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Scientific Study of Hybrid Testing Framework and Procedure

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Abstract: - In this paper it is discussed in details the meaning of hybrid framework, hybrid model, testing life cycle and its different procedures. The word hybrid it self explains mixing of two together. This paper will explain using hybrid model techniques to test the applications. There are few stages that need to be followed carefully to achieve accuracy in test results. Hybrid approach is of two types. Both will be explained in brief in this paper.

Keywords: - Hybrid Model, Framework, Advantages, Disadvantages.

Introduction: - A framework is essential for any kind of application in which it runs. There are different types of frameworks which will have various characteristics. Each framework will have certain standards and protocols which is mandatory to follow. It is basically an environment which will have certain defined rules and standards which one need to follow in order to do testing. In case of automation testing, it will have certain rules which are useful to create test cases or test scripts. Basically, framework acts as a pillar or a support system which will help to create test cases/ test scripts for the testing procedure. On the other hand, hybrid framework means which will have defined set or defined group of rules which will be useful for hybrid testing of applications. There are various types of testing frameworks: - [1]

1. Data-driven framework
2. Keyword driven framework
3. Modular framework
4. Linear framework
5. Hybrid Testing framework

In this article we will focus on hybrid testing framework.
What is Hybrid Testing Framework: -
The word hybrid means combination of two or more than two in one. Hybrid testing means testing of an application using two or more than two models of testing. Hybrid testing framework is the combination of two or more than two types of frameworks in one framework. The combination of using two types of frameworks in one framework depends upon the requirements of the application. The tester should have good experience of implementing hybrid framework to achieve maximum advantage in the test results. The advantage of using hybrid framework approach is that it will implement the best qualities of both the frameworks in one framework which will make the testing easy and gives more accurate test results. The other advantage is that using hybrid framework makes it easy for the testers to use same automation scripts in future which saves a lot of time and energy.

Advantages of Hybrid Testing Framework: - [2]

a. Combination of two frameworks: - The advantage if hybrid framework is that it can be used to adapt best features of each framework which will enhance the quality of test scripts and test results.

b. Saves time: - Since the test scripts are written once and can be reused and this will reduce time taken by testers to test the application.

c. Can be reused: - The test scripts can be reused n number of times by the testers. The whole script need not be changed again and again and modifications can be done in the test script.

d. Implementation: The implementation is easy for these types of frameworks provided the person implementing should have good knowledge.

e. The ability to create reports and storing the data in other storage methods is easy in hybrid framework.

f. The maintenance and support is easy as everything is documented well and can be referred in future easily.

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Disadvantages of Hybrid Testing Framework: -

1. Initial struggle for designing framework: -In order to implement hybrid testing framework, the designer will have to undergo a long process. If the designer is not comfortable with all types of frameworks present then he will not be able to define the scope of hybrid framework properly. First of all, the designer should understand the scope of the application and based upon that he should start identifying that which two or more frameworks will work best for meeting those specifications. This whole process requires a lot of efforts and is time consuming.

2. Needs experienced manpower: - The combination of implementing two different frameworks can be done easily only when the designer has sound knowledge. Therefore, it is time consuming process to hire such experienced designers.

3. Increased cost: - Since the implementation of such framework needs hands on experience so the organizations are supposed to hire such employees. The cost on manpower increases in such scenarios.

4. Since the whole procedure is supposed to be automated so initial effort to write test script is more.

Hybrid Framework Testing Lifecycle: -

For testing hybrid frameworks, there are various stages that should be followed step by step in order to have efficient hybrid framework. Following are the stages: -
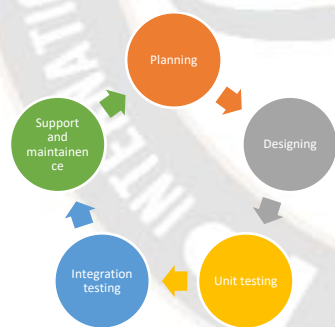

Figure 1 Hybrid Framework testing cycle.

1. Planning stage: - In this stage first of all the requirement specification is created based on the requirements of the client for his application. Every minute detail of the application is discussed with the client so that the aim and goal of the application is defined properly in this stage. Once this stage is completed then they move to the next stage of the cycle.

2. Designing of framework: - In this stage based on the output of the first stage, the designer sets his own goals and aim as how to procced further. The designer should have good knowledge of all types of frameworks which will make easy for him to decide as which combination of framework he will use. He should understand the different characteristics of the application and then decide the types of frameworks he will use to make hybrid framework.

3. Unit testing: - After selecting the combinations of the framework, the tester in this stage will test each framework separately in this stage for any type of errors. The test should identify whether each of the framework selected is working properly under different platform and different inputs without giving any errors. He should also rectify if there are any errors before integrating them.

4. Integration testing – In this stage the combination of all the frameworks selected and tested is integrated and then it is tested whether now they are working properly without giving any errors. In this stage also, various data and input is given and checked if it is working and giving outputs as expected. If not, then the whole process is repeated until all the bugs are identified and fixed.

5. Support and Maintenance: - Once all the bugs are fixed the final stage will have implementation of hybrid framework in real type environment. There will be continuous watch on the functioning of the framework for any bugs. If yes than it is immediately reported and fixed.

Elements of Hybrid driven Framework: -

The elements of hybrid driven framework is combination of data driven and keyword driven framework. The different elements of hybrid framework can be seen in diagram: -[3]
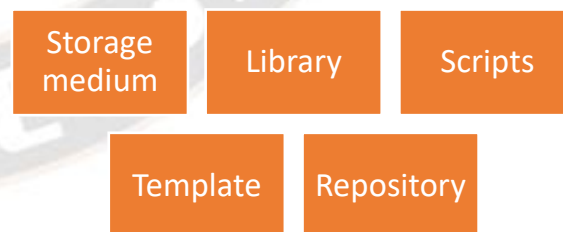

Figure 2 Elements of Hybrid Framework.

1. Storage Medium: - The hybrid framework will have any type of storage medium like excel sheet to store its information.

2. Library: - Some keyword will be created to identify user actions. For user actions few pre-defined methods will be created in library.

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3. Scripts: - All the test scripts will be created which can be used in future as well. These test scripts will be automated hence can be reused.

4. Template: - There will be test case templates which can be followed to create test scripts and hence saves time.

5. Repository: - A separate repository will be created in which all the element details will be stored.

Conclusion: - Hence this paper has explained the scope of hybrid framework in detail. There are many types of frameworks available but hybrid framework has more benefits as compared to other frameworks. If the designer is capable to identify the features of an application properly then it is easy for him to implement the hybrid framework efficiently.

References: -
1.https://www.linkedin.com/pulse/hybrid-test-automation-framework-srini-ippili?trk=read_related_article-card_title
2.https://www.bartleby.com/essay/Advantages-And-Disadvantages-Of-The-Hybrid-Test-PCJAMKQTN6
3.https://www.softwaretestinghelp.com/hybrid-framework-in-selenium/