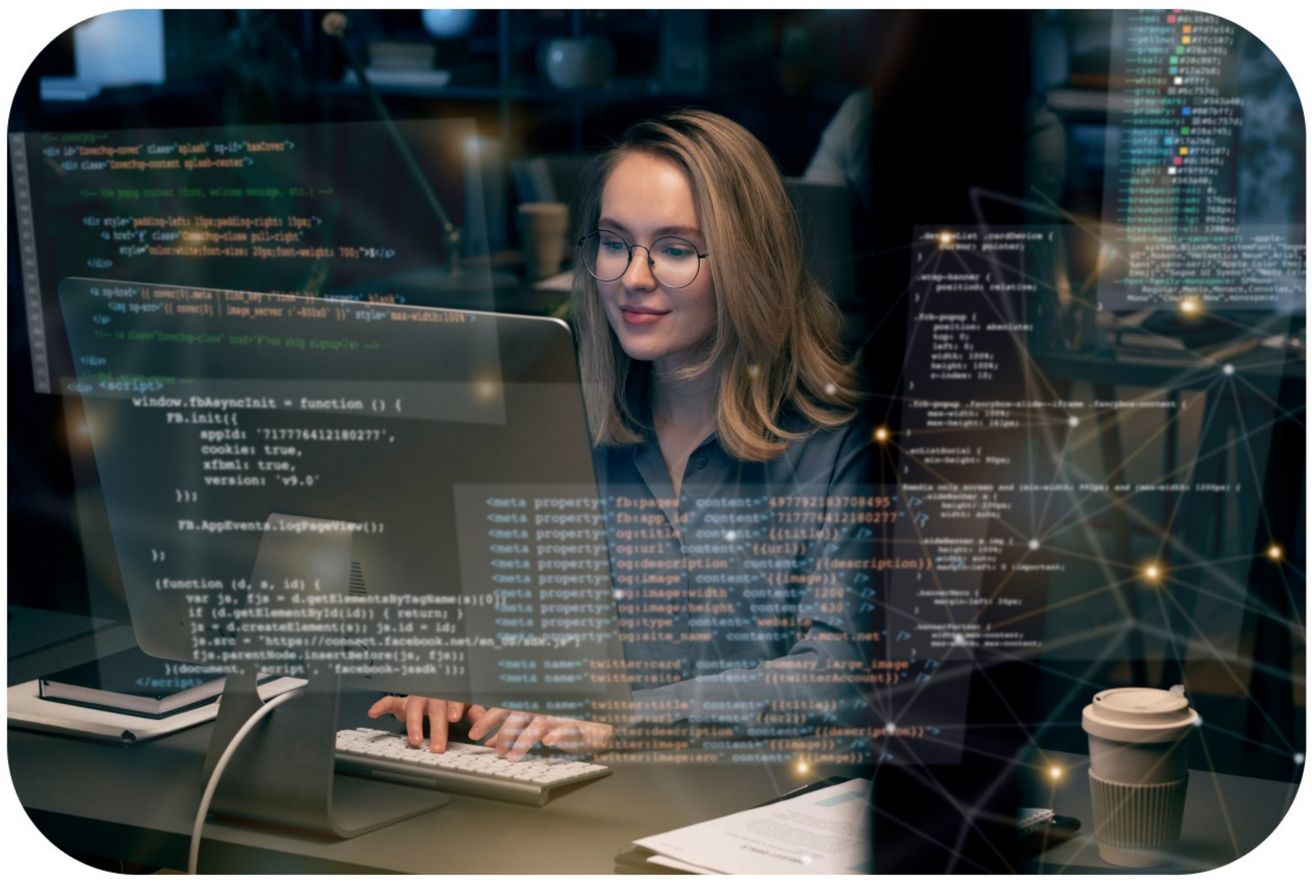
CLOUD VISION TECHNOLOGIES

Course Curriculum

PYTHON



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MODULE 1

Core Python

1. Introduction to Python
    a. What is python? Why python?
    b. Advantages and History of python
    c. Python Applications
    d. Different versions of python
2. Python Tools Installations
    a. Python IDLE
    b. Different IDE's ⇒ PyCharm, VScode, Jupyter Notebook, Spyder etc..
3. Introduction to Anaconda Navigator
    a. Introduction to Jupyter Notebook
    b. Markdown concepts
4. Basics of python
    a. Identifiers
    b. Keywords
    c. Comments
        i. Single-line comments
        ii. Multi-line comments

d. Indentations

e. Different modes of python scripting

i. Interactive mode

ii. Batch mode

5. Input/Output Statements

a. print() function

i. End argument

ii. Sep argument

b. input() function

i. Accepting a single value

ii. Accepting a multiple values

6. Variables

a. Local variables

b. Global variables

7. Operators

a. Arithmetic

b. comparison(relational)

c. Assignment

d. Logical

e. Bitwise

f. Membership

g. Identity

h. Conditional /Ternary operator.

