**Framework:-**

The structural way to implement the scripts for better maintenance is known as framework.

* Maintenance means how we are implementing the script. Is it easy to analyze, update, execute and getting the test report.
* We have the below frameworks

1. Modular framework.
2. Data driven framework.
3. Keyword driven framework.
4. Hybrid framework.

**Modular framework:**

* It is the basic framework and also known as linear framework.
* The application will be divided into multiple modules and sub modules.
* The automation engineer will implement the scripts for all the modules and sub modules. once all the scripts are stable then they will integrate in a hierarchal order to execute.

**Data driven framework:**

* From data driven onwards external files like excel, text (note pad), database, xml etc..
* The external files are to take test data and to give the output results.
* It contains driver script which is responsible for execution. The driver script doesn’t contain any of the test cases and test data.
* All will be available in the external file.
* The driver script will take the data external files and executes. Hence we will call it as data driven framework.

**Advantages**:

1. If any change in the application we can update the change in the external file. So, the maintenance is easy.
2. The driver script will be implemented based on the command fields available in the application. So it is reusable for all kinds of application.
3. It is more suitable for agile based projects.
4. If the application contains more number of fields type 100 textboxes, 100 buttons etc. Then not necessary to implement those many lines of code to we can prefer driven script work on all the fields.

**Disadvantages:-**

1. Developing the driver script is a challenging task.
2. Taking all the fields locators into the excel file is also a challenging task.

**Keyword driven framework:**

* Keyword means as a step it is a step by step execution.
* It is very similar to manual testing format.
* The way we have used to implement the test cases in manual testing the same can be followed in keyword driven with the help of Junit and TestNG as below.

|  |  |
| --- | --- |
| **Manual Testing** | **Keyword Driven framework**  **Junit & TestNG** |
| Precondition  Testscenario with Testscripts  Postcondition | Before  Test  After |

**Advantages:**

1. The same manual testing format we are using in a automation .so the maintenance is easy.
2. Junit and TestNG are predefined frameworks not necessary to implement the frameworks.
3. Once the execution is completed it will provide the results also.

**Disadvantages:**

1. We can choose keyword driver framework for suitable applications.

**Hybrid framework:-**

* The combination of two or more frameworks is nothing but hybrid framework.
* We can utilize the advantages of both the frameworks in hybrid framework.