

An approach to improve User Acceptance Testing with Generative AI and RSL – Results, review and validation

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A - Basic scenario

For the basic scenario, generated results that require tool validation (RSL requirements and Robotframework automation script) are presented, with respective correction if necessary.

The corrections were based on the AI assistant's response after including the error as input in the prompt.

1. RSL requirements generation

Below are the sections of the RSL file before and after review. Errors are marked in red and corrections in green.

- System Definitions - Before and after review

```
/* RSL Specification for QA Testing Hub website */  
  
Package QA_Testing_Hub  
  
/*****  
  System definition  
*****/  
System QA_Testing_Hub_Website "QA Testing Hub Website" : Application [isFinal  
  description  
  "  
  The QA Testing Hub website is designed for professional testers to stay updated on software testing trends and develop their careers.  
  The website allows users to consult blog posts, news, events, purchase e-books, and contact the author.  
  "  
]
```

Figure 1. System Definitions section validated.

- Actors – Before and after review

```
/*  
  Actors definition  
*****/  
Actor a_User "User" : User [description "A professional tester navigating the website"]  
Actor a_Admin "Administrator" : ExternalSystem [description "System Administrator"]
```

Figure 2. Actors section validated.

- Events – Before and after review

```
/******  
| Events definition  
*****/  
Event ev_MenuNavigation "Menu Navigation" : Signal [isCatch]
```

Figure 3. Events section validated.

- Actions definition – Before and after review

```
/******  
| Actions definition  
*****/  
ActionType a_OpenPage "Open Page" [description "User clicks on a menu link to open a page"]  
ActionType a_VerifyText "Verify Text" [description "Verify that the correct text is displayed on the opened page"]
```

Figure 4. Actions definition section validated.

- Use Cases – Before review

```
/******  
| Use Cases definition  
*****/  
UseCase uc_NavigatePages "Navigate Website Pages" : EntitiesBrowse [  
  primaryActor a_User  
  dataEntity WebsitePages  
  actions a_OpenPage a_VerifyText  
  description "The user navigates through Home, News, E-books, Blog, Events, and Contact pages, confirming that the correct text is displayed."  
]
```

Figure 5. Actions definition before review.

- Use Cases – After review

```
/******  
| Use Cases definition  
*****/  
UseCase uc_NavigatePages "Navigate Website Pages" : EntitiesBrowse [  
  primaryActor a_User  
  dataEntity WebsitePages  
  actions a_OpenPage, a_VerifyText  
  description "The user navigates through Home, News, E-books, Blog, Events, and Contact pages, confirming that the correct text is displayed."  
]
```

Figure 6. Actions definition after review.

- Data Entities – Before and after review

```
/******  
| Data Entities definition  
*****/  
DataEntity WebsitePages "Website Pages" : Master [  
  attribute PageID : Integer [constraints (PrimaryKey)]  
  attribute PageName : String [constraints (NotNull)]  
  attribute ExpectedText : Text [constraints (NotNull)]  
  description "Represents the website pages, each associated with expected content to validate."  
]
```

Figure 7. Data Entities validated.

2. Automation script generation – Basic scenario

Below is the evidence of the successful execution of the automation script provided by the AI assistant (Figure 8 to Figure 11).

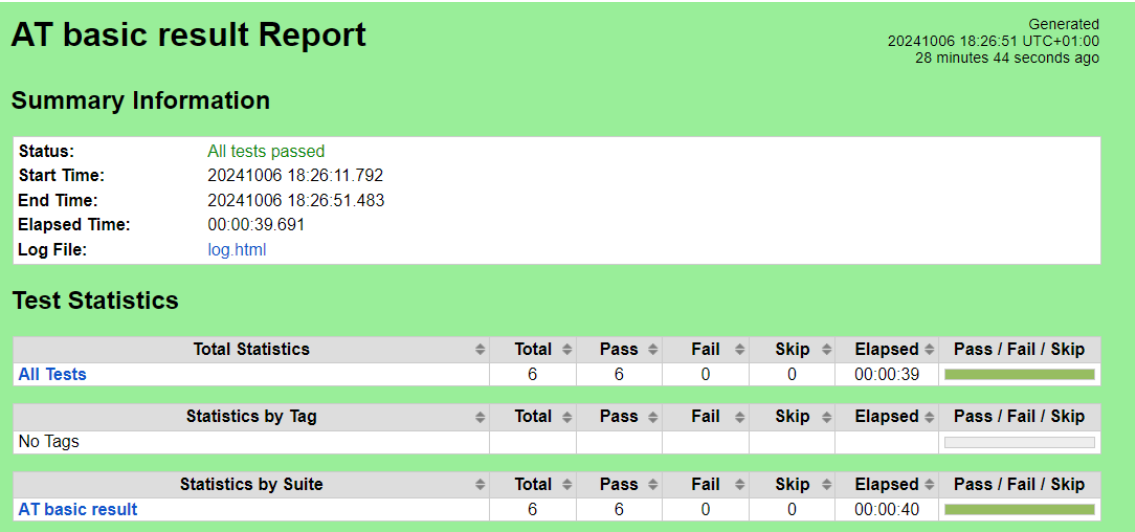


Figure 8. Successful automation Report.

