deerwalk training center

DTA-PSD-101

Advanced Dot Net Development

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Program Information

Dot Net Development Intermediate: Level I

Nature of the Course
Theory + Practical

Total Hours per Day
2 hours

Course Duration
4 Weeks

Course Summary

The DTC – Dot Net course is targeted for beginners who want to learn how to think and write meaningful pieces of codes or read Dot Net codes written by someone else. This course teaches how to map literary description of a problem (requirement) to an application/library coded in Dot Net. This is a core basic level course that is essential for anyone who has no prior programming experience but wishes to be a professional Dot Net engineer in future.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module

Required Textbooks

- Andrew Troelsen and Phillip Japikse, “Pro C# 9 with .NET 5”, Apress.
- Ryan Turner, “The Ultimate Beginners Learn C# Programming Step by Step”, N.B.L Publishing

Prerequisites

- Fundamental understanding of programming, bits/bytes, procedures, classes, and computer architecture. It's absolutely acceptable if you only have a theoretical understanding of programming, but you should be certain about what programming is and what you intend to gain from this session.
- Willing and eager to spend at least 10-20 hours (varying from student-to-student) per week outside of the training class to read/write codes in Dot Net (self-study and practice).
- If you are only interested in theory and have no interest/patience in spending at least 10 hours every week throughout the duration of the course, then this course might not be for you.
- If you have absolutely no idea about programming or do not see yourself doing programming in the next six -odd months, then this class may not be for you. Course Details Week I Starting With Visual Studio 2010

Course Details

Week 1

Lesson 1

.Net Development Overview

- History
- Basics of .Net

Lesson 2

Starting With Visual Studio 2022

- Creating Console Application Project
- Project vs. Solution
- How to compile the project?

Lesson 3

The MAIN() METHOD – Where it All Begins

What is a Method?

- Argument List
- Return Type
- Breaking down solution (to a problem) to one or more methods

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Week 2 :

Lesson 1

Variables

- BASE CLASSES – BASIC
- How to write to Console?
- How to read from Console?
- Locking and Hidings

Lesson 2

Flow Control – Conditional Statements

- If-Else
- Switch

Lesson 3

Flow Control – Iteration And Jumps

- For
- While
- Do While
- Break
- Continue
- Goto
- Foreach

Week 3 :

Lesson 1

Operators – Basic

- Arithmetic
- Increment/Decrement
- Comparison
- Logical
- Assignment

Lesson 2

Scope of a Variable : CONSTANTS

Data Types

- Value Types
- Reference Types

Value Types in Detail

- Signed vs. Unsigned
- byte, sbyte
- short, ushort
- int, uint
- long, ulong
- float
- double
- decimal
- bool
- char

Week 4 :

Lesson 1

Arrays

- Single Dimensional Arrays
- Introduction to the [ ] Operator
- Multiple Dimensional Arrays
- Jagged Arrays Array as a Reference Type

Lesson 2

String

- String is a Reference Type
- What is a string made up of – understanding the char type
- Ways of constructing strings
- How to copy one string to another
- Using the [] operator
- Converting strings from lower case to upper and vice-versa
- Searching for specific characters in a string
- Searching for specific words in a sentence
- Complex String operations
- StringBuilder
- Format Strings
- Immutability

Lesson 3

Enumerations :Preprocessor Directives

- Define
- Undef
- If, Else-If, Else, End-If
- Warning
- Error
- Region, Endregion

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures and introduce critical and fundamental problem-solving techniques to the students.

Program Information

Dot Net Development Intermediate: Level II

Nature of the Course
Theory + Practical

Total Hours per Day
2 hours

Course Duration
4 Weeks

Course Summary

The DTC – Dot Net – Level 2 course is designed for students who have some prior hands-on programming experience with the Dot Net programming language at a beginning level. This course is ideal for people who have previously programmed in another programming language (e.g., Java, Obj-C, PHP, C, C++, etc.) and wish to learn Dot Net. This course is designed for high school and university students who want to do Dot Net coursework, including those who are already working as a professional VB.NET developer and want to switch to Dot Net, as well as those who have worked in the media industry since graduation or are working as a professional freelance PHP developer

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module

Required Textbooks

- Andrew Troelsen and Phillip Japikse, “Pro C# 9 with .NET 5”, Apress.
- Ryan Turner, “The Ultimate Beginners Learn C# Programming Step by Step”, N.B.L Publishing

Prerequisites

- Successfully complete the entrance test with a score of at least 40% (for trainees directly applying to this level).
- Successfully complete the DWIT Training – Dot Net – Level I course (not applicable to trainees directly applying to this level).
- Successfully complete the interview.
- Willing and eager to spend at least 10-20 hours (varying from student-to-student) per week outside of the training class to read/write codes in Dot Net (self-study and practice)

Course Details

Week 1

Lesson 1

Class in Detail

- Data Members
- Function Members
- Access Modifiers
- Data Encapsulation
- Set and Get methods
- Passing parameters by Value
- Passing parameters by Reference
- Using keywords ref, out, and params in methods
- Named Arguments
- Optional Arguments
- Method Overloading
- Properties and Accessors
- Constructors and Destructors
- Partial Classes
- Static Class and Static Methods
- Static Constructor, readonly fields

Week 2

Lesson 1

Object Oriented Programming

- Inheritance
- The Object class
- Polymorphism, Virtual Methods
- Abstract Class and Abstract Methods
- Sealed Class
- Exceptions
- Using Constructors

