

Network & TCP/IP Programming by Using Microsoft Visual C#

This Course oriented to Programmers and Networks Engineers and Graduate Students who have The Experience in Programming and who Need to Develop Their Experience in TCP/IP and Network Programming, After This Course You Will Be Able to know the Concept of Networking and to Build Advanced Network Applications Such as Messenger Systems, Email Systems, Remote Controlling Applications and Remote Security Systems on .Net Platform, and Analysis and solves any Problem in Network Programming,

An Overview on Networking and TCP/IP

- Introduction to Networking
 - o The Concept of TCP/IP
 - o Packets (Sending and Receiving)
 - o Using Common Network Commands (Ping , ipconfig, net Commands ...)
 - o TCP/IP and Related Protocols (Ex: HTTP, FTP, SMTP, IRC)
 - o DNS (Domain Name System) & DHCP
- The Concept of VPN Virtual Private Network
- The Concept of Component Object Model (COM+)
- Installation & Configuration LAN/WAN Networks
 - o Addressing & Subnetting (Class A, B, C)
 - o Topologies & Cabling
 - o Switches & Routers
 - o Internet Connection Sharing Via Proxy Server
- Network Problems & Debugging
- Network Security & Firewall Fundamental

Introduction to Microsoft .Net Platform:

- What is .Net Framework?
- Benefit of using .Net Framework
- .Net Framework Components
- Languages of .Net Framework and Compare between Them

An Overview on C# Programming:

- Input/output Logical/Mathematical operators
- Compiling, Running and Debugging
- Exceptions (Exception Types, Jumping, Debugging)
- Convert Variables Types (Integers, floating, strings, Boolean ...)
- Arrays (Types of Array, Fill Array, and Read from Array ...)
- Looping (While, do While, For, Foreach) & Conditions (if, if/else, Switch)
- Using Pointers in C# (unsafe code, Reference value)
- Working with Functions
 - o Function Declaration and Function Call
 - o Parameters Contain Sender and Return Value or Void
- Access Modifier (Public, Private, Static, Protected)
- Namespaces in The .Net Framework
- XML Documentation

- An Overview on OOP (Object Oriented Programming) on C#:
 - Classis
 - Inheritance
 - Polymorphisms
 - Overloading
 - Virtual Function & overriding
 - The Concept of Encapsulation
 - An Overview on Windows Application (forms, Controls...)
 - Working with Files :
 - o Stream
 - o Write/Read
 - o Copy/Delete
 - Working With DLL Files:
 - o Create a DLL File
 - o Using External DLL File With own Project
 - Working With Windows Registry

The Concept of ADO.NET (ActiveX Data Object)

- ADO.NET Overview
- Connection to Database (Access DB , SQL Server DB & Oracle Database)
- Data Provider
- Using Dataset to Filling and Reading Data
- Introduction to SQL- Structure Query Language
- Using Controls With ADO.NET For Example Using Textbox to Read and Write Data, DataGrid Control to Read/Write Data
- Create an Application By Using (Select , Insert , Update , Delete)
- Using Streams in ADO.Net
 - o How to Store Images on SQL Server Database
 - o How to Read Images From SQL Server Database
 - o Applications

Specified in Network and TCP/IP Programming:

- The Concept of Socket.
- Remotting and Client/Server Concept
- Using Streams Library (Memory Stream , Network Stream, IO Stream)
- Working with Binary Data in Network Applications.
- Using TCP Connection Oriented and UDP Connectionless
- Using Threading and Multithreading With Network Applications
- The IP Multicasting Concept
- Application Layer Programming SMTP/POP3/HTTP/FTP and DNS Programming
- How to Build Email Systems
- How to Build Chat Systems
- Create Advanced Messenger System
- Remote Controlling Concept.
- Create Advanced Monitoring System by Using Web/Digital Camera
- The Concept of Web Service & XML
- Protecting Network Data cipher block chaining initialization vector (IV)

Network Programming skills:

- How to Solve Your Programming Problems
- Thinking and Analysis
- How to build Your Project

References:

- 1- Christa Anderson, Mastering Local Area Networks , Mastering 1998
- 2- Craig Hunt, TCP/IP Network Administration, O'Reilly 1998
- 3- Richard Blum, C# Network Programming, Sybex 2003.
- 4- Fiach Reid, Network Programming in .NET , ELSEVIER Digital 2004
- 5- Karli Watson, Beginning C#, Wrox Press 2004.
- 6- Simon Robinson, Professional C# 2nd Edition, Wrox Press 2004
- 7- Robert Vieira, Professional SQL Server 2000 Programming, Wrox Press
- 8- Microsoft MSDN 2005, <http://msdn.microsoft.com> , Microsoft Corporation
- 9- C# Corner, www.c-sharpcorner.com , C# Corner Team Ltd 2005.
- 10- Code Project www.codeproject.com/cs , Code Project Team Ltd 2005.

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