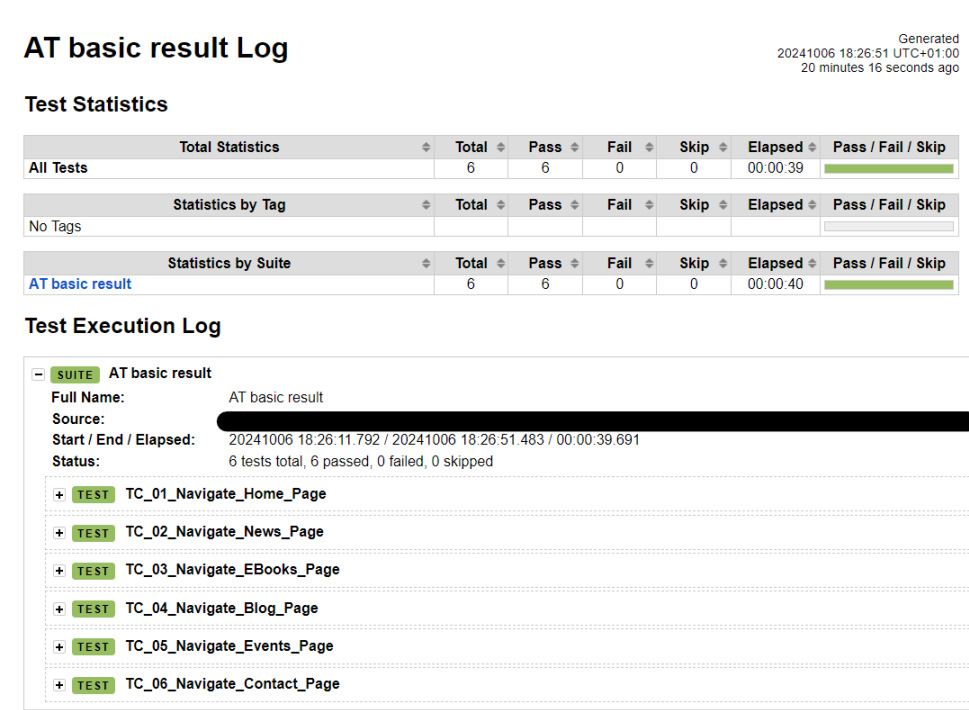


Figure 9. Successful automation Log.

```
AT_basic_result.robot U X
public > AT_basic_result.robot
1  *** Settings ***
2  Library      SeleniumLibrary
3
4  *** Variables ***
5  ${URL}       https://www.qatesthub.info/
6  ${BROWSER}   edge
7
8  *** Test Cases ***
9  TC_01_Navigate_Home_Page
10     Open Browser    ${URL}    ${BROWSER}
11     Maximize Browser Window
12     Title Should Be    QA Testing Hub
13     Page Should Contain    QA Testing Hub
14     Close Browser
15
16  TC_02_Navigate_News_Page
17     Open Browser    ${URL}    ${BROWSER}
18     Maximize Browser Window
19     Click Link      News
20     Page Should Contain    QA News
21     Close Browser
22
23  TC_03_Navigate_EBooks_Page
24     Open Browser    ${URL}    ${BROWSER}
25     Maximize Browser Window
26     Click Link      E-books
27     Page Should Contain    E-books
28     Close Browser
29
30  TC_04_Navigate_Blog_Page
31     Open Browser    ${URL}    ${BROWSER}
32     Maximize Browser Window
33     Click Link      Blog
34     Page Should Contain    Blog
35     Close Browser
36
```

Figure 10. First part of the automation file generated and validated.

```
AT_basic_result.robot U X
public > AT_basic_result.robot
23 TC_03_Navigate_EBooks_Page
28     Close Browser
29
30 TC_04_Navigate_Blog_Page
31     Open Browser    ${URL}    ${BROWSER}
32     Maximize Browser Window
33     Click Link      Blog
34     Page Should Contain    Blog
35     Close Browser
36
37 TC_05_Navigate_Events_Page
38     Open Browser    ${URL}    ${BROWSER}
39     Maximize Browser Window
40     Click Link      Events
41     Page Should Contain    Events
42     Close Browser
43
44 TC_06_Navigate_Contact_Page
45     Open Browser    ${URL}    ${BROWSER}
46     Maximize Browser Window
47     Click Link      Contact
48     Page Should Contain    Contact Information
49     Close Browser
50
```

Figure 11. Second part of the automation file generated and validated.