VAGDEVI TECHNOLOGIES

PYTHON FULL STACK COURSE

HTML 5:

- ➢ Introduction to HTML
  - ✓ HyperText Markup Language
  - ✓ History of HTML
  - ✓ Versions of HTML
  - ✓ What is W3C
- ➢ HTML Tags
  - ✓ What is HTML Tag
  - ✓ Types of HTML Tags
  - ✓ !DOCTYPE
- ➢ Structure of HTML Document
  - ✓ Creating HTML Document
  - ✓ !DOCTYPE, HEAD Section, Body Section
  - ✓ Viewing HTML Document
  - ✓ HTML Comments
- ➢ Basic HTML Formatting Tags
  - ✓ Basic Tags
  - ✓ Headings
  - ✓ Formatting Tags
  - ✓ HTML Colour Coding
  - ✓ Fonts
  - ✓ Background colour
- ➢ HTML Elements
  - ✓ Elements
  - ✓ Attributes
  - ✓ Entities
  - ✓ Symbols HTML
- ➢ Miscellaneous Tags
  - ✓ Marquee
  - ✓ Abbreviations
  - ✓ Blockquotes
  - ✓ Code and Variable
  - ✓ Div and Span
- ➢ URL
  - ✓ What is URL
  - ✓ Absolute Address
  - ✓ Relative Address
- ➢ HTML Links
  - ✓ Text Links
  - ✓ Image Links
  - ✓ Email Links

- ➢ HTML Lists
  - ✓ Ordered Lists
  - ✓ Unordered Lists
  - ✓ Nested Lists
  - ✓ Description Lists

- ➢ HTML Tables
  - ✓ Table
  - ✓ Rows and Columns
  - ✓ Table Structure
  - ✓ Table Header, Body and Footer
  - ✓ Table Caption
- ➢ HTML Frames
  - ✓ Frames
  - ✓ IFrames
  - ✓ Placing Youtube video in HTML page
  - ✓ Placing Location Map in HTML page
- ➢ HTML Forms
  - ✓ Forms
  - ✓ HTML Form Controls
  - ✓ HTML Input Types
  - ✓ HTML InputAttributes
  - ✓ HTML Form Attributes
  - ✓ Multiline Text Box
  - ✓ Select Box Control
  - ✓ File Upload Control
  - ✓ Buttons
  - ✓ Hidden Control
- ➢ Embedding Multimedia Elements
  - ✓ Embedding Multimedia Elements
  - ✓ Audio
  - ✓ Video
  - ✓ Objects
- ➢ HTML 5 New Elements
  - ✓ Section Elements: Main, Article, Section, Aside, Header, Nav, Footer
  - ✓ Semantic Elements: Figure, Caption, Mark, Ruby
  - ✓ Progress, Meter, Output
- ➢ HTML5 Audio and Video
  - ✓ Audio
  - ✓ Video
- ➢ HTML Head Section Tags
  - ✓ Meta Tags
  - ✓ HTML Charset
  - ✓ Favicon
  - ✓ Style
  - ✓ Script

CSS 3:

- Cascading Style Sheets
  - ✓ Introduction to CSS
  - ✓ Advantages of CSS
- Style Sheets
  - ✓ What is Stylesheet?
  - ✓ Types of Stylesheets
- CSS Syntax
  - ✓ Style Rules
  - ✓ Parts of Style Rules
  - ✓ Selector
  - ✓ Declaration Block
  - ✓ Style Declarations
  - ✓ Style Property and Value
- CSS Selectors
  - ✓ Selectors
  - ✓ Simple Selectors
  - ✓ Element Type Selector
  - ✓ ID Selector
  - ✓ Class Selector
  - ✓ Grouping Selectors
- CSS Colour Properties
  - ✓ Color Property
  - ✓ CSS Coloring
  - ✓ CSS Units
- CSS Background Properties
  - ✓ Background Color
  - ✓ Background Image
  - ✓ Background Position
  - ✓ Background Repeat
  - ✓ Background Attachment
  - ✓ CSS Colouring
- CSS Font Properties
  - ✓ Font Family
  - ✓ Font Pairings
  - ✓ Font Size
  - ✓ Font Weight
  - ✓ Font Style
  - ✓ Font Variant
  - ✓ Line Height

