - Java library classes and interfaces included in the AP Java Subset
- ✓ Program Analysis
 - Testing
 - Debugging
 - Runtime exceptions
 - Program correctness
 - Algorithm analysis
 - Numerical representations of integers
- ✓ Standard Data Structures
 - Primitive data types (integer, Boolean, double)
 - Strings
 - Classes
 - Lists
 - Arrays (1 and 2 dimensional)
- ✓ Standard Operations and Algorithms
 - Operations on data structures
 - Searching
 - Sorting
- ✓ Computing in Context
 - System reliability
 - Privacy
 - Legal issues and intellectual property
 - Social and ethical ramifications of computer use