Understanding of Automation Framework
Introduction to Test Automation Framework

Areas covered Include:

- What an Automation Framework is?
- How many types of Automation Framework are there?
- How to select & Deploy an Automation Framework?
- What are the Constituents of Automation Framework?

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What a Test Automation Framework is?

It is a structured combination of:

- Various Assumptions for Testing
- Testing Concepts
- Testing Practices

Aim is to provide support to Automated Software Testing

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Utility of Test Automation Framework

- Provides an Outline of overall Test Structure
- Ensures Consistency of Testing
- Minimizes the Amount of Code for Development - thereby Less Maintenance

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Utility of Test Automation Framework

- Maximizes Reusability
- Reduces Exposure of Non-Technical Testers to Code
- Enables Test Automation using Data
How Many Types of Automation Frameworks are there?

Generally there are 4 Types:

- **Data Driven Automation Framework**
- **Keyword Driven Automation Framework**
- **Modular Automation Framework**
- **Hybrid Automation Framework**
Data Driven Automation Framework

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Data Driven Automation Framework

Advantages:

- Repeated use of Test Scripts with Different Inputs and Response Data coming out of Predefined Dataset
- Easy to implement in IBM - RFT with the help of Datapools
- Helps in Reducing Coding for Large Test Cases
- Ease of Testing of Time-Consuming & Complex Test Cases

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Keyword Driven Automation Framework
Keyword Driven Automation Framework

Attributes:

- As the Name suggests, it enables Keyword Driven Testing or Table Driven Testing
- Data & Keyword Tables being Independent of the Automation Tool
- Enables Documentation of the Functionality of the Application under Test (AUT) in A Tabular Format

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Modular Automation Framework

Types of Modular Frameworks:

- **Test Script Modularity Framework:**
  Enables creation of Small, Independent Scripts representing Modules & Functions of the Application under Test (AUT).

- **Test Library Architecture Framework:**
  Enables creation of Library Files representing Modules & Functions of the Application under Test (AUT).

[Website Link]
Hybrid Automation Framework

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Hybrid Automation Framework

Attributes:

- It is the Most Popularly Implemented Framework
- It is a Combination of the Three Types of Frameworks described before
- It has an Ability of Evolving Itself Over a Passage of Time and Over Many Projects

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Ten Steps to Implement Automation Framework Approach

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How to Implement Test Automation Framework Methodology

Steps 1 and 2:

1) Identification of the Scope of Testing:

Company Oriented, Product Oriented, Project Oriented

2) Identification of the Needs of Testing:

Identify Types of testing e.g. FT, Web Services etc. and application / modules to be tested

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Ten Steps for Implementation of Test Automation Framework Methodology

Steps 3 and 4:

3) Identification of the Requirements of Testing:

Find out the Nature of Requirements, Identification of type of actions for each requirement & identification of High Priority Requirements

4) Evaluation of the Test Automation Tool:

Preparation of Evaluation Checklist, Identification of the Candidate Tools Available, Sample Run, Rate & Select the

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Ten Steps for Implementation of Test Automation Framework Methodology

Steps 5 and 6:

5) Identification of the Actions to be automated:

Actions, Validations & Requirements supported by the Tool

6) Design of the Test Automation Framework:

Framework Guidelines, Validations, Actions Involved, Systems Involved, Tool Extensibility Support, Customs Messages & UML Documentation

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Ten Steps for Implementation of Test Automation Framework Methodology

Steps 7 and 8:

7) Design of the Input Data Bank:

Identification of Types of Input file, Categorization & Design of File Prototypes

8) Development of the Automation Framework:

Development of Script based upon Framework Design, Driver Scripts, Worker Scripts, Record / Playback, Screen / Window / Transaction, Action / Keyword & Data Driven

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Ten Steps for Implementation of Test Automation Framework Methodology

Steps 9 and 10:

9) Population of Input Data Bank:

Different Types of Data Input, Population of Data from Different Data Sources, Manual Input of Data and Parent – Child Data Hierarchy

10) Configuration of the Schedulers:

Identify Scheduler Requirements & Configure the Schedulers

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Benefits of Automation Framework Approach

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Automation Framework Combined with Systematic Approaches

Yields Following Benefits:

- Significant Reduction in Testing Cycle Time
- Comprehensive Coverage against Requirements
- Use of a "Common Standard" across the Organization / Product Team / Project Team

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Automation Framework Combined with Systematic Approaches

Yields Following Benefits:

- Generation of Reusable Test Scripts (Utility Functions)
- Systematic Maintenance of Automation Scripts
- Data Pooling

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