

AUTOMATION TESTING WITH PYTHON

COURSE CONTENT

1. SOFTWARE TERMINOLOGIES

- i. Define Software
- ii. Types of software's
- iii. Program vs Software
- iv. Define Front end, Back End, Controller

2. SIGNIFICANCE OF SOFTWARE TESTING

- i. Introduction to s/w Testing
- ii. Software Development Process
- iii. Project Vs Product
- iv. S/W quality
- v. S/W Testing Methods
- vi. Roles & Responsibilities of a TE
- vii. Environments in Project

3. Python Programming

- i. Python Installation
- ii. IDLE
- iii. PYCHARM
- iv. COLAB
- v. JUPYTER
- vi. Comments
- vii. Data types
- viii. Input and print statements
- ix. OPERATORS IN PYTHON
 - i. Arithmetic
 - ii. Relational
 - iii. Logical
 - iv. Assignment
 - v. Membership
 - vi. Identity

vii. Bitwise

x. CONTROL STATEMENTS

i. Conditional statements

ii. Looping statements

iii. Special statements

xi. FUNCTIONS

i. Types of functions

ii. Various ways to create functions

iii. Types of arguments

iv. Local and global scope of variables

v. Recursive Functions

vi. Lambda Functions

xii. PACKAGES & MODULES

xiii. FILES CONCEPT

i. Text Files

ii. Binary Files

iii. Access Modes of Files

iv. Operations on Files

xiv. DATA STRUCTURES IN PYTHON

i. Strings

ii. List

iii. Tuple

iv. Set

v. Dictionary

xv. REGULAR EXPRESSIONS

i. Introduction to RE

ii. Symbolic Notations in RE

iii. "re" module functions

iv. Built-in Functions associated with RE

v. Search() function

vi. Findall() function

vii. Compile() function

viii. Sub() function

ix. Subn () function

x. Expressions using operators and symbols

xi. Simple character matches

xii. Special characters demonstrations

- xiii. Character Classes
- xiv. Mobile number extraction
- xv. eMail extraction
- xvi. Identifier extraction
- xvii. Web scrapping

xvi. OBJECT ORIENTED PROGRAMMING

- i. Abstraction
- ii. Encapsulation
- iii. Inheritance
- iv. Polymorphism
- v. Exception Handling

xvii. DATA BASE PROGRAMMING

- i. MySql
- ii. Mongodb
- iii. Firebase cloud

4. SOFTWARE DEVELOPMENT LIFE CYCLE MODELS

- i. SDLC Models
- ii. Waterfall Model
- iii. Prototype Model
- iv. Incremental / Iterative Model
- v. Spiral Model
- vi. RAD Model
- vii. Big-Bang Model
- viii. Fish Model
- ix. V-Model
- x. Agile Model (Scrum)

5. S/W TESTING LIFE CYCLE

- i. Test Strategy
- ii. Test Planning
- iii. Test Case Design
 - i. Fundamental of TC's
 - ii. TC Design Technique (BBT)
 - iii. Types of TC's
 - iv. TC Template
 - v. TC Reviewing
- iv. Test Execution

v. Defect Reporting & Tracking

i. Defect Reporting

ii. Defect Life Cycle (BLC)

iii. Severity, Priority

vi. Test Closure

i. Criteria for Test Closure

ii. Test Summary Reports

6. Manual Testing

i. Under Standing & Analyzing Test Requirements.

ii. Creating RTM (Requirement Traceability Matrices) Document

iii. Test Plan Documentation

iv. Test Case Development & Test Data Collection

v. Updating Requirement Traceability Matrices

vi. Test Environment Setup & Smoke Testing

vii. Execute Basic Functionality Test Cases (Sanity Testing)

viii. Execute All Possible Test Cases (Comprehensive Testing)

ix. Defect Reporting & Tracking.

x. Accepting Modified Build by Conducting sanity Testing

xi. Execute Re and Regression Test cases Cycle-1

xii. Defect Reporting & Tracking.

xiii. Final Regression.

xiv. Evaluate Exit Criteria and Send Test Deliverables

xv. Test Case Design Testing

i. Static techniques

i. Informal reviews

ii. Technical Reviews

iii. Walkthroughs

ii. Dynamic Techniques (Black Box Test Techniques)

i. Equivalence Class Partitioning

ii. Boundary Value Analysis

iii. Decision Table Testing

iv. State Transition Testing

iii. White Box Test Techniques

i. Statement coverage testing

ii. Branch coverage testing

iii. Path coverage testing

iv. Conditional coverage testing

v. Loop coverage testing

- iv. **Non-Functional Testing**
 - i. **Performance Testing(Load Testing)**
 - ii. **Usability testing**
 - iii. **Compatibility testing**
 - iv. **Reliability testing**
 - v. **Security testing**
 - vi. **Cookies testing**
 - vii. **Recovery testing**
- v. **Software Test Documents**
 - i. **Test Policy**
 - ii. **Test Strategy**
 - iii. **System Test Plan**
 - iv. **RTM**
 - v. **Test Scenario**
 - 1. **Test cases**
 - 2. **Test data**
 - 3. **Test metrics**
 - 4. **Defect Report**
 - 5. **Test Summary Report**

7. SELENIUM WEBDRIVER

- i. **Intro & setup webdriver in pycharm**
- ii. **Web Locators**
 - i. **Id**
 - ii. **Name**
 - iii. **Link text**
 - iv. **Class**
 - v. **Xpath**
- iii. **WebDriver Commands**
- iv. **Waits**
- v. **Working with WebElements**
- vi. **Working with alerts, frames & browser Windows**
- vii. **Handling Notification Popups & WebTables**
- viii. **Handling Date Pickers**
- ix. **Handling Mouse Actions**
- x. **Keyboard Actions, File upload & Download**
- xi. **Drop Downs, Screenshots, cookies, headlines**
- xii. **Data Driven Testing- Excel**

8. PYTEST FRAMEWORK

- i. **PyTest Framework with Parametrize Testing**
- ii. **PyTest Framework with Excel data**
- iii. **PyTest Framework with Jenkins**
- iv. **Page Object Model**

9. SELENIUM HYBRID FRAMEWORK

- i. **Frame Work Part- Utilities**
- ii. **Framework Part-Configurations**
- iii. **Framework Part- Object class**
- iv. **Framework Part-Test Cases**
- v. **Framework Part-Logs**
- vi. **Framework Part- Reports**
- vii. **Framework Part-Screenshots**

10. DATA DRIVEN TESTING

- i. **OpenPyXL Module**
- ii. **Excel sheet read, write**
- iii. **Excel sheet as source for testing**
- iv. **Database as source for DDT**
- v. **CSV as source for DDT**
- vi. **JSON as source for DDT**

11. API TESTING

- i. **Methods**
- ii. **CRUD Operations**
- iii. **JSONPATH**
- iv. **JSON file interaction Operations**

12. GIT, GITHUB, VCS Integration

- i. **Git Installation**
- ii. **Git Commands**
- iii. **GITHUB Repository**
- iv. **VCS Integration with Git and Github & Pycharm**

13. Azure Cloud Testing

- i. **Flow steps to test automation testing scripts**
- ii. **Python scripts execution and reports generation**
- iii. **Azure Cloud Account Subscription**

Real Time Project Implementation Demonstrations