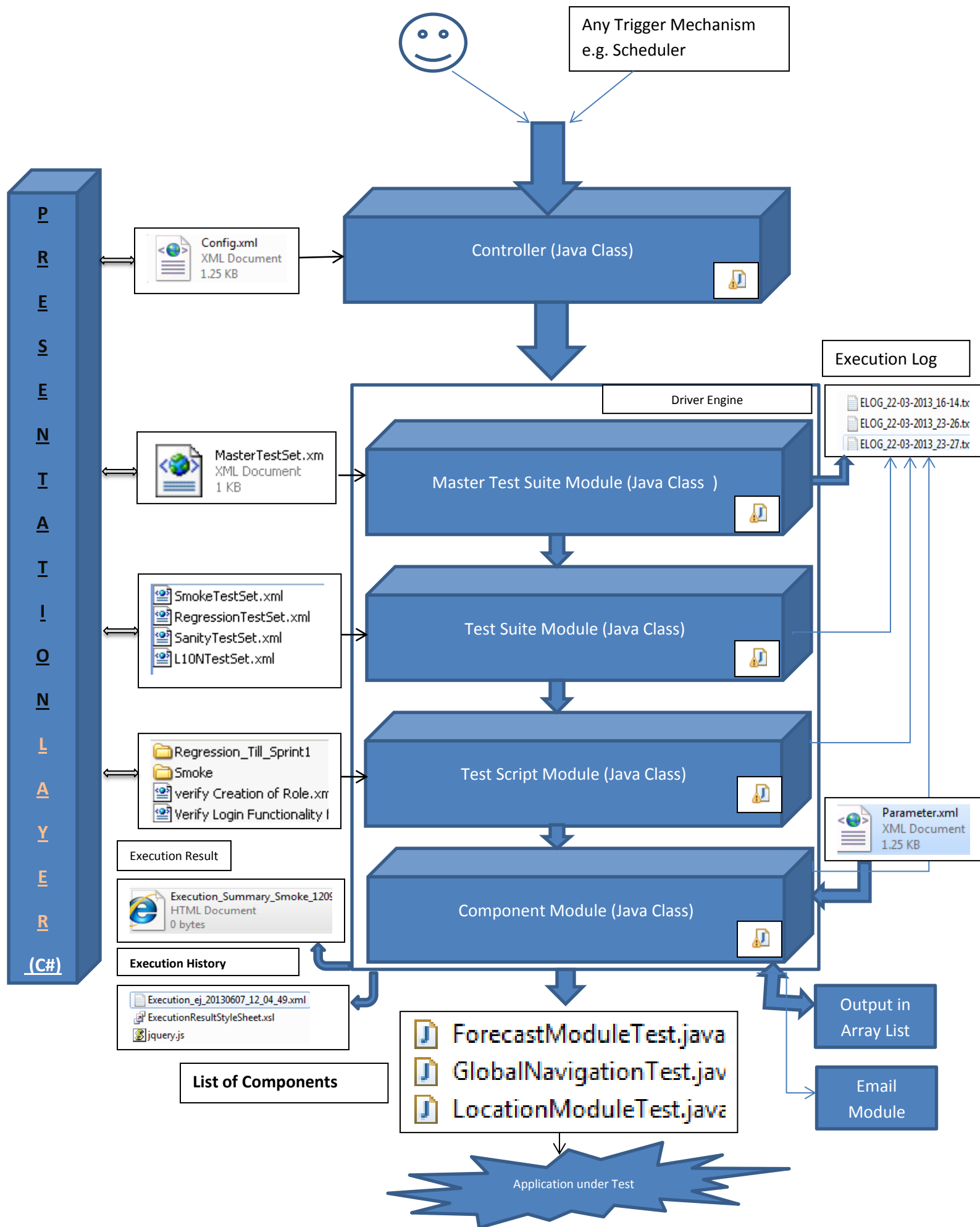


High Level Conceptual Automation Framework Architecture






Designed by...

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Naming Conventions:

Symbol	Meaning
	Two way communications. Perform CRUD Operations on XML files.
	Transfer of Control from one Module to another
	Exchange to Data
	Data Out
	Data In

Controller:

The Main Job of a Controller is to make the initial settings which we need before our Automation Activity Start. It will take the required configuration setting parameters from Config.xml file.

