

ADVANCE DIPLOMA IN COMPUTER COURSES

ADCA – 12 MONTHS

Basic Fundamentals of Computer

- ✓ Desktop Environment
- ✓ Understanding the Start Menu and Taskbar.
- ✓ Navigating system folders: Documents, Downloads, and Pictures.
- ✓ File Management:
- ✓ Creating, Renaming, and Deleting
- ✓ Files/Folders.
- ✓ Understanding File Extensions and Types.
- ✓ OS APPLICATIONS
- ✓ ms paint
- ✓ wordpad
- ✓ ms-word

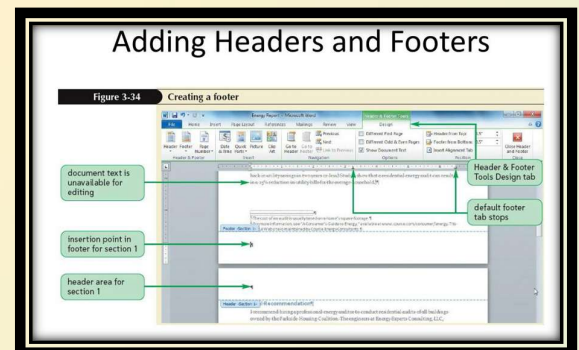


Microsoft Word

- ✓ Home Tab:
- ✓ Font Formatting: Bold, Italic, Underline, Font Size, and Color.
- ✓ Paragraph Formatting: Alignment, Line Spacing, Indentation, Bullets, and Numbering.
- ✓ Styles: Applying and Modifying
- ✓ Styles.
- ✓ Insert Tab:
- ✓ Inserting Tables, Pictures, Shapes, and SmartArt.
- ✓ Adding Headers, Footers, and Page Numbers.
- ✓ Creating and Formatting Tables.
- ✓ Design Tab:
- ✓ Document Themes and Styles.
- ✓ Page Backgrounds: Colors, Watermarks, and Borders.
- ✓ Layout Tab:
- ✓ Setting Margins, Orientation, and Size.
- ✓ Paragraph Spacing and Indentation.
- ✓ Column Layouts and Page Breaks.
- ✓ References Tab:
- ✓ Inserting Table of Contents, Footnotes, and Endnotes.
- ✓ Adding Citations, Bibliography, and Captions.
- ✓ Managing Sources and Cross-References.
- ✓ Mailings Tab:
- ✓ Creating Mail Merge Documents for Letters, Labels, and Envelopes.
- ✓ Setting Up Recipients and Merging Fields.
- ✓ Previewing and Completing the Mail Merge.
- ✓ Review Tab:
- ✓ Spelling & Grammar Check.
- ✓ Using Thesaurus and Word Count.
- ✓ Track Changes, Comments, and Comparing Documents
- ✓ View Tab:
- ✓ Document Views: Read Mode, Print Layout, and Web Layout.
- ✓ Show/Hide Ruler, Gridlines, and Navigation Pane.
- ✓ Managing Windows: Split, Arrange, and Switch Resume Format in MS WORD



Adding Headers and Footers

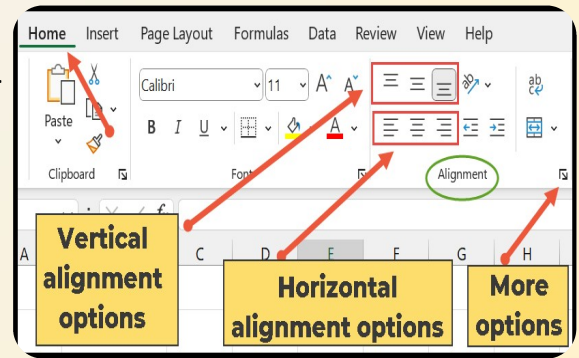


Microsoft Excel

- ✓ Introduction to Excel:
- ✓ Understanding the Excel Interface: Ribbon, Workbook, Worksheets.
- ✓ Basic Data Entry: Numbers, Text, Dates.
- ✓ Formats of Cells:
- ✓ Formatting Cells: Font, Alignment, Number, Border, Fill, and Protection.
- ✓ Conditional Formatting: Applying Rules, Using Data Bars, Color Scales, and Icon Sets.
- ✓ Working with Cells:
- ✓ Inserting, Deleting, Merging, and Splitting Cells.
- ✓ Protection of Excel Data: Locking Cells, Protecting Worksheets, and Workbooks.
- ✓ Working with Charts:
- ✓ Creating and Customizing Charts: Column, Line, Pie, Bar.
- ✓ Formatting Chart Elements: Titles, Legends, Axes, Data Labels.
- ✓ Formulas and Functions:
- ✓ Basic Arithmetic: SUM, SUBTRACTION, MULTIPLICATION, DIVISION.
- ✓ AVERAGE Formula, RANK Function.
- ✓ Conditional Functions: IF, COUNTIF, SUMIF.
- ✓ Advanced Conditional Functions: COUNTIFS, SUMIFS with Multiple Conditions.
- ✓ Lookup Functions: VLOOKUP, HLOOKUP, LOOKUP.
- ✓ Fixing Formulas: Absolute and Relative References
- ✓ Financial Functions: PMT (Per Month Installment Calculation), Simple Interest Calculation.
- ✓ Running Total: Creating a Cumulative Sum.
- ✓ Text Functions: CONCATENATE, LEFT, RIGHT, MID, UPPER, LOWER, PROPER.
- ✓ Rounding Functions: ROUND, ROUNDUP, ROUNDDOWN.
- ✓ Worksheets:
- ✓ Managing Worksheets: Inserting, Deleting, Renaming, Moving, and Copying.
- ✓ Formatting Worksheets: Headers, Footers, Page Setup, and Printing.
- ✓ Practical Applications:
- ✓ Mark Sheet Creation: Using Formulas to Calculate Totals, Averages, and Grades.
- ✓ Payroll Sheet Creation: Managing Salaries, Taxes, and Deductions.
- ✓ Bills Creation with GST: Designing and Calculating Tax in Excel.
- ✓ Attendance Sheet Format: Tracking and Analyzing Attendance Data

Microsoft Powerpoint

- ✓ Creating Presentations:
- ✓ Selecting Themes and Layouts.
- ✓ Inserting and Formatting Text, Images, and Shapes.
- ✓ Adding and Arranging Slides.
- ✓ Design and Formatting:
- ✓ Using Slide Master for Consistent Design.
- ✓ Applying Transitions and Animations.