- ➤ CSS Text Properties
  - ✓ Text Align
  - ✓ Text Decoration
  - ✓ Text and Word Spacing
  - ✓ Text Transformation
  - ✓ Text Shadow
  - ✓ Text Effects
- ➤ CSS List Properties
  - ✓ Types of Lists
  - ✓ List Item Markers
  - ✓ List Item Image Marker
- ➤ Advanced CSS Selectors
  - ✓ Combinator Selectors
  - ✓ Attribute Selectors
  - ✓ Pseudo ClassSelectors
  - ✓ Pseudo Element Selectors
- ➤ CSS Box Model
  - ✓ CSS Box
  - ✓ Box Properties
  - ✓ Box Dimension Properties
- ➤ CSS Border Properties
  - ✓ Border Width
  - ✓ Border Style
  - ✓ Border Color
  - ✓ Rounded Corners
  - ✓ Border Images
- ➤ CSS Margin and Outline Properties
  - ✓ Margin Property
  - ✓ Outline Property
- ➤ CSS Image Properties
  - ✓ Image Height and Width
  - ✓ Image Border
- ➤ CSS Positioning Properties
  - ✓ Static positioning, Absolute positioning, Relative positioning,Fixed positioning
  - ✓ Position Coordinates
  - ✓ Z-Index Property
- ➤ CSS Float and Clear
  - ✓ Float
  - ✓ Clear
- ➤ CSS Display and Visibility properties
  - ✓ Display Properties

- ✓ Visibility Properties
- ➤ CSS Overflow Properties
  - ✓ Overflow
  - ✓ Overflow X and Y
- ➤ CSS Multi-Columns
  - ✓ Multi Column Layouts
  - ✓ Column Coun
  - ✓ Column Width
  - ✓ Column Gap
  - ✓ Colum Rule
  - ✓ Column Span
- ➤ CSS Gradients
  - ✓ Linear Gradients
  - ✓ Radial Gradients
- ➤ Google Fonts
  - ✓ Font Format Types
  - ✓ Google Fonts
  - ✓ Using @Font Face
- ➤ CSS Transforms
  - ✓ 2D Transforms
  - ✓ 3D Transforms
- ➤ CSS Transitions
  - ✓ Transition
  - ✓ Transition Delay
  - ✓ Transition Duration
- ➤ CSS Animations
  - ✓ Key Frames
  - ✓ Animation
  - ✓ Animation Duration
  - ✓ Animation Delay
  - ✓ Animation Duration
  - ✓ Animation Timing and Iteration Count
- ➤ CSS Box Sizing and Resize
  - ✓ Box Sizing
- ➤ CSS Flexbox
  - ✓ Flexible Responsive Layout
- ➤ CSS Media Queries
  - ✓ Media Queries
  - ✓ Media Types

Javascript:

- ➢ Introduction to Javascript
  - ✓ What is Javascript
  - ✓ Evolution of Javascript
  - ✓ Scripting Language
  - ✓ Types of Javascript
  - ✓ ECMA Script
  - ✓ Javascript versions

- ➢ Javascript Syntax
  - ✓ Variables
  - ✓ Expressions
  - ✓ Keywords
  - ✓ Comments
  - ✓ Datatypes
- ➢ Getting started with Javascript
  - ✓ First Javascript Program
  - ✓ Javascript inside HTML
  - ✓ Where to write/place Javascript code
  - ✓ <script> tag
- ➢ Javascript Operators
  - ✓ Arithmetic Operators
  - ✓ Assignment Operators
  - ✓ String Operator
  - ✓ Comparision Operators
  - ✓ Logical Operators
  - ✓ Bitwise Operator
- ➢ Javascript Popup Boxes
  - ✓ Dialog boxes
  - ✓ Alert Box
  - ✓ Prompt Box
  - ✓ Confirm Box
- ➢ Javascript Conditional Statements
  - ✓ if
  - ✓ if-else
  - ✓ if-else if-else
  - ✓ switch-case
  - ✓ Conditional Operator
- ➢ Javascript Looping Statements
  - ✓ while loop
  - ✓ do-while loop
  - ✓ for loop
  - ✓ Jumping statements

