Training: Analysis and Design with UML 2.0

The Object Approach

abstraction
Objects
classes
encapsulation
Specialization and generalization
The legacy
Composition
Abstract and concrete classes
Polymorphism
the notion of stereotype in UML

Requirements modeling

use cases
Actor
Scenario
Communication relationship
Relationship between use cases
The extension relationship
Specialization and generalization of use cases

Representation of interactions between objects

The sequence diagram
Sending message
The lifeline of an object
The notion of interaction framework
The communication diagram

The life cycle of an object

States
events
transitions
stock

Properties and state identification

Static modeling of objects

The representation of classes
Associations between objects
The representation of associations between classes
The cardinality of associations
Differences between composition and aggregation

SQL Training, Conceptual Data Modeling

Introduction to SQL training

Definition of a database

Definition of a Database Management System

Define a relational model

Presentation of different SQL languages: LID, DML, LDD

Module 1: Course on LID

SELECT FROM
SELECT WHERE
SELECT ORDER
SELECT LIMIT
SELECT EXPR …
SELECT FROM JOIN
SELECT AGGR GROUP
SELECT AGGR GROUP HAVING

Module 2: Course on data manipulation (LMD)

Beginning of the DML

INSERT
INSERT SELECT
MULTI TABLE INSERT
UPDATE
UPDATE MULTI TABLE
DELETE
DELETE MULTI TABLE

Module 2: Course on the Basics of Data Definition (DDL)

CREATE TABLE
DROP TABLE
ALTER TABLE

Module 3: Theory

Indexes and types of indexes
FK constraints
Basic modeling, explanation of normal forms 1, 2 and 3
Natural key versus complex key

Course – SQL and PL / SQL Training

SQL part

Introduction to SQL training
Definition of a database

Definition of a Database Management System

Define a relational model

Tables and referential integrity

Practical workshop: Installing tools (wampserver and mysqlworkbench)

Understand modeling

Vocabulary of the relational model

Normal forms

Practical Workshop: Creating a Conceptual Data Model

The data definition language (LDD)

Creating tables: syntax

Data types

Types of constraints

Changing the definition of a table

Deleting a table

Introduction to views

Indexes

Transactions overview

Practical workshop: Setting up and modifying the structure of our database

Data manipulation language (DML)

Insertion of lines (INSERT)

Insert multiple rows

Insert from a SELECT

Updated with UPDATE

UPDATE with subqueries

Deletion of registration (DELETE)

Practical Workshop: Modifying the contents of our database

The data query language (LID)

Projection

Selection (or restriction)

The join

Sorting

Practical Workshop: Extraction of data meeting a defined need using restriction criteria, operations and sorting.

Advanced Use

GROUP BY and HAVING

Arithmetic functions

String functions

Transactions: COMMIT and ROLLBACK
Data access control: GRANT, REVOKE

PL / SQL part

Understand PL / SQL
Structure of a PL / SQL program block
Use the Declare Clause
Use the Begin Clause
Creating stored procedures and functions
Running Stored Procedures and Functions

Training: WPF Interface Development with C# and Visual Studio

Module 1 – Introduction and WPF Fundamentals

- Overview of WPF and comparison with Windows Forms

- WPF architecture: XAML, Code-Behind, Data Binding
- Creating your first WPF project in Visual Studio
- Understanding XAML and its relationship with C#
- Using core controls (Button, TextBox, Label, ListBox, etc.)
- Organizing the interface with layout containers (Grid, StackPanel, DockPanel, WrapPanel)

Module 2 — Styling and Layout

- Managing resources (Resources, ResourceDictionaries)
- Introduction to styles (Styles, Control Templates)
- Applying themes and customizing controls
- Using layouts to build flexible user interfaces
- Introduction to event handling in WPF
- Hands-on exercise: building a cohesive mini user interface

Module 3 — Data Binding and MVVM

- In-depth understanding of DataContext and Binding
- Binding modes (One-Way, Two-Way, etc.)
- Working with lists and collections (ItemsControl, ListView, DataGrid)
- Data validation and conversion (ValueConverters)
- Introduction to the MVVM pattern (Model-View-ViewModel)
- Practical case study: implementing a basic MVVM architecture

Module 4 — Practical Project and Advanced Features

- Navigation between views (UserControl, Pages, Navigation)
- Command handling (Commands, RelayCommand)
- Interacting with a database or service (simple example using Entity Framework or a mock API)
- Managing multimedia resources (images, icons)
- Best practices for structuring a WPF project
- Final workshop: developing a complete interface aligned with your C# project