8. Data Types

a. Fundamental

i. Int

ii. Float

iii. Complex

iv. Boolean

v. Strings

1. String definition
2. String creation and manipulations
3. Slicing
4. Operators used on strings
5. Built-in functions and methods

b. Collection

i. List

1. List definition
2. List creation and its operations
3. Slicing
4. Operators works with list
5. Built-in functions
6. Built-in methods of list
7. Real-time scenarios where list is used
8. List comprehension

    i. Tuple

    1. Tuple definition
    2. Difference between Tuple and List
    3. Tuple creation and its operations
    4. Slicing
    5. Operators works with tuple
    6. Built-in functions
    7. Built-in methods of tuple
    8. Empty tuple and tuple with length 1 creation
    9. Packing and Unpacking
    10. Real-time scenarios where Tuple is used

    ii. Set

1. Set definition
2. Set creation and operations
3. Built-in functions
4. Built-in methods
5. Empty set creation
6. Real math set operations and python set operations

iii. Dictionary

1. Dictionary definition
2. Dictionary creation and operations
3. Built-in functions and methods
4. Dictionary comprehension

9. Control Flow statements

a. Conditional statements

- If
- If-else
- Elif

b. Looping statements

- While
- for

c. Loop control statements

- Break
- Continue
- Pass

10. Functions
    a. Function definition, creation and calling
    b. Predefined and User defined functions
    c. Types of functions
        i. No arguments and No return values
        ii. With arguments and No return values
        iii. With arguments and With return values
        iv. No arguments and With return values
        v. Recursion
        vi. Nested functions
    d. Python argument type functions :
        i. Default argument functions
        ii. Required(Positional) arguments function
        iii. Keyword arguments function
        iv. Variable arguments functions
    e. Anonymous functions
    f. Functional programming using
        i. map()
        ii. filter()
        iii. reduce()

Advanced Python

1. File Handling
    a. Handling text files
        i. Operations on text files
            1. Creating a file
            2. Reading a file
            3. Writing to the file
            4. Appending text to the file
        ii. Modes
            1. read
            2. Write
            3. Append
            4. New file(x mode)
    b. Handling csv files
    c. Handling Excel files
    d. Serialization using pickle module
        i. load()
        ii. dump()

2. Modules and packages
    a. What is module and importance of modules in python
    b. Types of modules
        i. Pre-defined modules
            1. Math
            2. Statistics
            3. Os
            4. random
        ii. User-defined modules
            1. Creating a module
            2. Importing a module
            3. Using properties of a user-defined module
    c. Different ways of importing a module
        i. Import module_name
        ii. Import module_name as alias_name
        iii. From module_name Import *
        iv. From module_name Import properties
    d. Creating a package and importing a package
    e. Understanding the difference between folder and a package

3. Object Oriented Programming concepts
    a. Class
        i. Class creation with methods and attributes
        ii. Members of a class
            1. Instance variable,class variable
            2. Instance method,class method,static method
    b. Object
        i. Instantiation with values
        ii. Instantiation without values
    c. Inheritance
        i. Single
        ii. Multi-level
        iii. Multiple
        iv. Hierarchical
        v. Hybrid
    d. Polymorphism
        i. Compile-time polymorphism
            1. Function overloading
            2. Operator overloading
        ii. Run-time polymorphism
            1. Method overriding
    e. Encapsulation
    f. Abstraction
        i. Abstract class
        ii. Abstract method

4. Exceptional Handling
    a. Types of error
        i. Compile-time errors
        ii. Logical error
        iii. Run-time errors
    b. Handling exceptions using
        i. Try block
        ii. Except block
        iii. Finally block
        iv. Else block
5. Database connectivity
    a. Introduction to DB
    b. Different database servers
    c. Database connection using python

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OUR HIGHLIGHTS

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