- ➢ Javascript Functions
  - ✓ User-defined functions
  - ✓ Benefits of using Functions
  - ✓ Function Declaration
  - ✓ Function Calling
  - ✓ Arguments vs Parameters
  - ✓ Arguments Object
  - ✓ Variable Scope – Global, Local, Outer
  - ✓ Variable Hoisting

- ➢ Javascript Built-in Objects
  - ✓ Objects
  - ✓ Number
  - ✓ String
  - ✓ Math
  - ✓ Array
  - ✓ Date
  - ✓ Boolean
  - ✓ RegExp

- ➢ Errors and Exception Handling and Debugging
  - ✓ Errors
  - ✓ Types of Errors
  - ✓ Exceptions
  - ✓ Exception Handling
  - ✓ •try, catch, finally, throw
  - ✓ onerror method and error event

- ➢ HTML DOM
  - ✓ What is DOM
  - ✓ Working with HTML DOM
  - ✓ DOM Levels
  - ✓ DOM Objects, Nodes and Hierarchy of Nodes
  - ✓ DOM Events
  - ✓ Reacting to Events
  - ✓ Mouse Events, Keyboard Events, Form Events, Document/Window Events
  - ✓ Event Listener

- ➢ Browser DOM
  - ✓ Windows
  - ✓ Location
  - ✓ History

- ➢ Form Validations

- ✓ Client-side validation
- ✓ Data validation
- ✓ Validating text, number, password, checkboxes, radio buttons, email, range, URL
- ✓ Regular Expressions
- ✓ Validating using Regular Expressions

- ➢ Working with Javascript objects
    - ✓ Objects
    - ✓ Object Properties
    - ✓ Object Methods
    - ✓ this keyword
    - ✓ Object Constructors

- ➢ Advanced working with functions
    - ✓ Variable Scopes
    - ✓ Code Blocks
    - ✓ Closures
    - ✓ Anonymous Functions

jQuery

- ➢ Introduction to jQuery
    - ✓ What is the jQuery
    - ✓ Overview of jQuery
    - ✓ Advantages of jQuery

- ➢ How to use jQuery
    - ✓ Creating First jQuery Program
    - ✓ jQuery Syntax
    - ✓ Document Ready Function
    - ✓ How to escape special characters

- ➢ jQuery Selectors
    - ✓ Simple Selectors
    - ✓ ID, Class, Attribute, Multiple Selectors

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    - ✓ Simple Selectors
    - ✓ ID, Class, Attribute, Multiple Selectors

- ➢ DOM Traversing
    - ✓ Traversal Functions
    - ✓ Traversing Upwards, Downwards and Sideways
    - ✓ Filtering, Map, Slice

- ➢ HTML DOM Manipulation
  - ✓ Getting and Setting values from Elements
  - ✓ Handling Attributes
  - ✓ •Inserting Elements
  - ✓ Deleting Elements
  - ✓ CSS Manipulations

- ➢ Effects
  - ✓ Showing/Hiding Elements
  - ✓ Sliding Elements
  - ✓ Fading Elements
  - ✓ Creating Animations
  - ✓ Deleting Animating Elements

- ➢ Events
  - ✓ Working with Events
  - ✓ Event Methods

- ➢ AJAX and JSON
  - ✓ AJAX with jQuery
  - ✓ Load Method
  - ✓ JSON
  - ✓ get and getJson methods
  - ✓ Post Request

Bootstrap 5

- ➢ Introduction to Bootstrap
  - ✓ What is Bootstrap?
  - ✓ Bootstrap Mobile First Framework
  - ✓ •Where to get BS
  - ✓ Install via CDN
  - ✓ Basic Bootstrap pages