COUNTIF FUNCTION IN EXCEL

COUNTIF FUNCTION IN EXCEL is used to find the number of cells that satisfy the condition.

SYNTAX & ARGUMENTS

=COUNTIF(range,criteria)

- **range** – In this argument, specify the criteria to check for.
- **criteria** – In this argument, specify the actual condition.

Note that, this function will calculate number of cells from the range where the criteria is TRUE. It is not case sensitive.

EXAMPLE

Finding the number of students who score more than 80 marks

Formula	Result
=COUNTIF(A2:A13,">80")	2

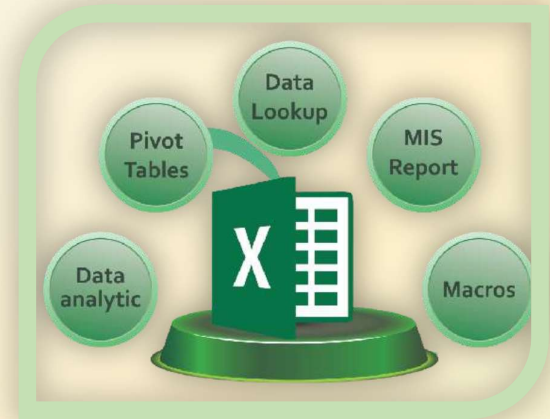
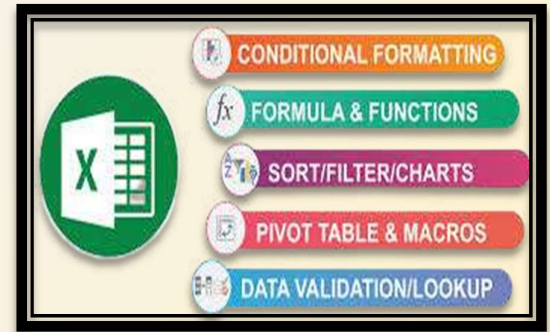
- ✓ Customizing Slide Backgrounds and Themes.
- ✓ Multimedia and Interactivity:
- ✓ Embedding Videos and Audio.
- ✓ Creating Hyperlinks and Action Buttons.
- ✓ Designing Interactive Presentations.
- ✓ Software Installation
- ✓ Mailing
- ✓ Final Project:
- ✓ Comprehensive Project Combining Word, Excel, and PowerPoint.
- ✓ Creating Creative Templates and Resume Format in MS WORD

ADVANCE EXCEL

- ✓ Excel Interface Overview
- ✓ Ribbon, Toolbars, And Key Shortcuts
- ✓ Customizing The Excel Interface
- ✓ Basic Excel Operations
- ✓ Creating, Saving, And Navigating Workbooks
- ✓ Understanding Cells, Rows, Columns, And Ranges
- ✓ Arithmetic And Logical Operations
- ✓ Sum, Average, Min, Max ,If, And, Or, Not
- ✓ Text Functions Concatenate, Textjoin, Trim, Len
- ✓ Find, Replace, Upper, Lower,Data Entry Techniques
- ✓ Autofill, Flash Fill,Data Validation And Dropdown Lists
- ✓ Formatting Techniques
- ✓ Number Formatting, Custom Formats
- ✓ **CONDITIONAL FORMATTING BASICS**
- ✓ Managing Worksheets
- ✓ Adding, Deleting, And Moving Sheets
- ✓ Grouping And Linking Worksheets
- ✓ Introduction To Sorting And Filtering
- ✓ Custom Sorts, Advanced Filters
- ✓ Using Subtotals,Basic Charts
- ✓ Creating And Customizing Chart
- ✓ Sorting By Custom Lists

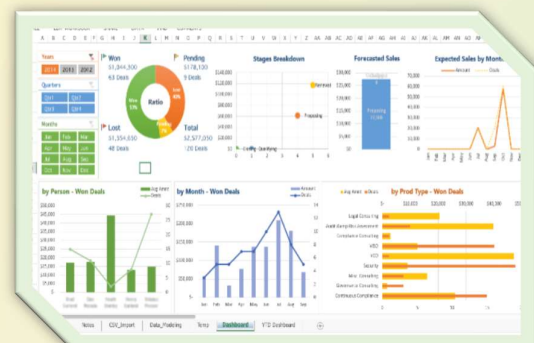
USING MULTIPLE CRITERIA IN FILTER

- ✓ Using Sparklines For Data Visualization
- ✓ Lookup & Reference Functions
- ✓ Vlookup, Hlookup, Xlookup
- ✓ Index And Match ,Date & Time Functions
- ✓ Today, Now, Datedif,Networkdays, Workdays
- ✓ New Excel Formulas In Ms Office 2024
- ✓ Textsplit: Splitting Text Strings Into Arrays
- ✓ Textbefore And Textafter: Extracting Text Based On Delimiters.
- ✓ Lambda: Creating Custom Functions
- ✓ Let: Storing Intermediate Calculations And Values.
- ✓ Arraytotext: Converting An Array To Text Format.
- ✓ Advanced Sorting And Filter
- ✓ Removing Duplicates
- ✓ Text To Columns For Data Parsing
- ✓ Using Flash Fill For Data Cleaning



10 Advanced Formulas of Excel

1	Index And Match	6	Frequency Formula
2	Choose Formula	7	Subtotal Formula
3	Indirect Formula	8	Sumifs Formula
4	Correl Formula	9	Whatif Analysis
5	Forecast Formula	10	Isnumber Formula



INTRODUCTION TO PIVOT TABLES

- ✓ Creating and Modifying Pivot Tables
- ✓ Grouping and Filtering Data in Pivot Tables
- ✓ Advanced Pivot Table Techniques
- ✓ Calculated Fields and Items
- ✓ Slicers and Timelines
- ✓ Pivot Charts
- ✓ Creating and Customizing Pivot Charts
- ✓ Using Pivot Charts for Dynamic Reporting
- ✓ Advanced Conditional Formatting
- ✓ Using Formulas in Conditional Formatting
- ✓ Icon Sets, Data Bars, and Color Scales
- ✓ Data Validation Techniques
- ✓ Custom Data Validation Rules
- ✓ Error Messages and Input Messages