Config.xml file will hold the information of

- On how many devices we need to run our automation suites
- Do we need to capture detail level log?
- Root Path of the Project

Master Test Suite Module:

This module will first read **MasterTestSet.xml**, which holds the information of all the available Test Suites/Test Sets we have. It will store the Information of only those Test Suites which are marked for execution into Array List and passed this information to Test Suite Module.

Content of MasterTestSet.xml file will look like this

```
- <MASTERTESTSET>
  <TESTSET PATH="Smoke.xml" EXECUTE="Y" />
  <TESTSET PATH="Now_Module_Smoke.xml" EXECUTE="Y" />
  <TESTSET PATH="Now_Module_Regression.xml" EXECUTE="N" />
</MASTERTESTSET>
```

Test Suite Module:

This module will read the pass Test Set File Name and find out how many Test Scripts are marked for execution. This information he will store it in the Array List and passed this information to Test Script Module.

Typical Test Set File will look like this

```
- <TESTSET>
  <TESTSCRIPT PATH="TESTSCRIPTS\Verify available Top Links on the Home Page" EXECUTE="Y" />
  <TESTSCRIPT PATH="TESTSCRIPTS\Verify Login Functionality For Invalid username and invalid password.xml" EXECUTE="Y" />
  <TESTSCRIPT PATH="TESTSCRIPTS\Verify Login Functionality For blank username and blank password.xml" EXECUTE="N" />
</TESTSET>
```

Test Script Module:

This module will read the pass Test Script File Name and find out how many Components are marked for execution. This information he will store it in the Array List and passed this information to Component Module.

Typical Test Script File will look like this

```
- <TESTSCRIPT>
  <ID>4/21/201317170597</ID>
  <SUMMARY>Verify Login Functionality for Valid Username and password</SUMMARY>
  <AUTHOR>Vinay</AUTHOR>
  <MODIFICATION_DATE>Sunday, April 21, 2013</MODIFICATION_DATE>
  <MAPPED_TCS>7340</MAPPED_TCS>
  <STEPS>1. Launch Application 2. Login with IT admin user 3. Click on Submit button 4. Check for the Home Page</STEPS>
  <NOTE />
  <FUNCTIONALITY>ROLE</FUNCTIONALITY>
- <EXECUTION_FLOW>
  <COMPONENT NAME="LAUNCHAPPLICATION" Input1="ENV_APPPATH" Input2="ENV_PN" Input3="ENV_URL" Output1="DICT_LAUNCH_MSG1" EXECUTE="Y" />
  <COMPONENT NAME="LOGIN" Input1="English" Input2="ENV_UN_IT" Input3="ENV_PWD_IT" Input4="VU" Output1="DICT_Login_MSG1" EXECUTE="Y" />
</EXECUTION_FLOW>
</TESTSCRIPT>
```

Component Module:

Component Module will first read the component name for the selected Test Script/case, at the same time he will take the required inputs associated to this component either from parameterized file or hard coded and then passes this information to the java Functions which is actually performing the operations on the target application.

What is Component? : Component is a set of activity which is reusable across n number of test cases.

For example: Selection of Menu Items on the home page, is a common activity across multiple test cases, so we need to store this information into separate java function which we are calling as Component.

Typical Component will look this

```

public ArrayList<String> FindWebLinkObject (ArrayList<String> InputParameters)
{
    ArrayList<String> OutputParameters=null;
    GenerateNameValuePair (NameValuePair);
    for( int ip=0;ip<PN.length;ip++)
    {
        if(PN[ip].toUpperCase().equals("NAME"))
        {
            if(!elementName.getText().toUpperCase().equalsIgnoreCase(PV[ip]))
            {
                bolcheck=false;
            }
        }
        else
        {
            bolcheck=true;
            if(! PN[ip].toUpperCase().equals("INDEX"))
            {
                if(! elementName.getAttribute(PN[ip]).toUpperCase().equalsIgnoreCase(PV[ip]))
                {
                    //matchingObjects.add(allIPTags.get(ip));
                    OutputParameters.add("Successful");
                }
            }
        }
    }
}

return OutputParameters;
}

```

Note: Input will of 3 types

1. Hard coded input
2. Input from Parameters.xml parameterized file
3. Output of previous component/script.

Email Module:

Email Module will send the notification to DL i.e. distribution list once the execution is over.

