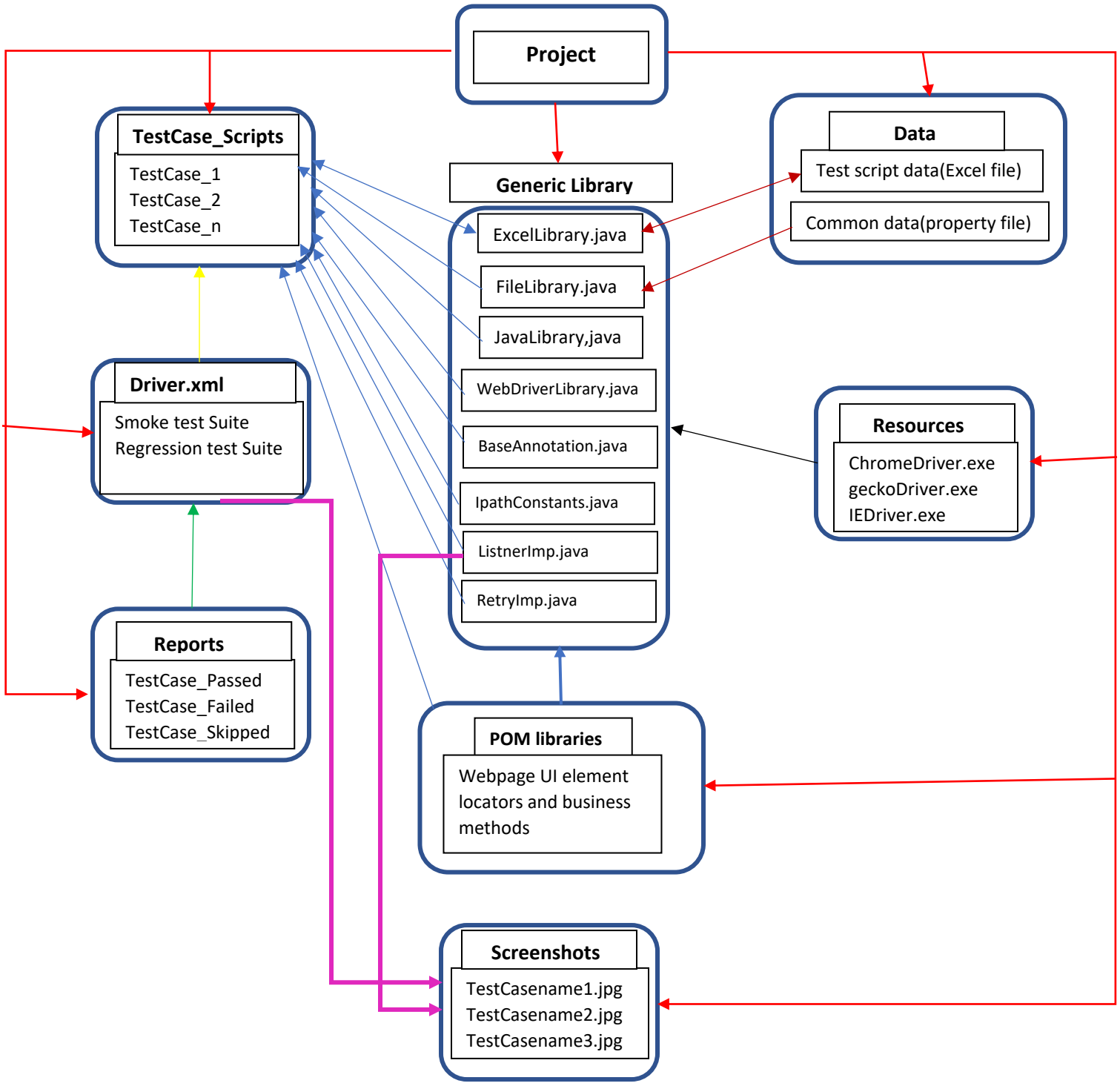
What is Framework?

Framework is a well organized structure with set of guidelines followed by every organization which contains reusable generic components which helps in generating and executing automation test scripts in a simple and easier way without any manual intervention.

Framework Architecture



Our Project framework consists of 8 components

1.Generic/common libraries
2.Test data
3.Resources
4.POM libraries
5.Testcase Scripts
6.Driver.xml
7.Reports
8.Screenshots

1. **Generic/common libraries** :- It consists of 8 reusable classes which are used by automation engineer in test scripts.
   i)Excel Library :- To read and write test script data from excel we use Excel library.
   ii)File Library :- To read common data such as browser, url, username, password etc we use File Library.
   iii)Java Library :- In test scripts we may require current date, random number ect, we write this type of methods in java library.
   iv)WebDriver Library :- to handle web elements in test script we need some classes and methods such as Actions class, Select class, Alert, synchronization, maximize etc , these are written and stored in WebDriver Library.
   v)Ipath Constants Library :- We may not know when test data changes and need to test the application with different test script data and common data .So we keep test and common data inside test resources folder and create path of common and test data and store it in Ipath Constants library. Anybody using IPath constants cannot change them in other classes because Ipath is interface and is default static and final.
   vi)Base Annotation Class :- This component consists of config methods to evaluate pre and post conditions for test scripts by using @Before and @After annotations.
   vii)Listener Implementation class :- There is need to take screenshot when there is failure in test cases. For this purpose we use Listener Implementation class to write script for capturing screenshot.
   viii)Retry Implementation class :- In some test scripts there may be chances for failure due to problems in browser or network, in those situation we use Retry implement class to rerun the test script for required number of times.

2.Test data :- As per the rule of automation, we should not hardcode the data in test scripts. Because if we need test the Application with different test data, we need change data in all test scripts. So, test data is stored separately. We have two types of test data
i)Common data - common data such as browser, url, username, password etc are stored in properties and kept in folder inside the project
ii)Test Script data- All the test script data such required to automate test scripts may be given by manual test engineer or from resource team or sometimes by customer itself. This data is stored in excel file and imported to resource folder of the project.

3.Resources :- The different browser executable driver files such as Chromedriver.exe and geckodriver.exe etc required for test script automation are stored in resources folder of the project.

4.POM Library :- As per the rule of automation we should not hardcode locators because whenever there are changes in application UI, locators also keep changing. For this reason locators of web elements are stored in POM along with business methods.

5.Test Scripts :- This component contains only actual test scripts for test cases written by extending Base Annotation class and by importing generic library.

6.Driver.xml :- This component of framework is the main component of automation framework. Once test scripts are Are completed, all test scripts are given to framework developer. The Framework developer will created

Driver.xml where we do batch Execution , smoke test and regression test ,compatibility test automation of test script.

7.Reprots :- This component after execution of test scripts in Driver.xml, stores and displays the reports of test scripts Whether failed , passed or skipped.

8.Screen shots:- This component of framework is used to store screen shots of failed test cases which internally uses Listener Implementation class in generic library to take screen shot of failed test cases.

There are 3 stages in Framework development

i) **Framework design stage :-** This stage begins at sprint -1, in this stage the framework developer will design the Framework which consist of generic libraries such as Excel library, file library, POM library, java library, Webdriver library, base annotation class etc.

ii) **Framework development stage** :- This starts from sprint-2, in this stage all the automation test engineers involve in developing test scripts by using generic libraries designed in sprint-1.

iii) **Framework execution stage** :- Every time when there is a new build in testing environment, automatically execution will always be handled by JENKINS and mail will be sent to concerned test engineer.