POWER QUERY BASICS

- ✓ Introduction to Power Query
- ✓ Data Import from Various Sources
- ✓ Basic Data Transformation (Merge, Append)
- ✓ Cleaning Data with Power Query
- ✓ Advanced Data Manipulation
- ✓ Unpivoting Data
- ✓ Creating Custom Columns and Conditional Columns
- ✓ Advanced Charting Techniques
- ✓ Waterfall, Funnel, and Radar Charts
- ✓ Combo Charts with Secondary Axes
- ✓ Interactive Dashboards
- ✓ Creating Interactive Elements (Slicers, Buttons)
- ✓ Linking Charts and Tables in Dashboards
- ✓ Dynamic Charting
- ✓ Using Named Ranges and OFFSET for Dynamic Charts

INTRODUCTION TO POWER PIVOT

- ✓ Creating Data Models
- ✓ Understanding Relationships and Hierarchies
- ✓ Advanced Power Pivot
- ✓ Calculated Columns and Measures
- ✓ Using DAX Functions for Data Analysis
- ✓ Sharing and Protecting Workbooks
- ✓ Workbook Protection Techniques
- ✓ Tracking Changes and Managing Comments

WEB DEVELOPMENT

HTML PROGRAMMING COURSE

MODULE 1: BASIC HTML STRUCTURE TAGS

- ✓ HTML document structure (<!DOCTYPE html>, <html>, <head>, <body>)
- ✓ Head elements:
 - <title>
 - <meta> tags
 - <link> to external files



Top 10 Queries??? in Advance Excel

Table 1		Table 2	
Name	Salary	Name	Salary
osuf Peter	447,877	Yosuf	447,877
amesh P	449,267	Ramesh	449,267
hahab islam	332,857	Shahab	332,857
arun Chandru	282,287	Tarun	282,287
habbir ghor	272,071	Shabbir	272,071
aran Gowda	458,393	Karan	458,393



Work Smarter, Not Harder

Work Smarter, Not Harder



- ✓ Body elements:
 - Headings (<h1>—<h6>)
 - Paragraphs (<p>)
 - Line breaks (
) and horizontal rules (<hr>)

MODULE 2: TEXT FORMATTING S LISTS

- ✓ Bold, italic, underline (, <i>, <u>, ,)
- ✓ Superscript and subscript (<sup>, <sub>)
- ✓ Lists:
 - Ordered lists ()
 - Unordered lists ()
 - Definition lists (<dl>)

MODULE 3: LINKS S NAVIGATION

- ✓ Creating hyperlinks (<a>)
- ✓ Internal vs external links
- ✓ Email and phone links
- ✓ Opening links in new tabs (target="_blank")
- ✓ Using anchors for page navigation

MODULE 4: IMAGES S MEDIA

- ✓ Inserting images ()
- ✓ Image attributes (src, alt, width, height)
- ✓ Adding videos (<video>)
- ✓ Adding audio (<audio>)
- ✓ Embedding external content (YouTube, GoogleMaps with <iframe>)

MODULE 5: TABLES IN HTML

- ✓ Creating a table (<table>)
- ✓ Table headers (<th>), rows (<tr>), and cells (<td>)
- ✓ Merging cells (colspan, rowspan)
- ✓ Adding borders and captions
- ✓ Best practices for table accessibility

MODULE 6: FORMS IN HTML

- ✓ Form basics (<form>, action, method)
- ✓ Input fields (<input>, <textarea>)
- ✓ Drop-down lists (<select>, <option>)
- ✓ Radio buttons and checkboxes
- ✓ Submit and reset buttons
- ✓ HTML5 form attributes (required, placeholder, pattern)

MODULE 7: SEMANTIC HTML

- ✓ Understanding semantic tags
- ✓ <header>, <footer>, <nav>, <main>, <article>, <section>, <aside>
- ✓ Benefits for SEO and accessibility

MODULE 8: HTML5 FEATURES

- ✓ New input types (email, date, color, number)
- ✓ <figure> and <figcaption>
- ✓ <progress> and <meter>
- ✓ <details> and <summary> for collapsible content

Module 9: Project Work s Practice

- ✓ Mini-project ideas:
 - Personal portfolio webpage
 - Product catalog page
 - Resume/CV in HTML



- Event registration form
- ✓ Debugging HTML code

CSS PROGRAMMING COURSE

MODULE 1: INTRODUCTION TO CSS

- ✓ What is CSS? Purpose and importance in web design
- ✓ Difference between HTML and CSS
- ✓ CSS syntax (selectors, properties, values)
- ✓ Types of CSS:
 - ✓ Inline CSS
 - ✓ Internal CSS
 - ✓ External CSS
- ✓ Linking CSS to HTML (<style>, <link>)

MODULE 2:

- ✓ Basic selectors:
 - ✓ Element, ID, and class selectors
 - ✓ Grouping and universal selectors
 - ✓ Descendant, child, and sibling selectors
 - ✓ Attribute selectors
- ✓ CSS colors:
 - ✓ Named colors, HEX, RGB, RGBA, HSL, HSLA

MODULE 3: TEXT & FONT STYLING

- ✓ Changing font family, size, and style
- ✓ Font weight and letter spacing
- ✓ Text alignment and decoration
- ✓ Line height and word spacing
- ✓ Google Fonts integration

MODULE 4: BOX MODEL & BORDERS

- ✓ Understanding the CSS box model (content, padding, border, margin)
- ✓ Setting width and height
- ✓ Borders: style, width, and color
- ✓ Border radius for rounded corners
- ✓ Outline vs border

MODULE 5: BACKGROUNDS

- ✓ Background color
- ✓ Background images (background-image)
- ✓ Background repeat, size, position
- ✓ Gradient backgrounds (linear and radial)