It Require following list of inputs which we are going to define in Config.xml

SMTP URL: e.g. smtp.gmail.com

Port Number: e.g. 25

Senders Email ID: test Account@gmail.com

Execution Log & Result:

Driver Engine is responsible for generating the execution log, Execution History and Execution Result for the selected Test Set. Execution Log will help us to debug the script in case if it fails. Execution history will help us to generate the dashboard and identify the health check of our Automation Activity. Execution Result (.html) is for the upper management.

Execution Result will look given below ...

Date: 2013/06/11 16:15:35

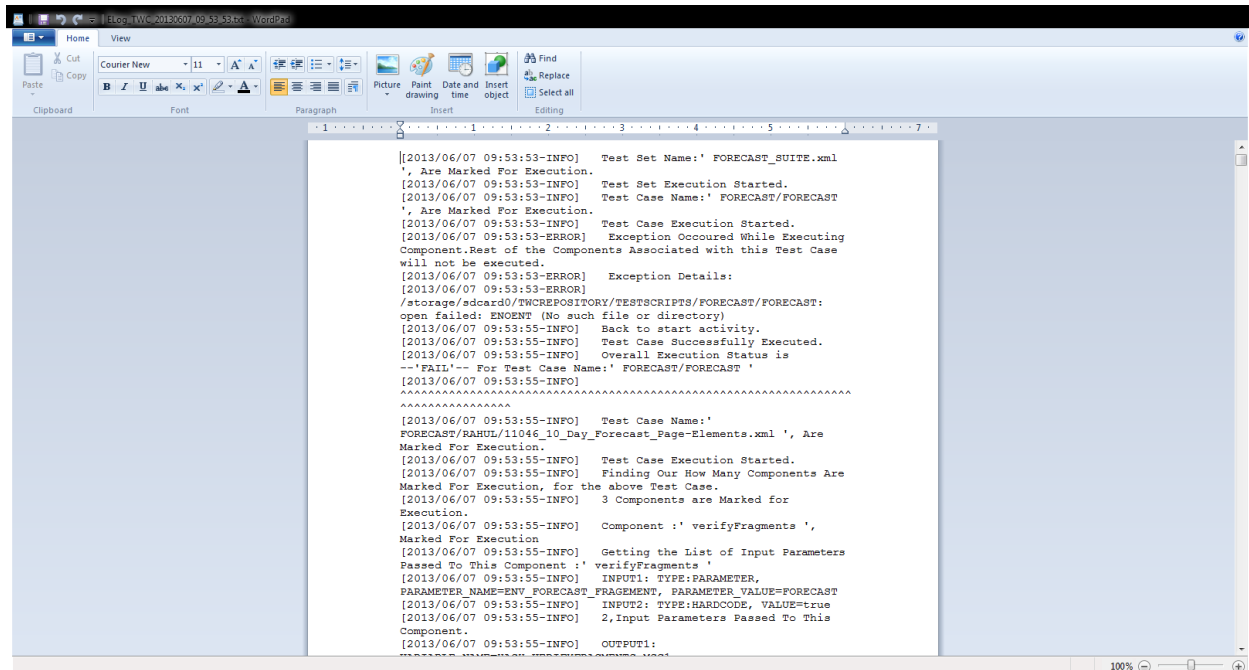
Execution Result

No.	Expand/Collapse	Test Set Name	Status	Start Time	End Time	Total Time	Note	Total Test Script's	Test Script Pass-(%)	Test Script Fail-(%)	Test Script Error-(%)
TS-1	Expand Collapse	NOW_SUITE.xml	PASS	2013/06/11 15:58:58	2013/06/11 16:08:23	00:09:25	Overall Execution Status is 'FAIL' For Test Set Name' NOW_SUITE.xml'	12	12 (100%)	0 (0%)	0 (0%)
No.	Expand/Collapse	Test Case Name	Status	Start Time	End Time	Total Time	Note	Total Component	Component Pass-(%)	Component Fail-(%)	Component Error-(%)
TC-1	Expand Collapse	NOW/VINAY/11388_Now_screen-Business_Rules-Screen_resolution_for_Phones.xml	PASS	2013/06/11 15:58:59	2013/06/11 15:59:55	00:00:56	Test Case Successfully Executed.	2	2 (100%)	0 (0%)	0 (0%)
No.	Component Name	Status	Start Time	End Time	Total Time	Note	Input Pass	Output Return			
C-1	verifyFragments	PASS	2013/06/11 15:59:02	2013/06/11 15:59:09	00:00:07	Execute Component Successful.	NOW,true	Output Value Return : HASH_VERIFYF verified the fragment.,			
C-2	verifyOrientation	PASS	2013/06/11 15:59:30	2013/06/11 15:59:31	00:00:01	Execute Component Successful.	Potrait,NOW	Output Value Return : HASH_VERIFYFO verified the orientation of the screen.,			
TC-2	Expand Collapse	NOW/VINAY/11377_Now_screen-functionality-Severe_Weather.xml	PASS	2013/06/11 15:59:56	2013/06/11 16:01:37	00:01:41	Test Case Successfully Executed.	3	2 (0%)	0 (0%)	1 (0%)

