





# Jaypee University of Information Technology, Waknaghat - 173234 (India)

Major Project - II (18B19CI891) | AY 2024-25

Mid-Term Evaluation | March 17-22, 2025.

## **Automation Testing for features of Aspire**

Group No.: 74C

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Organization: Aspire

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### **Outline**



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#### Introduction



#### **About Aspire**

- Founded in 2018 by Andrea and Gio in Singapore.
- Aims to redefine business finance by addressing traditional banking inefficiencies.
- Focuses on providing business-centric financial solutions.

#### **Services Offered**

- Debit and credit accounts.
- Invoicing and money analytics.
- Foreign currency transfers.

#### **Automation Testing**

- Ensures smooth real-time transactions.
- Enhances regulatory compliance and minimizes human error.
- Aims to automate testing of the FX system for improved efficiency, speed, and scalability.

#### **Problem Statement**



#### **Testing in Finance Applications**

- Requires rigorous testing due to regulatory standards and business-critical needs.
- Aspire's application must perform seamlessly across multiple platforms and scenarios.

#### **Limitations of Manual Testing**

- Time-consuming and struggles to keep up with frequent system updates.
- Prone to human errors, leading to inaccurate test results.
- Lacks scalability, especially with Aspire's expansion into new markets (e.g., US).

#### **Automation Framework Implementation**

- Designed to test features across all platforms (Web, API, Android, iOS).
- Enhances efficiency, accuracy, and reliability.
- Reduces testing time and supports regression testing for new features.

### **Objectives**



#### **Test Case Development & Automation**

- Create and automate test cases for new and existing Aspire features.
- Develop automation scripts to test functionalities across multiple platforms.

#### **Manual & Automated Flow Validation**

- Manually verify critical workflows to detect potential gaps.
- Automate validated flows for scalability and continuous integration.

#### **Enhancing Testing Efficiency**

- Automate regression test cases to improve speed and accuracy.
- Regularly update test scripts for consistent and reliable results.

#### **Bug Fixing & Script Maintenance**

- Identify and resolve automation failures caused by script issues.
- Update outdated scripts to ensure accuracy and reliability in testing.

## Work Done (after Major Project - I)

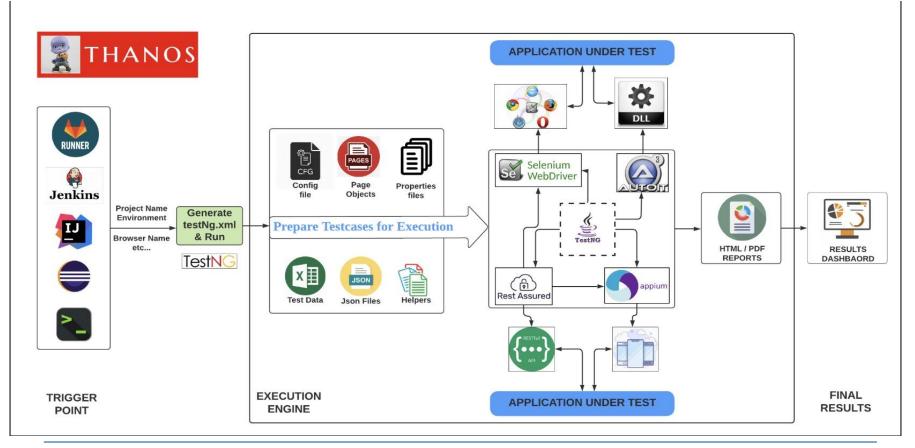


- Gained hands-on experience with Selenium for UI testing and RestAssured for API testing.
- Developed a deep understanding of Aspire's product and the automation framework Thanos.
- Created and executed test cases for newly assigned features in each sprint.
- Performed manual testing before automating workflows.
- Automated FX transfer API flows for multiple currencies (e.g., HKD to CNY), ensuring correct transaction handling and exchange rate validation.
- Performed manual testing and automated new flow for user onboarding to new business with existing email and existing mobile
- Fixed automation bugs in web and API test cases.