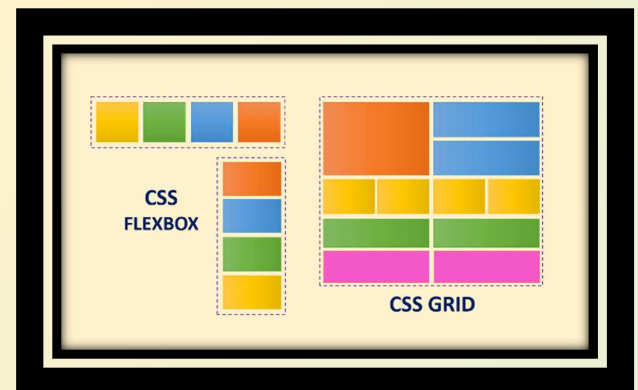
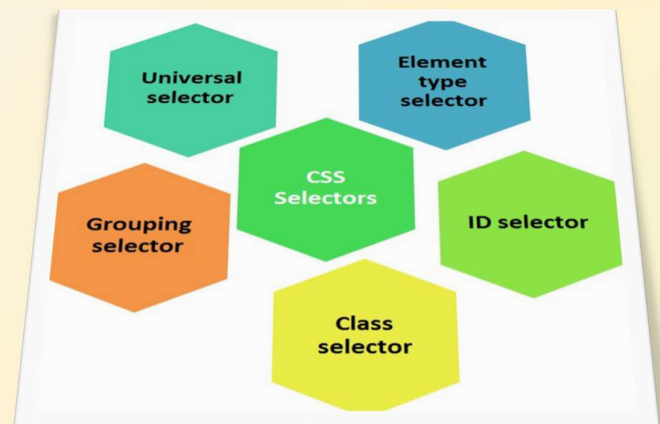
MODULE 6: CSS LAYOUT BASICS

- ✓ Display property (block, inline, inline-block, none)
- ✓ Positioning (static, relative, absolute, fixed, sticky)
- ✓ Z-index for layering elements
- ✓ Float and clear
- ✓ Overflow control

MODULE 7: FLEXBOX

- ✓ Introduction to flexbox
- ✓ Main axis and cross axis
- ✓ Flex container properties:
 - display: flex
 - flex-direction, justify-content, align-items, flex-wrap
- ✓ Flex item properties:
 - order, flex-grow, flex-shrink, flex-basis

MODULE 8: CSS GRID



- ✓ Introduction to CSS Grid layout
- ✓ Creating grid containers (display: grid)
- ✓ Defining rows and columns
- ✓ Grid gap and alignment
- ✓ Spanning rows and columns

MODULE 9: STYLING LISTS, LINKS & TABLES

- ✓ Customizing bullet points and numbering
- ✓ Styling links (:link, :hover, :active, :visited)
- ✓ Table styling (borders, spacing, striping rows)

MODULE 10: CSS TRANSITIONS, TRANSFORMS ANIMATIONS

- ✓ CSS transitions (duration, delay, timing function)
- ✓ CSS transforms (rotate, scale, translate, skew)
- ✓ Keyframe animations (@keyframes)
- ✓ Animation properties (animation-name, animation-duration, animation-iteration-count)

MODULE 11: RESPONSIVE DESIGN

- ✓ Introduction to responsive design
- ✓ Viewport meta tag
- ✓ Media queries (@media)
- ✓ Flexible images and text
- ✓ Mobile-first design approach

MODULE 12: PROJECT WORK & PRACTICE

- ✓ Mini-project ideas:
 - Responsive personal portfolio website
 - Animated landing page
 - Product card UI design
 - Navigation bar with hover effects
 - Debugging CSS issues

✓ JAVA SCRIPT

MODULE 1: JAVA BASICS

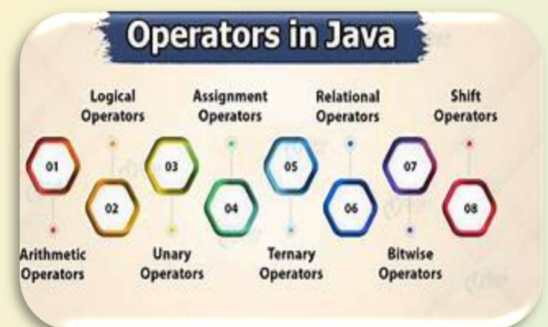
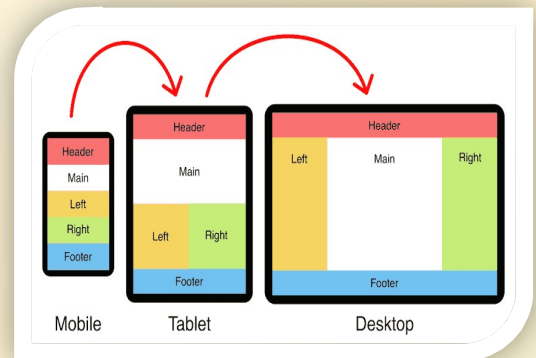
- ✓ Variables and data types
- ✓ Constants (final keyword)
- ✓ Type casting
- ✓ Input and output (System.out.print, System.out.println, Scanner class)
- ✓ Comments and documentation (javadoc)
- ✓ Reserved keywords

MODULE 2: OPERATORS IN JAVA

- ✓ Arithmetic operators
- ✓ Relational operators
- ✓ Logical operators
- ✓ Assignment operators
- ✓ Increment & decrement operators
- ✓ Conditional (ternary) operator
- ✓ Bitwise operators
- ✓ Operator precedence

MODULE 2: OPERATORS IN JAVA

- ✓ Arithmetic operators
- ✓ Relational operators
- ✓ Logical operators



- ✓ Assignment operators
- ✓ Increment & decrement operators
- ✓ Conditional (ternary) operator
- ✓ Bitwise operators
- ✓ Operator precedence

MODULE 4: ARRAYS AND STRINGS

- ✓ Single-dimensional arrays
- ✓ Multi-dimensional arrays
- ✓ Array manipulation and traversal
- ✓ String class and common methods
- ✓ StringBuffer and StringBuilder
- ✓ String immutability concept

MODULE 5: METHODS IN JAVA

- ✓ Declaring and calling methods
- ✓ Method parameters and return types
- ✓ Method overloading
- ✓ Variable scope and lifetime
- ✓ Recursion

MODULE 6: OBJECT-ORIENTED PROGRAMMING (OOP) IN JAVA

- ✓ Classes and objects
- ✓ Data members and member functions
- ✓ Constructors and this keyword
- ✓ Access modifiers (public, private, protected)
- ✓ Static members and methods

MODULE 7: ADVANCED OOP CONCEPTS

- ✓ Inheritance (single, multilevel, hierarchical)
- ✓ Method overriding
- ✓ Polymorphism (compile-time & run-time)
- ✓ Abstraction:
 - ✓ Abstract classes
 - ✓ Interfaces
- ✓ Encapsulation
- ✓ Final keyword in variables, methods, and classes

