Microsoft Technology Associate

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Exam 98-361: Software Development Fundamentals

Candidates for this exam are seeking to prove core software development skills. Before taking this exam, candidates should have a solid foundational knowledge of the topics outlined in this preparation guide. It is recommended that candidates be familiar with the concepts of and have hands---on experience with the technologies described here either by taking relevant training courses or by working with tutorials and samples available on MSDN and in Microsoft Visual Studio.

Objective Domain

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Understanding Core Programming

- **Understand Computer Storage and Data Types.**
    - how a computer stores programs and the instructions in computer memory; memory stacks and heaps; memory size requirements for the various data storage types; numeric data and textual data
- **Understand Computer Decision Structures.**
    - various decision structures used in all computer programming languages; If decision structures; multiple decision structures such as If…Else and switch/Select Case; reading flowcharts; decision tables; evaluating expressions
- **Identify the Appropriate Method for Handling Repetition.**
    - For loops, While loops, Do..While loops, and recursion
- **Understand Error Handling.**
    - structured exception handling

Understanding Object-Oriented Programming

- **Understand the Fundamentals of Classes.**
    - properties, methods, events, and constructors; how to create a class; how to use classes in code
- **Understand Inheritance.**
    - inheriting the functionality of a base class into a derived class
- **Understand Polymorphism.**
    - extending the functionality in a class after inheriting from a base class; overriding methods in the derived class
- **Understand Encapsulation.**
    - creating classes that hide their implementation details while still allowing access to the required functionality through the interface; access modifiers

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Understanding General Software Development

- **Understand Application Life Cycle Management.**
  - phases of application life cycle management; software testing
- **Interpret Application Specifications.**
  - reading and translating application specifications into prototypes, code, and components
- **Understand Algorithms and Data Structures.**
  - arrays, stacks, queues, linked lists, and sorting algorithms; performance implications of various data structures; choosing the right data structure

Understanding Web Applications

- **Understand Web Page Development.**
  - HTML, Cascading Style Sheets (CSS), JavaScript
- **Understand Microsoft ASP.NET MVC Web Application Development.**
  - page life cycle; event model; state management; client-side vs. server-side programming
- **Understand Web Hosting.**
  - creating virtual directories and Web sites, deploying Web applications; understanding the role of Internet Information Services
- **Understand Web Services.**
  - Web services that will be consumed by client applications; accessing Web services from a client application; SOAP and Web Service Definition Language (WSDL)

Understanding Desktop Applications

- **Understand Windows Store Applications.**
  - application lifecycle; navigation model; visual inheritance; UI design
- **Understand Console-Based Applications.**
  - characteristics and capabilities of console--- based applications
- **Understand Windows Services.**
  - characteristics and capabilities of Windows Service

Understanding Databases

- **Understand Relational Database Management Systems.**
  - characteristics and capabilities of database products; database design; Entity Relationship Diagrams (ERDs); normalization concepts
- **Understand Database Query Methods.**
  - structured query language (SQL), creating and accessing stored procedures, updating data, selecting data
- **Understand Database Connection Methods.**
  - connecting to various types of data stores such as flat file; XML file; in-memory object; resource optimization