- ➢ Bootstrap Grid System
  - ✓ Grids, Grid System, Grid Classes
  - ✓ Structure of Bootstrap grid
  - ✓ Bootstrap Container

- ➢ Bootstrap Styles
  - ✓ BS Text/Typography
  - ✓ BS Colors
  - ✓ BS Buttons, BS Button Groups

- ✓ •BS Tables
- ✓ BS Images
- ✓ BS Alerts
- ✓ BS Glyph Icons
- ✓ •BS Jumbotron
- ✓ BS Badges/Labels
- ✓ BS Progress Bar
- ✓ •BS Pagination
- ✓ BS List Groups
- ✓ BS Panels
- ✓ BS Dropdowns
- ✓ •BS Forms
- ✓ BS Inputs
- ✓ BS Media Objects
- ✓ BS Carousel
- ✓ BS Modal
- ✓ BS Tooltip
- ✓ BS Accordion
- ✓ BS Breadcrumb
- ✓ BS Padding
- ✓ BS Margin
- ✓ BS Navbar
- ✓ BS Layout
- ✓ BS Offset
- ✓ BS Border
- ✓ BS Icon

SQL (Structured Query Language)

- ➢ <u>Introduction to Databases and RDMBS</u>
  - ✓ Data, Information Database, Table Records, Types of Database Management Systems, Relational Database Management Systems, andSQL/Relational Databases, Database Objects, Database Tables, Relationships,E-R Modal, Anomalies, Normalization.
- ➢ Introduction to SQL
  - ✓ SQL?, Purpose of SQL, Who should learn SQL?, Data Definition Language, Data Manipulation Language, Transaction Control Language, Data Control Language
- ➢ Install a Database Engine
  - ✓ (Download MS SQL Server or Oracle or MySQL Database Engine, and Install. Launch SQL Server Management Studio, Select New Query, and launch SQL Query. Type SQL Commands and Execute.)
- ➢ SQL Syntax
  - ✓ (Focus on SQL Syntax, SQL keywords, SQL is not case sensitive, SQL Comments, SQL Commands, and writing SQL Statements.)

- ➢ SQL Data Types
  - ✓ (SQL Numeric data types, Date and Time data types, Character and String data types, Unicode character string data types, Binary data types, and Miscellaneous data types.)
  - ✓ (SQL Boolean Expression, SQL Numeric Expression, and SQL Date Expression)

- ➢ SQL Comments
  - ✓ (SQL Comments, Comments are used to explain sections of SQL statements, or to prevent the execution of SQL statements. Single-Line Comments, and Multi-line Comments)

- ➢ SQL – Data Definition Language Commands and Operations.
  - ✓ (SQL Data Definition Language Commands, Create, Alter, Drop, Truncate, and Rename.
  - ✓ Data Definition Language Operations, Create a Database, Use Database, Rename a Database, Drop Database, Create a Table, Rename Table, Add a Column to exiting Table, Add multiple columns to existing Table, Modify an existing column, Rename a Column, Drop a Column, Truncate a Table, and Drop a Table.)

- ➢ SQL – Data Manipulation Language Commands and Operations
  - ✓ (Data Manipulation Language Commands, SELECT, INSERT, UPDATE, and DELETE.
  - ✓ Data Manipulation Language Operations, Retrieving data from a table, Inserting data into a table, Updating existing data into a table, and Deleting all records from a table.)SQL Arithmetic Operators, Comparison Operators, Logical Operators,

- ➢ SQL Expressions
  - ✓ (SQL Boolean Expression, SQL Numeric Expression, and SQL Date Expression)

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  - ✓ (SQL Comments, Comments are used to explain sections of SQL statements, or to prevent the execution of SQL statements. Single-Line Comments, and Multi-line Comments)

- ➢ SQL – Data Definition Language Commands and Operations.
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  - ✓ (Data Manipulation Language Commands, SELECT, INSERT, UPDATE, and DELETE.