Module 8: Packages and Access Control

- ✓ Using packages
- ✓ Built-in Java packages (java.util, java.io, etc.)
- ✓ Access control levels

Module 9: Exception Handling

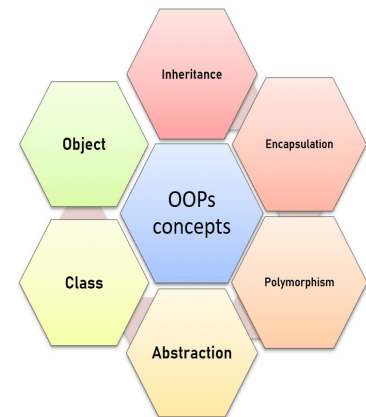
- ✓ Types of exceptions
- ✓ Try-catch blocks
- ✓ Multiple catch blocks
- ✓ Finally block
- ✓ Throw and throws
- ✓ Custom exceptions

Module 10: Java Collections Framework

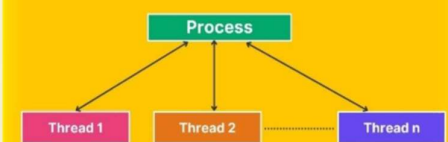
- ✓ Collection hierarchy overview
- ✓ Lists: ArrayList, LinkedList
- ✓ Sets: HashSet, TreeSet
- ✓ Maps: HashMap, TreeMap
- ✓ Iterators and enhanced for loop



Object Oriented Programming in Java



Understanding Multithreading In Java Programming



- ✓ Generics

Module 11: File Handling

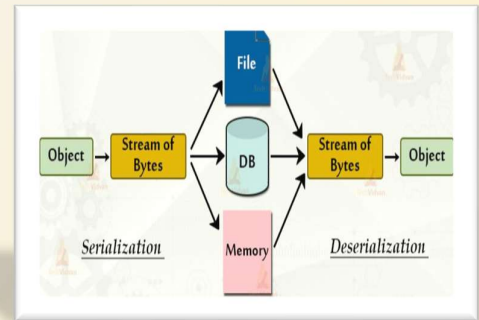
- ✓ File I/O streams
- ✓ Reading and writing text files
- ✓ Reading and writing binary files
- ✓ Serialization and deserialization

Module 12: Multithreading

- ✓ Introduction to threads
- ✓ Creating threads by extending Thread class and implementing Runnable
- ✓ Thread lifecycle
- ✓ Thread synchronization
- ✓ Inter-thread communication

Module 13: Project Work s Practice

- ✓ Mini-project ideas:
 - Library management system
 - Online quiz application
 - Banking application
 - File-based contact manager
- ✓ Debugging and best coding practices



PROGRAMMING LANGUAGES

C PROGRAMMING COURSE

Module 1 C LANGUAGE FUNDAMENTALS

- ✓ Variables and data types
- ✓ Constants and literals
- ✓ Keywords in C
- ✓ printf() and scanf() functions
- ✓ Comments and code readability
- ✓ Escape sequences

MODULE 2 OPERATORS AND EXPRESSIONS

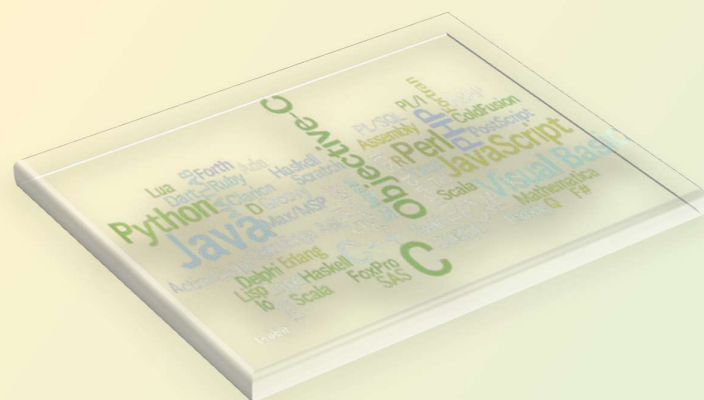
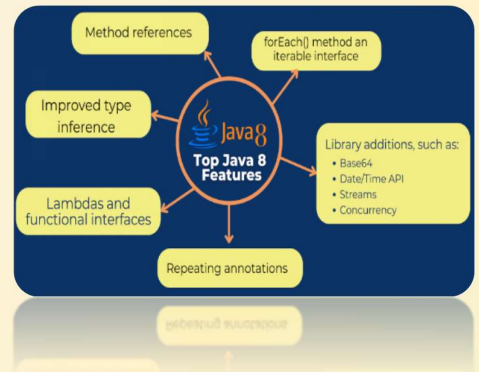
- ✓ Arithmetic operators
- ✓ Relational operators
- ✓ Logical operators
- ✓ Assignment operators
- ✓ Increment C decrement operators
- ✓ Conditional (ternary) operator
- ✓ Operator precedence and associativity

MODULE 3: CONTROL FLOW

- ✓ Decision-making:
 - if, if-else, nested if-else
 - switch-case
- ✓ Looping:
 - for loop
 - while loop
 - do-while loop
- ✓ break and continue statements
- ✓ goto statement (and why to avoid it)

MODULE 4: FUNCTIONS IN C

- ✓ Declaring and defining functions
- ✓ Function parameters and return values
- ✓ Scope and lifetime of variables
- ✓ Recursion in C



- ✓ Passing arguments (by value vs by reference)

MODULE 5: ARRAYS AND STRINGS

- ✓ One-dimensional arrays
- ✓ Multi-dimensional arrays
- ✓ Array initialization and traversal
- ✓ Introduction to strings
- ✓ String handling functions (strlen, strcpy, strcat, strcmp)
- ✓ Character arrays vs string literals

Module 6: POINTERS

- ✓ Introduction To Pointers
- ✓ Pointer Arithmetic
- ✓ Pointers And Arrays
- ✓ Pointers And Functions
- ✓ Null Pointer
- ✓ Void Pointers

Module 7: STRUCTURES AND UNIONS

- ✓ Defining And Declaring Structures
- ✓ Accessing Members
- ✓ Nested Structures
- ✓ Arrays Of Structures
- ✓ Introduction To Unions
- ✓ Difference Between Structures And Unions