Lesson 2

Flow Control – Conditional Statements

- Nullable types and operations
- Null Coalescing operator
- Type Inference
- Anonymous Type
- Boxing and Unboxing
- Data Conversions – Implicit and Explicit
- Operator Overloading
- User Defined Casts
- Indexers
- Generics
- Type Safety
- Constraints
- Default
- Interface
- Statics
- Delegates
- Delegates and Events

Week 3

Lesson 1

Data Structures

- Array Class
- Lists
- Queue
- Stack
- Linked List
- Sorted List
- Dictionaries

Lesson 2

Data Structures

- File I/O Revisited
- Serialize / Deserialize
- Moving, Copying and Deleting Files

Lesson 3

Working With XML

- Standards in .NET
- XML I/O
- DOM
- XPATH

Lesson 4

Instrumentation

- Event Logging

Week 4 :

Lesson 1

Database Concepts

- Installing And Configuring SQL Server
- Install SQL Server 2019
- Configure SQL Server 2019 instances and databases.
- Configure SQL Server security

Lesson 2

String

- Understanding Normalization and Relationships
- SQL Queries
- SQL Insert,Delete ,Update statements
- SQL Joins

Lesson 3

Creating And Implementing Database Objects

- Implement a table
- Implement functions
- Implement stored procedures

Lesson 3

Maintaining Databases

- Backup a database
- Restore a database

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures and introduce critical and fundamental problem-solving techniques to the students.

Program Information

Dot Net Development Intermediate: Level III

Nature of the Course
Theory + Practical

Total Hours per Day
2 hours

Course Duration
4 Weeks

Course Summary

This course expands on the DTC – Dot Net – Level 2 foundation and offers advanced subjects to equip learners for a career as an Android software engineer.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module

Required Textbooks

- Andrew Troelsen and Phillip Japikse, “Pro C# 9 with .NET 5”, Apress.
- Ryan Turner, “The Ultimate Beginners Learn C# Programming Step by Step”, N.B.L Publishing

Prerequisites

- Successfully complete the entrance test with a score of at least 40% (for trainees directly applying to this level).
- Successfully complete the DWIT Training – Dot Net – Level II course (not applicable to trainees directly applying to this level).
- Successfully complete the interview.
- Willing and eager to spend at least 10-20 hours (varying from student-to-student) per week outside of the training class to read/write codes in Dot Net (self-study and practice)

Course Details

Week 1

ASP.NET Core

Lesson 1

Introduction To ASP.NET Core

- Introduction
- What is ASP.NET Core?
- ASP.NET Core Features
- Advantages of ASP.NET Core
- MVC Pattern
- Understanding ASP.NET Core MVC
- ASP.NET Core vs. ASP.NET MVC vs. ASP.NET Web Forms

Lesson 2

Concepts For Coding Better Applicatication

- Coding Standards
- Application Architecture
- Solid Principles
- Performance
- Security
- Application Frameworks
  - .NET Core
  - Web APIs
  - ASP.NET MVC
- Concepts/Patterns
  - Dependency Injection
  - ADO.NET
  - Entity Framework – different approaches
  - LINQ and Lambda expression
  - Understanding/writing Unit Tests
  - Async Programming
  - Design Patterns
  - Exception Handling – different approaches
  - Angular as a Frontend framework.

Week 2

Lesson 1

ASP.NET Core First Application

- ASP.NET Core Environment Setup
- ASP .NET Core First Application
- Understanding Application Architecture

Lesson 2

Controllers & Action Methods

- Controllers Overview
- Action Methods and IActionResult object
- Passing data from Controller to View
- Understanding Action Selectors
- Action Filters
- Building Custom Action Filters
- Middleware
- Asynchronous Action Methods

Lesson 3

Views

- Introducing Razor View
- Advantages of Razor View
- Razor Syntax
- Types of Views
- Partial Views

Week 3 :

Lesson 1

Dependency Injection

- Built-in IoC Container
- Registering Application Service
- Understanding Service Lifetime
- Injection

Lesson 2

Validations & Data Annotations

- Data Annotations and Validations Overview
- Validations with Data Annotation
- Server Side and Client Side Validation
- Custom Server side validation
- Model level validation using IValidatableObject
- Custom unobstrive Client side Validation
- Remote Validation

Lesson 3

State Management Techniques

- Client Based State Management including Cookies, View Data, View Bag and Temp Data
- Server Based State Management Including Session

Lesson 4

Security

- Authentication and Authorization
- Using JWT Authentication

Lesson 5

Routing

- Url Routing Overview
- Custom Routes
- Attribute Routing
- Routing Constraints

Lesson 3

Maintaining Databases

- Backup a database
- Restore a database

Week 4:

Lesson 1

Module Development

- Understanding Areas
- Adding Areas
- Defining Area Routes
- Linking between Areas

Lesson 2

Jquery Ajax & WebAPI

- Introduction
- JavaScript fundamentals
- Calling Controller Actions using Ajax
- WebAPI

Lesson 3

Concepts

- Troubleshooting, Error Handling and Logging
- Environment Variable
- Deployment

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures and introduce critical and fundamental problem-solving techniques to the students.

Learning Outcomes

- Web Application Configuration and Deployment.
- Create a safe online application.
- Understand the ASP.NET page structure and the Microsoft.NET Framework.
- Create a web application with a wide range of controls.
- Learn how to use the features of the Dot Net Framework as well as the features of C#, access the data using inbuilt data access tools.
- Perform database operations for Windows Form and web applications

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