- ✓ Data Manipulation Language Operations, Retrieving data from a table, Inserting data into a table, Updating existing data into a table, and Deleting all records from a table.)

- ➤ SQL – Data Control Language Commands
  - ✓ DCL includes commands such as GRANT and REVOKE which mainly deal
  - ✓ with the rights, permissions, and other controls of the database system.

- ➤ DCL Operations
  - ✓ (Providing the users the access or privileges to the database objects, and Taking back or canceling the privileges or permissions previously allowed or denied to the users.)

- ➤ SQL Functions
  - ✓ SQL has many built-in functions for performing calculations on data. SQL Aggregate Functions, SQL String Functions, SQL Date Functions, and SQL Scalar functions.
- ➤ SQL Queries and Sub Queries
  - ✓ A subquery is also called INNER QUERY OR NESTED QUERY.
- ➤ Aggregate functions
  - ✓ Sum, count, max, min, avg, and group by clause, order by clause, where clause
- ➤ SQL Joins
  - ✓ Equi-Join, Self – Join, Cartesian Join, Outer Join

- ➤ SQL Views

Core-Python:

- ➤ Python Overview:
  - ✓ What is Python? The Birth of Python, History of Python, Features of Python, Versions of Python, Applications of Python. Implementation of Python.
  - ✓ Python distributions: Cpython,Jython,IronPython,pypy.
- ➤ The Python Environment:
  - ✓ Installation of Python, Python Documentation, Getting Help, How to develop python applications/projects, Python Editors and IDE's, Basic Syntax, Running a Python Script, Python Scripts on UNIX/Windows.
- ➤ Getting Started:
  - ✓ Keywords, Data Types, Variables, assign values to variables, multiple assignments, Space Indentation, Quotes, Comments, Print(),Type(),Id( ) Functions, input(),raw_input() functions, How to read the data from keyboard, Type conversions, Type conversions ,Number systems, Mutable and Immutable objects.
- ➤ String Handling
  - ✓ What is String? Single-quoted, Triple-quoted , String indexing, String Slicing, Working with Functions, Working with String Methods.
- ➤ Operators:
  - ✓ What is Expression, What is Operator?
- ➤ Types of operators:
  - ✓ Arithmetic Operators

- ✓ Relational Operators
- ✓ Logical Operators
- ✓ Assignment Operators
- ✓ Short Hand Assignment Operators
- ✓ Walrus Assignment Operators
- ✓ Bitwise Operators
- ✓ Membership Operators
- ✓ Identity Operators
- ✓ Operator Presidency.

➢ Difference between 'is' operator and '= =' operator

➢ Flow Control:
- ✓ About Flow Control Statements, Elements of Control Flow Statements, Types of Control Flow Statements.

➢ Conditional Statements:
- ✓ simple if
- ✓ if else
- ✓ if elif else
- ✓ elif ladder
- ✓ nested if

➢ Looping Statements:
- ✓ while loop
- ✓ infinite while loop
- ✓ while else,
- ✓ for loop,
- ✓ for else
- ✓ nested loops

➢ Jumping statements:

- ✓ Break statement
- ✓ Continue statement
- ✓ Pass statement

➢ Python Collections:
- ✓ What is Collection Object? Types of Collection Objects:
- ✓ Sequence Collection Objects
- ✓ Non Sequence Collection Objects

➢ List Collection:

- ✓ What is list, creating list, accessing/deleting/updating list elements, indexing, slicing and matrix, working with built-in list functions and methods. list comprehension.

- ➢ Tuple Collection:
  - ✓ What is tuple, creating tuple, accessing/deleting/updating tuple elements, indexing, slicing and matrix, working with built-in tuple functions and methods.