### **Project Design**

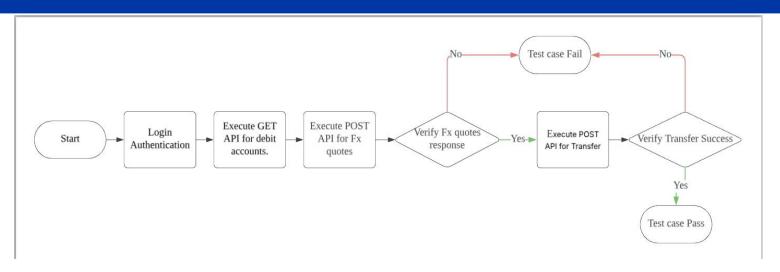


- Thanos is Aspire's private automation framework used for test automation.
- Follows the Page Object Model (POM) for structured and maintainable test scripts.
- Enables efficient test development, execution, and reporting.



### **Project Design**

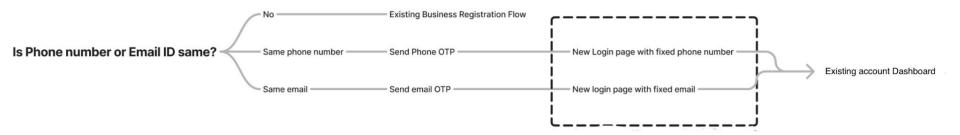




- Login Authentication: User accesses the system using valid credentials.
- Retrieve Debit Account Details: Execute API GET /v1/debit-accounts to fetch account information.
- Create FX Quotes: Send API POST /v1/fx/quotes request to generate FX quotes.
- Validate FX Quotes: Verify returned quotes to ensure exchange rates are accurate.
- Initiate FX Transfer: Execute API POST /v1/fx/transfers to process a transfer.
- Verify Transfer Status: Check if the transfer was successful.
- Test Case Result: Based on the outcomes, mark the test case as Pass/Fail.

## Project Design (cont...)





#### **Check if Phone Number or Email ID Matches:**

- No: Follow Existing Business Registration Flow.
- Same Phone Number:
  - Send Phone OTP.
  - Redirect to New Login Page with fixed phone number.
- Same Email ID:
  - Send Email OTP.
  - Redirect to New Login Page with fixed email.

Successful Login: Access Existing Account Dashboard.

### **Implementation**



- API automation for HK FX transfers is implemented using RestAssured.
- Thanos framework includes wrapper classes for various RestAssured functionalities.
- A parent function is created to define the core functionality of HK FX transfers.

```
public void makeDbsHkTransferApi(AccessHelper accessHelper, DashAccessHelper dashAccessHelper, CurrencyEnum sourceCurrencyEnum, boolean isInversionRate) 🗈 thuc.ng
       testConfig.logComment("Login Authentication");
        accessHelper.doAuthentication(AccessJsonResponse.AuthLoginOkSingleBusinessWithDebitAccount, AccessEnums.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.BusinessType.Busin
       testConfig.logComment("Execute API GET /v1/debit-accounts - Admin get " + sourceCurrencyEnum + " debit account and verify account list");
       accessHelper.setDebitAccountUuid(sourceCurrencyEnum);
        testConfig.logComment("Execute API POST /v1/fx/quotes - Admin create Fx quotes and verify quote data");
        Response response = accessHelper.executeApiAndVerify(TreasuryApiDetails.CreateFxQuotes, TreasuryJsonRequest.CreateMcaFxQuotesRequestSchema, CreateFxQuotesSuc
        testConfig.logComment("Verify DBS HK Fx Quotes");
       verifyDbsHkFxQuotes(response, isInversionRate);
        testConfig.logComment("Execute API POST /v1/fx/transfers - Admin submit transfer details and verify data");
       accessHelper.executeApiAndVerify(AccessApiDetails.PostAuthToken, AccessJsonRequest.PostAuthTokenRequestSchema, AccessJsonResponse.PostAuthTokenSuccessfulResp
       accessHelper.executeApiAndVerify(AccessApiDetails.PostRequestAdditionalToken, AccessJsonRequest.OtpTokenRequestSchema, AccessJsonResponse.OtpTokenSuccessResp
        accessHelper.executeApiAndVerify(TreasuryApiDetails.MakeFxTransferWithOtp, TreasuryJsonRequest.MakeFxTransferRequestSchema, MakeFxTransferSuccessfulResponse)
```

### Implementation (cont...)



 Different currency Fx transfers were automated with different functions with new data added into the data files for each Fx transfer flow

#### **HKD to USD**

#### **HKD to CNY**

#### **CNY to HKD**

## Implementation (cont...)



**Automated Test Case:** Verifies that a user registering a business with an existing email is redirected to the existing business dashboard.