Execution History File will look like given below...

```
<?xml version="1.0" encoding="UTF-8"?>
- <MASTERTSETSET>
- <TESTSET NOTE="Execution Successful" STATUS="FAIL" TOTAL_TIME="00:01:36" END_TIME="2013/06/05 12:04:48" START_TIME="2013/06/05 12:03:12" NAME="FORECAST_SUITE.xml">
- <TESTSCRIPT NOTE="Test Case Execution Successful." STATUS="FAIL" TOTAL_TIME="00:00:02" END_TIME="2013/06/05 12:03:14" START_TIME="2013/06/05 12:03:12" NAME="FORECAST/FORECAST"/>
- <TESTSCRIPT NOTE="Test Case Execution Successful." STATUS="PASS" TOTAL_TIME="00:00:14" END_TIME="2013/06/05 12:03:28" START_TIME="2013/06/05 12:03:14" NAME="FORECAST/RAHUL/11046_10_Day_Forecast_Page-Elements.xml">
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:04" END_TIME="2013/06/05 12:03:18" START_TIME="2013/06/05 12:03:14" NAME="verifyFragments" OUTPUT_RETURN="Output Value Return : HASH_VERIFYFRAGMENTS_MSG1:Successfully verified the fragment.," INPUT_PASSED="FORECAST,true"/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:08" END_TIME="2013/06/05 12:03:26" START_TIME="2013/06/05 12:03:18" NAME="verifyLastDateOfForecastPage" OUTPUT_RETURN="Output Value Return : HASH_VERIFYLASTDATEOFFORECASTPAGE_MSG2:Forecast for all Ten Days is visible.," INPUT_PASSED=""/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:00" END_TIME="2013/06/05 12:03:27" START_TIME="2013/06/05 12:03:27" NAME="firstDayAsMonth" OUTPUT_RETURN="Output Value Return : HASH_FIRSTDAYASMONTH_MSG3:First Day of month is Current Month abbreviated.," INPUT_PASSED="01"/>
- </TESTSCRIPT>
- <TESTSCRIPT NOTE="Test Case Execution Successful." STATUS="PASS" TOTAL_TIME="00:00:28" END_TIME="2013/06/05 12:03:57" START_TIME="2013/06/05 12:03:29" NAME="FORECAST/RAHUL/11050_10_Day_Forecast_Page-Interaction.xml">
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:04" END_TIME="2013/06/05 12:03:33" START_TIME="2013/06/05 12:03:29" NAME="verifyFragments" OUTPUT_RETURN="Output Value Return : HASH_VERIFYFRAGMENTS_MSG1:Successfully verified the fragment.," INPUT_PASSED="FORECAST,true"/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:07" END_TIME="2013/06/05 12:03:40" START_TIME="2013/06/05 12:03:33" NAME="verifyLastDateOfForecastPage" OUTPUT_RETURN="Output Value Return : HASH_VERIFYLASTDATEOFFORECASTPAGE_MSG2:Forecast for all Ten Days is visible.," INPUT_PASSED=""/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:05" END_TIME="2013/06/05 12:03:46" START_TIME="2013/06/05 12:03:41" NAME="verifyFragments" OUTPUT_RETURN="Output Value Return : HASH_VERIFYFRAGMENTS_MSG3:Successfully verified the fragment.," INPUT_PASSED="VIDEOE,true"/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:01" END_TIME="2013/06/05 12:03:47" START_TIME="2013/06/05 12:03:46" NAME="scrollToSide" OUTPUT_RETURN="Output Value Return : HASH_SCROLLTOSIDE_MSG4:Successfully scrolled to the side: RIGHT," INPUT_PASSED="RIGHT"/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:08" END_TIME="2013/06/05 12:03:55" START_TIME="2013/06/05 12:03:47" NAME="verifyLastDateOfForecastPage" OUTPUT_RETURN="Output Value Return : HASH_VERIFYLASTDATEOFFORECASTPAGE_MSG5:Forecast for all Ten Days is visible.," INPUT_PASSED=""/>
- </TESTSCRIPT>