- ➢ Set Collection:
  - ✓ What is Set, creating Set, working with built-in set functions and method and set comprehension, mathematical set operations:

- ➢ Frozen set Collection:
  - ✓ What is Frozen set, creating frozen set, working with built-in frozen set Functions and methods

- ➢ Dict Collection (Mapping):
  - ✓ What is dictionary, creating a dictionary, accessing/deleting/updating? Dictionary elements, working with built-in dictionary functions and Methods, dictionary comprehension.
- ➢ Functions:
  - ✓ What is Function, advantages of functions, Types of Functions?
  - ✓ Built-in Functions
  - ✓ User-Defined Functions What is Built-in Function?
  - ✓ print( ),type( ),id( ),len( ),min( ),max( ),sum( ),sorted( ),reversed( ),
  - ✓ range( ),xrange( ),abs( ), all( ),any( ), format( ),enumerate( ), map( ),
  - ✓ filter( ), reduce( ),round( ),zip( ),…,etc.
  - ✓ What is User-Defined Function, how to create a user-defined function And how to call user-defined functions.
- ➢ What is Parameter, What is Argument and types of arguments?

  - ✓ Normal Arguments
  - ✓ Non-Default Arguments
  - ✓ Default Arguments
  - ✓ Non-Keyword Arguments
  - ✓ Keyword Arguments
  - ✓ Arbitrary Arguments
  - ✓ Kw args
- ➢ What is Return statement, how to handle the return statement. What are variable, types of variables?

✓ Local Variables
✓ Global Variables
✓ Non-Local Variables

❖ What is name space, scope and scope of the variables in python.
❖ Pass the collection as a parameter to the function and pass the function as a parameter to the function, call by value, call by reference, function overloading. What is Function Recursion?
❖ What is Anonymous function (Lambda Functions), Built-in higher order functions like filter ( ), map ( ), reduce ( ).

ADVANCED PYTHON

➢ OOPS CONCEPTS:
  ❖ About OO programming, Benefits of OOP's concepts. The OOP's concepts are:
    ✓ Encapsulation
    ✓ Inheritance
    ✓ Polymorphism
    ✓ Data Abstraction
❖ What is a Class, Defining a Class, what is Object, Creating a object, what is reference variable, Class methods and data, static variables and non-static variables, local variables, Static methods, Instance methods, nested classes, nested methods, Constructors, Garbage collection, Destructors, Built-in attributes of a class, add and remove the attributes of a class from outside of that class, what is Has-a relationship or Association,aggregation,composition, What is Is-a relationship or Inheritance, Types of inheritances, what is MRO, Polymorphism (over loading & over riding), Data hiding, access modifiers, Dunder methods. Setters and getters, what is abstract class and abstract method.

➢ **Modules:**
❖ What is a module?, Creating user defined module, Importing a module In python:
  ✓ normal import
  ✓ from import
  ✓ from import with *
❖ Renaming a module, module search path, reloading a Module, Dir. function, Working with Standard modules (Built-ins, Math, Calendar, Random,
❖ Date time and time, Os and sys, String…),
❖ The hidden concept of if name ==' main ' condition.

➢ **Packages:**
❖ What is a package?, Creating user defined package, Importing a package in python:
  ✓ normal import

- ✓ from import
- ✓ from import with *

➢ Multi-Threading:
- ❖ what is multi-tasking, types of multi-tasking, what is thread, what is muti-threading,Defining a Thread, starting a Thread, Thread Life Cycle, What is Scheduling, suspend Thread by using sleep( ),Threads synchronization.
- ❖ Synchronization primitives are :
  - ✓ Semaphore,
  - ✓ Locks,
  - ✓ Events,
  - ✓ Condition Variables. What is GIL?

➢ Errors and Exception Handling:
- ❖ What is Error?, types of Errors
  - ✓ Syntax Errors,
  - ✓ Runtime Errors,
- ❖ What is Exception?, Types of Exceptions:
  - ✓ Built-in Exceptions
  - ✓ User-defined Exceptions
- ❖ What is Exception Handling, how to Handling the Exceptions:
  - ✓ try block/clause
  - ✓ except block/clause
  - ✓ Finally block/clause.
- ❖ Need of Exception handling single try block with multiple Except blocks, Nested try blocks, Handling Multiple Exceptions, What is user defined exception, how to create user-defined exceptions, how To Raising the user defined exceptions and how to handle the user defined Exceptions. What is Assertion, how to implement the assertions in python.