**Automated Test Case:** Verifies that a user registering a business with an existing phone number is redirected to the existing business dashboard.

### **Experimental Results and Evaluation**



#### API automation of HK Fx transfers

- To verify the Api automation cases at different steps, the status code and actual response is checked with the expected response stored in json data files.
- If the data types of the values for different keys in expected response matches with the actual response for each api call th test case is marked as pass.

```
[00:43:54] Response time for /v1/fx/transfers is 1s
[00:43:54] Verified 'Status Code' as :-'201'
[00:43:54] Verified 'Transaction uuid' as Not NULL
[00:43:54] Verified 'Source currency code' as :-'CNY'
[00:43:54] Verified 'Source amount' as :-'3721'
[00:43:54] Verified 'FX quote uuid' as :-'9e76aba7-92d4-4b22-8f60-7cd3332260e6'
[00:43:54] Verified 'Target currency' as :-'CNY'
[00:43:54] Verified 'Counterparty uuid' as :-'9d98217d-d900-4310-bef3-5770643bc8ad'
[00:43:54] Verified 'Counterparty bank code' as :-'CPPCUS31'
[00:43:54] Verified 'Counterparty name' as :-'CNY Swift Recipient'
[00:43:54] Verified 'Transaction reference' as :-'r1YTJL'
[00:43:54] Verified 'Bank account type' as :-'priority'
[00:43:54] Verified - JSON response Keys for MakeFxTransferWithOtp API & MakeDbsHkTransferSuccessfulResponse
[00:43:54] Verify Transaction Details in Past Tab
```

## **Experimental Results and Evaluation (cont...)**



Result of passed Test Case

```
/Users/anshbhardwaj/Library/Java/JavaVirtualMachines/openjdk-23.0.1/Contents/Home/bin/java ...

SLF4J: No SLF4J providers were found.

SLF4J: Defaulting to no-operation (NOP) logger implementation

SLF4J: See <a href="https://www.slf4j.org/codes.html#noProviders">httml#noProviders</a> for further details.

SLF4J: Class path contains SLF4J bindings targeting slf4j-api versions 1.7.x or earlier.

SLF4J: Ignoring binding found at [jar:file:/Users/anshbhardwaj/.m2/repository/org/slf4j/slf4j-jdk14/1.7.35/slf4j-jdk14-1.7.35.jar!/or SLF4J: See <a href="https://www.slf4j.org/codes.html#ignoredBindings">https://www.slf4j.org/codes.html#ignoredBindings</a> for an explanation.

[01:08:46] Running on 'qa-1' environment

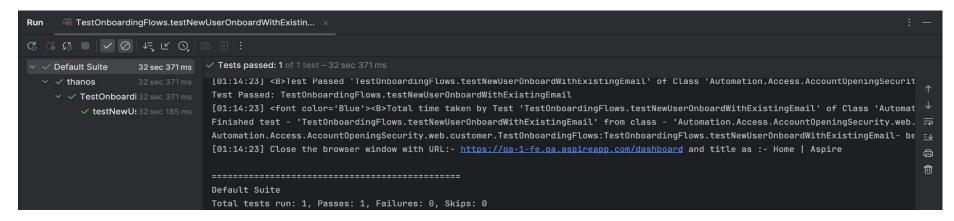
[01:08:46] ThanosLocal.properties file not found.
```

Result of passed Test Case

## **Experimental Results and Evaluation (cont...)**



 Test case result of user registering a business with an existing email is redirected to the existing business dashboard.



 Test case result of user registering a business with an existing email is redirected to the existing business dashboard.