PHP Training: The Most Comprehensive Course

Introduction to PHP Training

Learning the Basics of PHP

Why Use PHP?
Structure of a PHP Page
Embedding PHP Code in an HTML Document
Variable Types
Declaring and Using Arrays
Constants
Operators
Loops and Conditional Statements
Superglobal Variables
Retrieving Form Data
Sending Emails

Hands-on Workshop: *Review of core HTML tags and styling commands, setting up a template page*

Creating Functions and Using Built-in Functions

Declaring Functions
Parameters and the Return Statement
Creating Function Libraries
Built-in Functions: Examples, Organization, Documentation
Functions for Dates, Arrays, and Strings
Include and Require Functions

Hands-on Workshop: *Creating custom functions and using built-in functions*

Processing Form Data

Creating a Form
Retrieving Form Data
File Uploads: The $_FILES Variable and Related Functions
Sending Emails

Hands-on Workshop: *Building a job application form*

Interacting with Users

Retrieving and Using GET Parameters
Using Cookies to Store Information
File Uploads: The $_FILES Variable and Related Functions
Sending Emails

Hands-on Workshop: *Building a job application form*

phpMyAdmin

Overview of phpMyAdmin

Creating a Database with phpMyAdmin
Creating Tables and Exploring Field Types
Modifying Table Structure

Hands-on Workshop: *Creating a MySQL database and tables*

SQL

Selecting Records (SELECT)
Inserting Records (INSERT INTO)
Updating Records (UPDATE)
Deleting Records (DELETE)
Operators and Conditions

Hands-on Workshop: *Writing basic SQL queries*

Using a MySQL Database with PHP

Overview of Database Management Systems
Data Types
Connecting to a MySQL Server
Populating the Database from a Form
Inserting Data into the Database with PHP
Updating Data with PHP
Deleting Data with PHP
Securing Data Before Sending to MySQL

Hands-on Workshop: *Storing job application form data in the database*

Cookies & Sessions

Session Overview
Advantages and Disadvantages of Cookies and Sessions
Storing and Retrieving Session Variables
Storing and Retrieving Cookie Variables

Hands-on Workshop: *Building a simple shopping cart and user interface*

Working with Files

Opening and Writing Files

SQL: Advanced Concepts

Tables and Relationships
Joins: INNER, LEFT, and RIGHT JOIN

Hands-on Workshop: *Writing SQL queries across multiple tables*

Building a Mini CMS

CMS Concepts
Existing CMS Platforms
Introduction to Data Modeling
Creating the Public Interface
Creating the Admin Interface
User Management

Hands-on Workshop: *Library management application*

XML

Overview of the XML Format
Writing an XML Document
Introduction to XML

Hands-on Workshop: *Creating an RSS feed and generating a sitemap for the library project*

Advanced Training: HTML5 / CSS3, JavaScript / DOM + Responsive Design

Advanced Training Introduction: HTML5/CSS3, JavaScript/DOM + Responsive Design

Why HTML5?

Tag formatting

HTML, CSS, XHTML, XML, HTML5 standards

The W3C and validators

Encoding logic, ISO-8859-1, UTF-8,..

Basic Concepts Review

Tag types

Style rule syntax

CSS positioning (relative, absolute, float, display)

Practical Workshop: *Create an XHTML/CSS site*

Transition to HTML5

Syntax, new doctype, and tools

Structure and semantics

Div and span

New HTML5 tags

Practical Workshop: *Rebuild our site using HTML5/CSS3*

Multimedia Tags

Insert an image (<figure> tag)

Insert a video (<video> tag)

Insert audio (<audio> tag)

Browser compatibility

Practical Workshop: *Use JavaScript to control audio and video objects*

Forms

New types for <input>

New attributes

New elements <output>

Form validations in HTML5

Practical Workshop: *Create an HTML5 form*

Drawing: Dynamic Image Creation with JavaScript

Canvas tag

SVG

Drawing shapes (rectangle, circle, etc.)

Colors, fills, gradients

Practical Workshop: *Enhance video playback with a progress bar*

Geolocation

Overview

Positioning (latitude, longitude)

CSS3

Overview

Syntax, CSS3 prefixes

Rounded corners

Drop shadows

Text-Shadow

Box-shadow

Linear gradients

font-face

Attribute selectors

CSS3: Transformations, Transitions, and Animations

Rotation

Translation

Animations

Practical Workshop: *Animate various element properties*

Introduction to JavaScript

JavaScript Basics

Core JavaScript concepts

Event handling

Dynamic CSS management

Practical Workshop: *Validate fields in our contact form*

Document Object Model

What is the DOM?