Module 8: DYNAMIC MEMORY ALLOCATION

- ✓ Malloc(), Calloc(), Realloc(), And Free()
- ✓ Memory Leaks And Best Practices
- ✓ Module G: File Handling
- ✓ File Operations: Read, Write, Append
- ✓ Text Files Vs Binary Files
- ✓ File Handling Functions (Fopen, Fclose, Fgetc, Fputc, Fgets, Fputs, Fprintf, Fscanf)
- ✓ Error Handling In File Operations

Module 9: PROJECT WORK S PRACTICE

- ✓ Mini-Project Ideas:
- ✓ Student Record Management System
- ✓ Simple Calculator
- ✓ Tic-Tac-Toe Game
- ✓ Debugging And Troubleshooting
- ✓ Best Practices In Coding

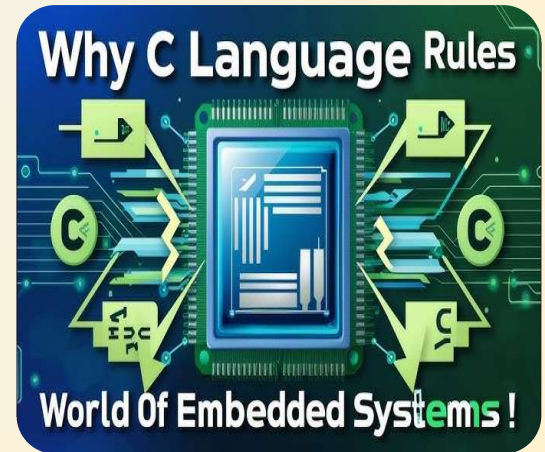
C++ PROGRAMMING COURSE

Module 1: C++ Language Basics

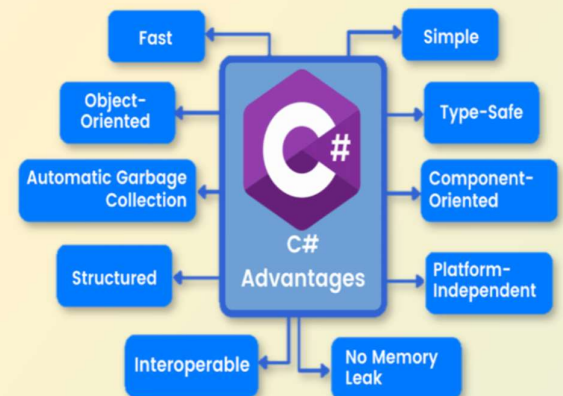
- ✓ Variables, constants, and literals
- ✓ Data types in C++
- ✓ Input and output using cin and cout
- ✓ Type casting
- ✓ Comments and code readability

Module 2: Operators and Expressions

- ✓ Arithmetic operators
- ✓ Relational operators
- ✓ Logical operators
- ✓ Assignment operators
- ✓ Increment C decrement operators
- ✓ Conditional (ternary) operator
- ✓ Scope resolution operator (::)



PROGRAMMING



- ✓ Operator precedence and associativity

MODULE 3: CONTROL FLOW

- ✓ Decision-making:
- ✓ if, if-else, nested if-else
- ✓ switch-case
- ✓ Looping:
- ✓ for loop
- ✓ while loop
- ✓ do-while loop
- ✓ break and continue
- ✓ goto statement (and why to avoid it)

MODULE 4: FUNCTIONS IN C++

- ✓ Declaring and defining functions
- ✓ Function parameters and return types
- ✓ Default arguments
- ✓ Inline functions
- ✓ Function overloading
- ✓ Recursion
- ✓ Passing arguments by value and reference

MODULE 5: OBJECT-ORIENTED PROGRAMMING

(OOP) CONCEPTS

- ✓ Introduction to OOP
- ✓ Classes and objects
- ✓ Data members and member functions
- ✓ Access specifiers (public, private, protected)
- ✓ Constructors and destructors
- ✓ this pointer

MODULE 6: ADVANCED OOP CONCEPTS

- ✓ Encapsulation
- ✓ Inheritance (single, multiple, multilevel, hybrid)
- ✓ Function overriding
- ✓ Polymorphism:
- ✓ Compile-time (function overloading, operator overloading)
- ✓ Run-time (virtual functions)
- ✓ Abstract classes
- ✓ Friend functions

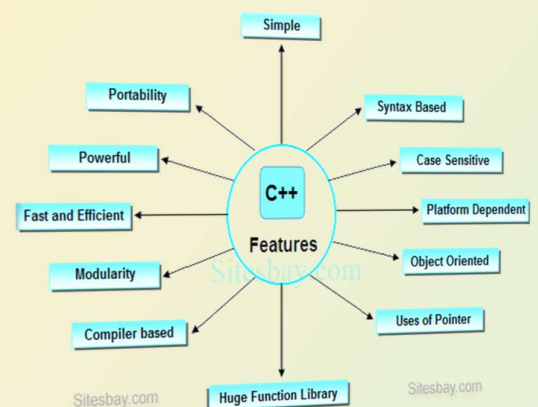
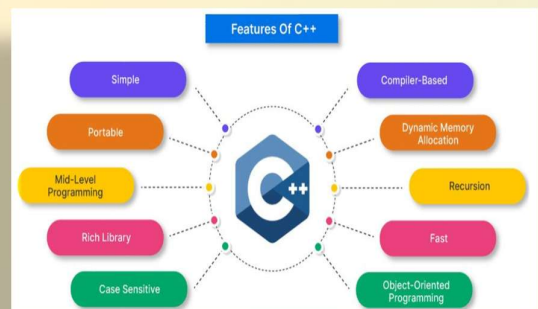
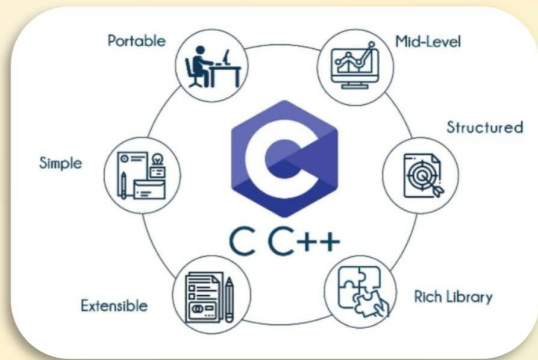
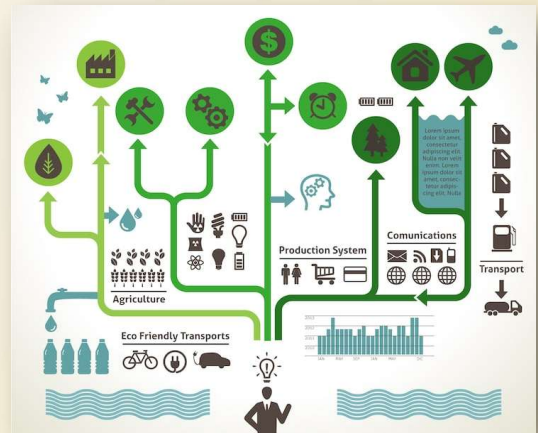
Module 7: Arrays, Strings, and Pointers