- <TESTSCRIPT NOTE="Test Case Execution Successful." STATUS="PASS" TOTAL_TIME="00:00:08" END_TIME="2013/06/05 12:04:05" START_TIME="2013/06/05 12:03:57" NAME="FORECAST/RAHUL/11047_10_Day_Forecast_Page-Forecast_High_and_Low.xml">
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:04" END_TIME="2013/06/05 12:04:01" START_TIME="2013/06/05 12:03:57" NAME="verifyFragments" OUTPUT_RETURN="Output Value Return : HASH_VERIFYFRAGMENTS_MSG1:Successfully verified the fragment.," INPUT_PASSED="FORECAST,true"/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:02" END_TIME="2013/06/05 12:04:03" START_TIME="2013/06/05 12:04:01" NAME="verifyHiLowValues" OUTPUT_RETURN="Output Value Return : HASH_VERIFYHILOWVALUES_MSG2:Hi/Low values are according to functionality.," INPUT_PASSED=""/>
- </TESTSCRIPT>
- <TESTSCRIPT NOTE="Test Case Execution Successful." STATUS="PASS" TOTAL_TIME="00:00:10" END_TIME="2013/06/05 12:04:15" START_TIME="2013/06/05 12:04:05" NAME="FORECAST/RAHUL/11053_10_Day_Forecast_Page-QAB_Functionality-Search.xml">
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:04" END_TIME="2013/06/05 12:04:09" START_TIME="2013/06/05 12:04:05" NAME="verifyFragments" OUTPUT_RETURN="Output Value Return : HASH_VERIFYFRAGMENTS_MSG1:Successfully verified the fragment.," INPUT_PASSED="FORECAST,true"/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:00" END_TIME="2013/06/05 12:04:10" START_TIME="2013/06/05 12:04:10" NAME="clickOnSearchIconQAB" OUTPUT_RETURN="Output Value Return : HASH_CLICKONSEARCHICONQAB_MSG2:Successfully clicked on the Search Icon on QAB.," INPUT_PASSED=""/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:02" END_TIME="2013/06/05 12:04:12" START_TIME="2013/06/05 12:04:10" NAME="verifyZipTextOnSearchBox" OUTPUT_RETURN="Output Value Return : HASH_VERIFYZIPTXTONSEARCHBOX_MSG3:Successfully verified the text on the Search Box.," INPUT_PASSED="Zip/Place/Address"/>
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:01" END_TIME="2013/06/05 12:04:13" START_TIME="2013/06/05 12:04:12" NAME="clickBackButtonQAB" OUTPUT_RETURN="Output Value Return : HASH_CLICKBACKBUTTONQAB_MSG4:Successfully clicked on the Back Button QAB.," INPUT_PASSED=""/>
- </TESTSCRIPT>
- <TESTSCRIPT NOTE="Test Case Execution Successful." STATUS="FAIL" TOTAL_TIME="00:00:09" END_TIME="2013/06/05 12:04:24" START_TIME="2013/06/05 12:04:15" NAME="FORECAST/RAHUL/11055_10_Day_Forecast_Page-Business_Rules-Weather_data_Refresh.xml">
- <COMPONENT STATUS="PASS" TOTAL_TIME="00:00:04" END_TIME="2013/06/05 12:04:19" START_TIME="2013/06/05 12:04:15" NAME="verifyFragments" OUTPUT_RETURN="Output Value Return :
```

Execution Log will look given below...



Presentation Layer:

This is a Utility tool which helps Automation Tester to perform CRUD operations on either Test Suite/Test Script/Parameters file.

This will provide you all the information on single window (without navigating here and there). This helps the automation tester to build their Test Cases at a higher speed and which in turns improves the productivity and reduce the maintenance work.

This will be developed in C#.

Advantages of using this Framework:

1. Loosely coupled architecture, which accommodates future requirements of the customer without modifying the existing code.
2. Scalable
3. Better Productivity
4. Less Maintenance
5. Easy to understand
6. Novice person also start contributing from day 1