ITBRAINY

Python Automation Course Content

Duration: 8-9 Weeks

1. Why Python.
    a. Language Popularity
    b. Job Trends
    c. Areas where Python is used.
    d. Companies using Python and Examples.
    e. History of Python
    f. Compiled and Interpreted Languages.
    g. Why Python as hybrid language.

2. Installation – Python.
    a. Versions (2.7+ vs 3.0+)
    b. Available IDEs, Comparison
    c. Installation of Python and pyCharm.
    d. IDLE and the interactive shell.
    e. Basic operations on the shell.
    f. Running the script file.

3. Python Data Types
    a. Boolean
    b. Numbers
    c. Strings (Slicing)

d. Lists
e. Dictionary
f. Tuple
g. Variable Assignments
h. Range

4. Operations
    a. Arithmetic Operators
    b. Relational Operators
    c. Logical Operators
    d. + (Plus)
    e. * (Multiplication)
    f. In

5. Conditional Statements
    a. *If* Statement (*elif, else)*
    b. *for* Statement
    c. *while* Statement
    d. *break* and *continue Statement*
    e. *pass* keyword
    f. List Comprehension
    g. Dictionary Comprehension
    h. Nested Comprehension

6. Functions
    a. Definition and calling a function
    b. Pass by Reference vs Value
    c. Functions Arguments (Required, Keyword, Default, Variable Length)
    d. Anonymous (lamda) Functions

e. *Return* statement
f. Scope of Variables (Global vs Local)
g. Args and kwargs.

7. File I/O
    a. Reading Keyboard Inputs
    b. input function
    c. Opening and Closing Files.
    d. Reading and Writing Files.
    e. Pickle library to read/write binary files

8. Modules
    a. Basics
    b. Search Path
    c. Globals() and locals()
    d. Dir() function
    e. Packages (Basics, Importing from packages, examples)

9. Classes
    a. Classes and objects
    b. Init function
    c. Class vs Instance Variables vs Static Variables
    d. Inheritance
    e. Multiple Inheritance

10. Exception Handling
    a. Standard Exceptions
    b. Assertions
    c. Handling
    d. Try-finally, except

e. Raising an Exception
f. Custom Exception

11. Standard Libraries
a. Sys
b. Datetime
c. Random
d. Math
e. Os

12. Regular Expressions
a. What are Regular Expressions
b. Matching Characters, Searching
c. Compiling Regular Expressions
d. Split
e. Findall
f. Search
g. Ignore case vs normal search
h. Repetition
i. Emails Example
j. Group Extraction

13. Database Programming
a. Connecting to Database Server
b. Connecting to different databases like Mysql/SQLite
c. CRUD Operations
d. Transactions Management

14. Threads
a. Introduction to Threads

b. Thread Creation
c. Locking Mechanisms
d. Different ways of calling threads, class vs functional approach

15. Organizing Files
a. Introduction to shutil module
    i. Copying Files and Folders
    ii. Moving and Renaming files and folders
    iii. Permanently deleting files and folders
    iv. Safe deletes with the send2trash module
b. Walking a directory tree
c. Introduction to ZipFile Module
    i. Reading ZIP files
    ii. Extracting from ZIP files
    iii. Creating and adding to ZIP files

16. Web Scrapping
a. Introduction to webbrowser module
    i. Program to open google map with address arguments.
b. Introduction to requests module
    i. Downloading files from web
    ii. Downloading a web page
    iii. Check for errors
    iv. Saving downloaded files to Hard drive

17. HTML + BeautifulSoup
a. HTML Tags Refresher
b. Viewing the source HTML of a web page
c. Opening browser's Developer tools
d. Using the developer tools to find HTML Elements

e. Parsing HTML with the BeautifulSoup Module
f. Finding an element with the select() method
g. Getting data from an element's attributes

18. Selenium
a. Introduction to Selenium module
b. Controlling the browser with the selenium module
c. Starting a selenium controlled browser
d. Finding elements on the page
e. Clicking on Page
f. Filling out and submitting forms
g. Clicking browser buttons
h. More information on Selenium

19. Working with CSV Files and JSON Data
a. Introduction to CSV Module
    i. Reader Objects
    ii. Reading Data from Reader Objects in for loop
    iii. Writer Objects
    iv. The delimiter and lineterminator keyword arguments
b. JSON
    i. The JSON Module
    ii. Reading JSON with loads() function
    iii. Writing JSON with dumps() function

20. Introduction Network Programming
a. Types of sockets.
b. Server & Client - Basics
c. Sockets