➢ File Handling:
- ❖ History of file concept, what is file, types of file formats,mode of the files, order of the file handling, Opening a file, Closing a file, Writing data to files, Reading a data from files, tell( ),Seek( ),read( ), readlines( ),read(n),write( ),writelines( ), close( ),readline( ),functions.

➢ Serialization and de-serialization:
- ❖ What is Serialization, how to implement Serialization in python, what is de-serialization, how to implement Serialization and de-serialization in python.
  - ✓ pickle module
  - ✓ marshal module

➢ Database Access:

❖ Basics of database (What is Data, What is Information, What is DBMS, Types of Data bases), Connections, Executing SQL and queries,

➢ Basic SQL commands are:
  - ✓ ☐ DDL(Data Definition Languages)
  - ✓ ☐ DML(Data Manipulation Languages)
  - ✓ ☐ DCL(Data Control Languages)
  - ✓ ☐ TCL(Transaction Control Languages)
  - ✓ ☐ DRL (Data Retrieval Languages). Working with sqlite3 database. Working with MySQL database. Working with mongoDB

➢ Command Line Arguments:

❖ What is Command Line argument, how to implement Command Line Arguments in python.

➢ Regular Expressions:

❖ What is regular expression? Wild card characters, Forming regular expressions, special charecters,Character classes, Quantifiers, Greedy matches, Grouping, Match, Search functions, matching/searching, findall function, finditer function

❖ Sub function, splitting a string, Replacing text, Flags. Like ignore the cases, multi-lines.

➢ Advanced concepts in python:
  - ✓ Iterators
  - ✓ Generators
  - ✓ Closure's
  - ✓ Decorators
  - ✓ Working with JSON files
  - ✓ Working with CSV files
  - ✓ Data classes
  - ✓ Property decorator
  - ✓ How to run python code internally?
  - ✓ How to print assembly code for our python script?
  - ✓ Python memory management
  - ✓ Type hinting and typing module.
  - ✓ Type checking with mypy module.
  - ✓ What is monkey patching?

Basics of Django:

- ➢ Introduction about Web-applications:
  - ✓ What is web application?
  - ✓ Architecture of web application
  - ✓ What are the Requirements to Design a web application Introduction about Framework:
  - ✓ What is Framework?
  - ✓ What are the advantages of Framework?
  - ✓ List of python web related Frameworks Introduction about Django:
  - ✓ What is Django?
  - ✓ History of Django
  - ✓ What are the Features of Django?
  - ✓ Introduction to MVT Design pattern
  - ✓ Architecture of Django
- ➢ Django Environment setup:
  - ❖ Working with Django framework what are the pre-requisites we are needed.
    - ✓ Python
    - ✓ IDE's
    - ✓ Virtual Environment
    - ✓ Django

- ➢ Structure of the project:
  - ✓ How to create a project
  - ✓ Describe project structure!
  - ✓ How to create a application for project
  - ✓ Describe application structure.
  - ✓ How to Run the project
- ➢ Data Science:
  - ✓ what is data science?
  - ✓ what is data analysis?
  - ✓ what is data reporting?
  - ✓ how to analysing the data by using NumPy and Pandas packages
  - ✓ how to be generating the reports by using Matplotlib package

- ➢ GUI/Desktop applications:
  - ✓ what is GUI?
  - ✓ how to develop GUI applications in Python
  - ✓ what are the modules are available in python.
  - ✓ what is tkinter/Tkinter
  - ✓ how to create widgets like
  - ✓ Button

- ✓ Checkbox
- ✓ Radio button
- ✓ Entry Field
- ✓ Scroll bar
- ✓ Menu bar
- ✓ List box

➤ Debugging:
- ✓ what is bug?
- ✓ what is debugging?
- ✓ how to debug in python by using pdb module and GUI