- ✓ One-dimensional and multi-dimensional arrays
- ✓ Array of objects
- ✓ String handling in C++
- ✓ string class and its functions
- ✓ Introduction to pointers
- ✓ Pointers and arrays
- ✓ Pointers to objects
- ✓ nullptr and best practices

Module 8: Dynamic Memory Management

- ✓ new and delete operators
- ✓ Dynamic arrays
- ✓ Smart pointers (unique_ptr, shared_ptr, weak_ptr) (for modern C++)

Module 9: Operator Overloading



- ✓ Overloading arithmetic operators
- ✓ Overloading relational operators
- ✓ Overloading stream insertion (<<) and extraction (>>) operators

Module 10: File Handling in C++

- ✓ File input and output streams
- ✓ Reading and writing text files
- ✓ Reading and writing binary files
- ✓ File modes
- ✓ Error handling during file operations

Module 11: Templates and Exception Handling

- ✓ Function templates
- ✓ Class templates
- ✓ Template specialization
- ✓ Exception handling with try, catch, and throw
- ✓ Standard exceptions

Module 12: Standard Template Library (STL)

- ✓ Introduction to STL
- ✓ Containers: vector, list, deque, map, set
- ✓ Iterators
- ✓ Algorithms (sort, find, count)
- ✓ Lambda expressions

Module 14: Project Work s Practice

- ✓ Mini-project ideas:
- ✓ Bank account management system
- ✓ Student result processing system
- ✓ File-based inventory management
- ✓ Simple game (e.g., Snake, Tic-Tac-Toe)
- ✓ Debugging and best coding practices

PYTHON PROGRAMMING COURSE

- ✓ **Module 1: PYTHON BASICS**
- ✓ Variables and data types
- ✓ Type casting
- ✓ Constants in Python
- ✓ Input and output (input(), print())
- ✓ Comments and docstrings
- ✓ Reserved keywords

MODULE 2: OPERATORS IN PYTHON

- ✓ Arithmetic operators
- ✓ Relational (comparison) operators
- ✓ Logical operators
- ✓ Assignment operators
- ✓ Identity operators (is, is not)
- ✓ Membership operators (in, not in)
- ✓ Operator precedence

MODULE 3: CONTROL FLOW STATEMENTS

- ✓ Decision-making:
- ✓ if, if-else, if-elif-else
- ✓ Nested conditions
- ✓ Looping:
- ✓ for loop

Benefits of C++



- ✓ while loop
- ✓ Loop control:
- ✓ break, continue, pass
- ✓ else with loops

MODULE 4: DATA STRUCTURES IN PYTHON

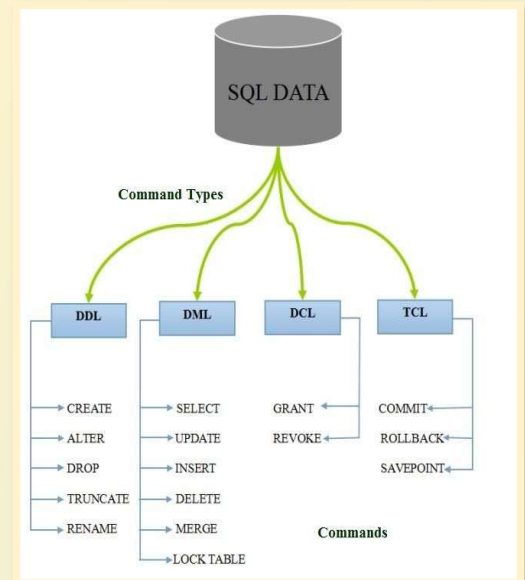
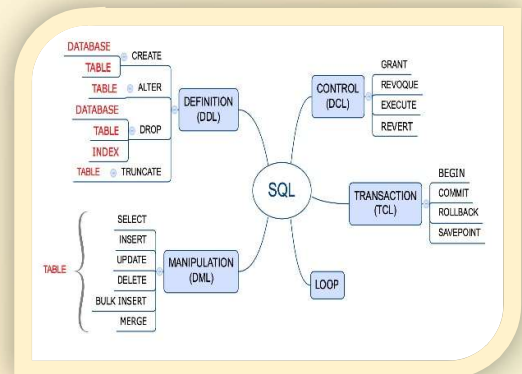
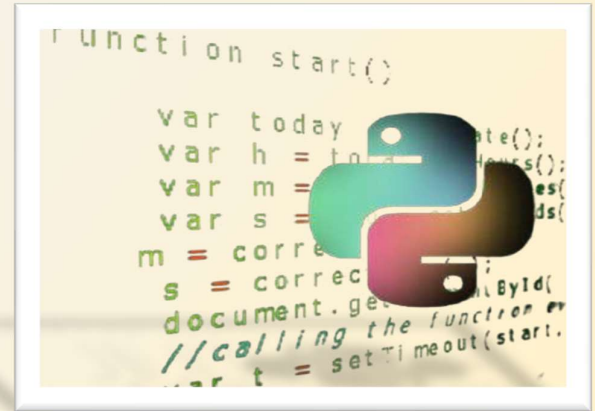
- ✓ Lists:
- ✓ Creation, indexing, slicing
- ✓ List methods ,Tuples:
- ✓ Immutable sequences
- ✓ Tuple packing and unpacking
- ✓ Sets:
- ✓ Creating sets
- ✓ Set operations (union, intersection, difference)
- ✓ Dictionaries:
- ✓ Key-value pairs
- ✓ Dictionary methods
- ✓ String operations and formatting