Node concept

Node hierarchy (DOM Tree)

Relation properties

State properties

Node access methods

Firefox DOM Inspector

Modify HTML content

Modify HTML element styles

Practical Workshop: *Create a photo gallery*

Responsive Design

Principles

CSS 3 Media Queries

Practical Workshop: *Create a multi-platform site (smartphone, tablet, etc.)*

Using Bootstrap

Introduction to Bootstrap

Bootstrap installation

Grid system for positioning

Layouts

Responsive Design

Practical Workshop: *Create a page using Bootstrap*

Bootstrap Components

Dropdown menus

Navigation bars

Breadcrumbs

Java Training: The Most Complete Training

Introduction to Java Training

Establishment of the development environment
Java programming syntax

Structure of a .java file

Primitive type variable and operator

Comment and document code

The conditions in the code: if / else, ….

Comparison and logic operators

The tables

Buckles

Class method

Object-oriented programming

Goal

OOP comparison and procedural language

Class and object

Methods and attributes

Relationships between classes

Interface concept

Abstract class

Practical Workshop: Class Designs and Linking Classes

Exceptions in the Java language

Principle of an exception

Manipulate exceptions

Java input / output management

Package java.io

Operator reading / writing

Format: binary, text

Character set and encoding

Collections & Files

Presentation of the collections

Iterate on collections

Log Management: java.util.logging

Reading and writing files

Using buffers

Practical workshop: Manipulation of object collections

Java and databases

Principle of the JDBC API

Connect to a database

Retrieve data from a database

Link database data with Java objects

Insert data into the database

Training – JavaScript course

Introduction to the JavaScript Training

Course Overview
Setting Up the Development Environment

JavaScript Language Fundamentals

Variables in JavaScript
Reserved Keywords in JavaScript
Variables, Constants, and Operators
Comments
Introduction to Object-Oriented Concepts

Hands-on Workshop: *Implementing core JavaScript features through multiple practical exercises.*

Event Handling (addEventListener)

Understanding Events
Common JavaScript Events
Adding an Event Listener
Associating Logic with an Event
Mouse Events
Keyboard Events

Hands-on Workshop: *Dynamically modifying image properties*

Debugging JavaScript

Browser Developer Tools
Firefox Extensions
Chrome Extensions

Control Structures and Loops

if…else Statements
The for Loop
The while Loop
break and continue Statements

Methods and Functions

Built-in Methods (alert(), confirm(), prompt(), etc.)
Defining a Function
Function Parameters

Local and Global Variables
The return Statement

Hands-on Workshop: *Building a timer*

Form Processing

The Form Object (Properties and Methods)
Text Inputs
Radio Buttons
Checkboxes
Dropdown Menus
Submit Button

Hands-on Workshop 1: *Form validation*

Hands-on Workshop 2: *Validating a form field using regular expressions*

JavaScript Objects, String and Array Manipulation

Overview of Built-in JavaScript Objects
The window Object
The navigator Object
The String Object
The Array Object
The Date Object
Other Built-in Objects

Hands-on Workshop: *Retrieving browser information and manipulating the window*

Document Object Model (DOM)

What Is the DOM?
Core Concepts
DOM Tree Structure
Relationship Properties
State Properties
Node Access Methods
Modifying HTML Content
Modifying HTML Element Styles

Hands-on Workshop 1: Creating a photo gallery

Hands-on Workshop 2: Building a dynamic menu

Introduction to AJAX / The Fetch API

How It Works
Asynchronous Programming

The XMLHttpRequest Object
Creating a fetch() Request
Handling Errors
async and await Syntax

Hands-on Workshop: *Reading the contents of a text file from a server*

Continue Your Learning with This Training

[React.JS](#)

Java Training: Level 1

Introduction to Java Training

Setting Up the Development Environment

Java Programming Syntax

Structure of a .java File
Primitive Data Types and Operators
Commenting and Documenting Code
Conditional Statements: if/else, etc.
Comparison and Logical Operators
Arrays
Loops
Class Methods

Object-Oriented Programming

Objectives
OOP vs. Procedural Programming
Classes and Objects
Methods and Attributes
Relationships Between Classes
Interface Concept
Abstract Classes

Hands-on Workshop: *Designing classes and defining relationships between them*

Exceptions in Java

Exception Handling Principles
Working with Exceptions

Collections

Overview of Collections
Iterating Through Collections

Hands-on Workshop: *Working with object collections*