

INTRODUCTION TO DELPHI

Topics:

1. Overview of Delphi and the RAD (Rapid Application Development) environment
 - a. History and features of Delphi
 - b. IDE layout and components
 - c. Object Pascal Language (comparison with C#)
 - d. Basic syntax and data types
 - e. Variables, operators, and expressions
 - f. Control flow statements (if, else, switch)
 - g. Loops (for, while, do-while)
 - h. Functions & Procedures

USER INTERFACE DESIGN AND PROGRAMMING

Topics:

1. Visual Component Library (VCL)
 - a. Overview of VCL components (forms, buttons, labels, etc.)
 - b. Working with forms and properties
 - c. Event handling and event-driven programming
 - d. Layout management and user interface design
 - e. Adding and manipulating visual components on forms
 - f. Events and event handling
 - g. Properties and methods of common components
 - h. Layout management (grids, anchors, etc.)
 - i. User interface interaction

OBJECT-ORIENTED PROGRAMMING IN DELPHI

Topics:

1. Object Pascal OOP concepts
 - a. Classes and objects
 - b. Inheritance and polymorphism
 - c. Encapsulation and abstraction
 - d. Interfaces and abstract classes
 - e. Exception Handling
 - f. Packages and units
2. Working with Data and Databases
 - a. Data types and data access components
 - b. Connecting to databases (e.g., SQL Server, MySQL)
 - c. Data processing and manipulation
 - d. Database queries and transactions
 - e. Persistence and data access layers

C# TOPICS

1. Basic C# Topics and comparisons with Delphi.
2. Migration tools from Delphi to C#.

ADVANCED DELPHI TOPICS

Topics:

3. File handling and I/O operations
 - a. Reading and writing text files and binary data
 - b. Working with directories and filesystems
 - c. Networking and web development basics
 - d. Security considerations in Delphi applications
4. Advanced UI Techniques and Features
 - a. Advanced VCL components (custom controls, grids, etc.)
 - b. Multithreading and asynchronous programming
 - c. File handling and I/O operations
 - d. Debugging and error handling techniques
5. Interfacing with External Libraries and APIs and sockets.
 - a. Connecting to COM and ActiveX components
 - b. Using third-party libraries and packages
 - c. Deploying and distributing Delphi applications
6. Case Studies
 - a. Case studies of real-world applications built with Delphi
 - b. Hands-on project - Building a small application using Delphi (e.g., CRUD app, data visualization tool)