SQL

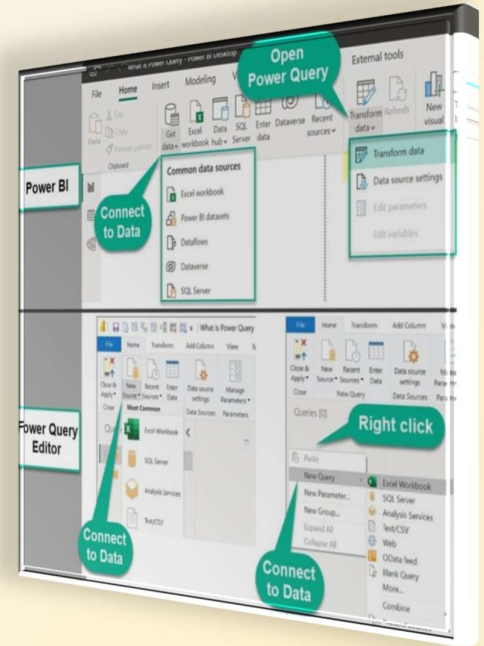
- ✓ What is a database? Types of databases (Relational vs NoSQL)
- ✓ Introduction to RDBMS (MySQL, PostgreSQL, SQL Server, etc.)
- SQL vs NoSQL
- ✓ Installing SQL tools (MySQL Workbench, SQLite, pgAdmin)
- ✓ Basic SQL Commands
- ✓ CREATE, DROP, ALTER (DDL) INSERT, UPDATE, DELETE (DML)
- ✓ SELECT queries
- ✓ Filtering with WHERE, AND, OR, IN, BETWEEN, LIKE
- ✓ Sorting results with ORDER BY Limiting rows with LIMIT
- ✓ Functions and Operators
- ✓ Arithmetic and comparison operators
- ✓ String functions (CONCAT, LENGTH, UPPER, LOWER) Date functions (NOW(), DATEDIFF(), DATE_FORMAT())
- ✓ Aggregate functions (SUM, AVG, MIN, MAX, COUNT)
- ✓ Joins and Subqueries
- ✓ Types of joins: INNER, LEFT, RIGHT, FULL OUTER
- ✓ Joining multiple tables
- ✓ Subqueries in SELECT, FROM, WHERE Aliases and nested queries
- ✓ Grouping and Aggregation
- ✓ GROUP BY and HAVING
- ✓ Aggregating data with multiple columns Filtering aggregated data
- ✓ Difference between WHERE and HAVING

POWER BI

- ✓ INTRODUCTION TO POWER BI
- ✓ What is Power BI?
- ✓ Power BI Ecosystem: Desktop, Service, Mobile
- ✓ Understanding Data Visualization & BI Concepts
- ✓ Installing Power BI Desktop
- ✓ Power BI Interface Overview
- ✓ CONNECTING TO DATA
- ✓ Supported Data Sources

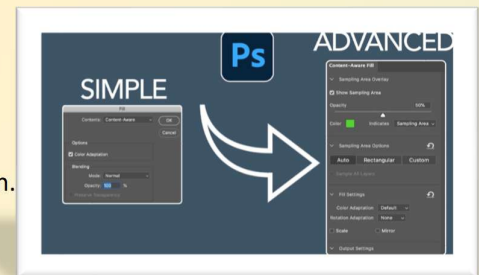


- ✓ Connecting to Excel, CSV, SQL Server, Web, etc.
- ✓ Understanding Import vs DirectQuery vs Live Connection
- ✓ Data Loading and Transformation Basics
- ✓ POWER QUERY EDITOR (DATA TRANSFORMATION)
- ✓ Power Query Interface
- ✓ Data Cleaning: Remove Duplicates, Fill, Replace Values
- ✓ Data Transformation: Pivot, Unpivot, Merge, Append
- ✓ Creating Conditional Columns
- ✓ Data Profiling, Data Types & Column Quality
- ✓ DATA MODELING
- ✓ Creating Relationships Between Tables
- ✓ Star vs Snowflake Schema
- ✓ Understanding Cardinality & Cross Filter Direction
- ✓ Creating Calculated Columns and Measures
- ✓ Introduction to DAX (Data Analysis Expressions)
- ✓ DAX (DATA ANALYSIS EXPRESSIONS)
- ✓ DAX Syntax and Functions
- ✓ Aggregation Functions: SUM, AVERAGE, COUNT
- ✓ Logical Functions: IF, SWITCH
- ✓ CALCULATE, FILTER, and ALL Functions
- ✓ Creating KPIs using DAX



PHOTOSHOP

- ✓ Photoshop Interface: Navigating the workspace, understanding panels, and customizing settings.
- ✓ Basic Tools: Learning and utilizing tools for selection, cropping, painting, and editing
- ✓ Selections: Making and using selections for isolating edits.
- ✓ Layers: Understanding and manipulating layers for non-destructive editing.
- ✓ File Management: Organizing and managing files in Photoshop and Adobe Bridge.
- ✓ Saving and Exporting: Understanding different file formats and settings for web and print.
- ✓ Image Editing and Retouching:
- ✓ Color Correction: Adjusting colors, brightness, contrast, and other image parameters.
- ✓ Retouching: Repairing imperfections, removing blemishes, and smoothing skin.
- ✓ Content-Aware Fill: Removing unwanted objects and filling in missing areas.
- ✓ Painting and Drawing: Utilizing brushes, pencils, and other painting tools.
- ✓ Masking: Using masks for non-destructive edits and compositing.
- ✓ Design and Graphics:
- ✓ Design Principles: Understanding color theory, typography, and composition.
- ✓ Vector Graphics: Creating and manipulating vector shapes and paths.
- ✓ Compositing: Combining images and graphics to create new compositions.
- ✓ Typography: Working with text, fonts, and typography styles.
- ✓ Apparel Design: Creating mockups and designs for apparel.
- ✓ Social Media Graphics: Designing graphics for social media platforms.
- ✓ Web Design: Creating mockups and designs for websites



Manipulating Pixels in Computer Graphics by Converting Raster Elements to Vector Shapes as a Function of Hue

