IKM Assessment Description

C++ PROGRAMMING (C++11 ISO STANDARD)

This assessment is designed to measure the proficiency of Information Technology professionals in the C++ programming language. It is based upon the C++ 2011 ISO standard (aka C++11). The Secure Evaluation Mode and Remote versions of this test will contain a minimum of 51 questions and will require a typical time of 61 minutes. The Secure Interview Mode and QwikChek versions will provide as many questions as the test taker can answer within an approximate 37 minute time limit.

Following is a description of each sub-topic on the test:

C++ Types measures understanding of basic C++ types and the rules for their declaration and use.

C++ Basic Concepts evaluates the basic understanding of writing a C++ program. Also covers lambda functions.

Pointers and References determines understanding of the usage of pointers and references in C++ including static, dynamic and reinterpret types of casting.

C++ Const and Volatile Qualifiers measures the knowledge of the const/volatile qualifiers in C++ including purpose, correctness, consistency, conversion and casting.

C++ Templates checks basic understanding of function and class templates in C++.

Exception Processing measures understanding of the support of exceptions provided by the C++ Standard Library. This includes the concept, purpose, throwing and handling of exceptions.

Dynamic Memory Allocation determines understanding of dynamic memory support provided by the C++ Standard Library.

Overloading assesses knowledge of C++ function and operator overloading.

Class Creation and Usage evaluates proficiency with user-defined types in C++ (including structures) -- definition, declaration and usage.

Class Access Control measures understanding of C++ class access including access levels, base class member access, access modification and friends.

Inheritance assesses proficiency in the use of inheritance in C++ as a tool for the reuse, extension and modification of existing types including inheritance access control and multiple inheritance.

Polymorphism determines proficiency in implementing polymorphism in C++ with the use of virtual functions including dynamic casting and RTTI.

C++ Containers Library determines understanding and usage of C++ containers as well as iterators and algorithms that are applied to them.

C++ Regular Expressions Library tests knowledge of built-in facilities in C++, providing a standardized way to find, extract or modify patterns in text.

C++ Multi-Threading Library assesses the understanding of the concepts and issues of multi-threading and the proper implementation using the C++ Threading support library

C++ Support Libraries determines awareness of, and ability to use, helpful utilities provided by the C++ Standard Library. This is separate from the utilities and containers provided by the Standard Template Library.

C++ Optimization assesses knowledge of optimization techniques and practices used with C++, including optimizations performed by hand on C++ source code, and optimizations performed by C++ compilers.

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