➤ Testing:
- ✓ what is testing?
- ✓ what is the difference between testing and debugging?
- ✓ what is unit testing?
- ✓ what is integration testing?
- ✓ how to perform unoit testing by using unittest and Pytest
- ✓ what is AAA model?
- ✓ what is manual testing?
- ✓ what is automation testing?
- ✓ what is Selenium?
- ✓ how test an application through python

➤ Networking:
- ✓ what is Socket?
- ✓ what is the networking protocols?
- ✓ what are Networking modules/internet modules?
- ✓ how to provide the communication between client and server
- ✓ how to be sending an email

➤ Web scrapping:
- ✓ what is web scrapping?
- ✓ how to be working with BeautifulSoup4

➤ Pillow package:
- ✓ Load an Image
- ✓ Displaying an Image
- ✓ Blur the Image
- ✓ Cropping an Image
- ✓ Rotating an Image

➤ Boto module for AWS:

- ✓ What is Boto?
- ✓ Creating a bucket
- ✓ Print the buckets in s3.
- ✓ Print the list of buckets.
- ✓ Filtering the buckets
- ✓ Uploading a file into the bucket
- ✓ Downloading files from s3 bucket

- ❖ Interview preparation tests
- ❖ Resume preparation.
- ❖ Real-time project explanation.
  - • Beginner Level
  - • Intermediate Level
  - • Advanced Level

Django Content:

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  - ✓ What is web application
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  - ✓ What is Framework
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- ➢ **Introduction about Django:**
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- ❖ Working with Django framework what are the pre-requisites we are needed.
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  - ✓ How to create a project
  - ✓ Describe project structure
  - ✓ How to create a application for project
  - ✓ Describe application structure
  - ✓ How to Run the project

- ➢ **View:**
  - ✓ what is view
  - ✓ what is Http
  - ✓ what is HttpRequest
  - ✓ what is HttpResponse
  - ✓ what are HttpRequest methods
  - ✓ what are the difference between GET( ) and Post( )
  - ✓ what is csrf_token
  - ✓ Types of views
  - ✓ what is Function Based view
  - ✓ what are the limitations in Function Based view
  - ✓ what is Class Based view
  - ✓ what is MIME,
  - ✓ What are the available MIME types?

- ➢ **Template:**
  - ✓ what is template,
  - ✓ what is variable,
  - ✓ what is template tag,
  - ✓ what are the available template languages,
  - ✓ what is filter,
  - ✓ what is the purpose of filter,
  - ✓ what are the available template filters

- ➢ **Model:**
  - ✓ what is model,
  - ✓ what are the available fields in model
  - ✓ what is relationship,
  - ✓ types of relationships

- ➢ **Forms:**
  - ✓ What is Form
  - ✓ What is ModelForm
  - ✓ What are the available Fileds in Form

- **Migrations in Django:**
  - ✓ ☐ what is migration,
  - ✓ ☐ what are the reason to create migration
  - ✓ ☐ how to create migration

- **Django ORM:**
  - ✓ what is ORM,
  - ✓ Performing CURD operations
  - ✓ database access through managers
  - ✓ what is Query Set
  - ✓ what is lookup
  - ✓ what are the available Django Field lookups

- **Django Admin:**
  - ✓ how to communicate Django Adminsite
  - ✓ how to create our own Adminsite
  - ✓ how to add our model into Django Adminsite
  - ✓ how to customizing Django Adminsite
  - ✓ what are the available ModelAdmin Attributes?

- **Cookies:**
  - ✓ why we are using cookie
  - ✓ what is cookie
  - ✓ how to create a cookie
  - ✓ how to read the cookie
  - ✓ how to delete the cookie
  - ✓ what are the problems in cookie

- **Session:**
  - ✓ what is session
  - ✓ what is the purpose of cookie
  - ✓ how to set session
  - ✓ how to read the session data
  - ✓ how to delete the session data

- ❖ **Resume Preparation**
- ❖ **Explain interview Questions**
- ❖ **Real-time Projects Explanation**