## **Key Learnings**



- Gained practical knowledge in automating API and UI testing using Selenium,
   RestAssured and TestNg.
- Developed skills in identifying and fixing automation failures due to feature or UI changes and updating outdated test scripts for reliability.
- Understood how to design and execute scalable automation tests for multi-currency FX transfers and bulk transactions.
- Learned how to integrate test automation with the existing automation framework enabling continuous testing for Aspire's financial platform.
- Gained insights into financial regulations, security testing, and compliance measures required for FinTech applications.

## Work Plan (till End-Term Evaluation)



- Automation of existing pending automation cases for assigned features for web,
   Api and mobile.
- Perform end-to-end testing for different user roles and business types to validate system functionality across multiple workflows for given features.
- Working on logging and reporting mechanisms and provide detailed error insights and execution logs for debugging.
- Fixing automation failures in regression testing for assigned features.
- Develop test cases for new features in upcoming sprints.
- Understand the flow of new features by testing them manually first and then work on automation.

## **Work Contribution and Other Details**



Roll No.	Start Date (dd/mm/202	3 1 9 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Work Mode (Online/Offline)	Work Nature (Tech./Non-Tech.)	Work Domain		
211480	06/01/202	5 Aspire, Gurugram	Offline	Tech	Quality Assurance		
GitHub Repository URL:							
Work Contribution							
(provide week-wise work details)							
Week 1	06/01/2025 to 10/01/2025	<ul><li>Intern Onboarding Tasks</li><li>Manual Testing training and assignment</li></ul>					
Week 2	13/01/2025 to 17/01/2025	Manual testing Documentation Java training and assignment					
Week 3	20/01/2025 to 24/01/2025	Web automation assignment using selenium					
Week 4	27/01/2025 to 31/01/2025	<ul> <li>RestAssured and TestNg training</li> <li>API automation assignment using RestAssured</li> </ul>					

## **Work Contribution and Other Details** (cont...)



Work Contribution					
(provide week-wise work details)					
Week 5	03/02/2025 to 07/02/2025	Aspire product training			
Week 6	10/02/2025 to 14/02/2025	<ul> <li>Performing Practice test for the assigned vertical</li> <li>Fixing web automation bugs</li> </ul>			
Week 7	17/02/2025 to 21/02/2025	<ul> <li>Testing HK Fx Transfer API manually</li> <li>Start Automation For HK Fx Transfer Api flows</li> <li>Product training for assigned vertical</li> </ul>			
Week 8	24/02/2025 to 28/02/2025	<ul> <li>Complete HK Fx Transfer Api Flows</li> <li>Resolve the conflicts to get the PR merged</li> <li>Product training for assigned vertical</li> </ul>			
Week 9	03/03/2025 to 07/03/2025	<ul> <li>Write test cases for new features in current sprint</li> <li>Automation fixes for weekly automation runs</li> <li>Worked on the new feature</li> </ul>			
Week 10	10/03/2025 to 14/03/2025	<ul> <li>Test new features manually to understand the flow</li> <li>Automation fixes for weekly automation runs</li> <li>FCT after Code freeze</li> </ul>			

#### References



- [1] S. R. Choudhary, "Automated Web Application Testing Using Selenium," *International Journal of Computer Applications*, vol. 180, no. 45, pp. 1-6, May 2018.
- [2] P. Tripathy and P. R. Mishra, "Test Automation Using Selenium WebDriver," in *Proceedings of the 2019 International Conference on Software Engineering and Technology (ICSET)*, Singapore, 2019, pp. 45-51.
- [3] S. P. Gupta, R. Kumar, and A. Awasthi, "Selenium WebDriver Based Automated Testing Framework for Web Applications," *International Journal of Scientific and Technology Research*, vol. 9, no. 2, pp. 456-462, Feb. 2020.
- [4] N. S. Singh and A. K. Yadav, "Automated Functional Testing Using Selenium: A Review," in *Proceedings of the 2020 IEEE International Conference on Advances in Computing, Communication and Control (ICAC3)*, Mumbai, India, 2020, pp. 1-5.
- [5] K. B. Agarwal and P. S. Patel, "Automation Testing of REST APIs Using RestAssured," *International Journal of Engineering Research & Technology (IJERT)*, vol. 8, no. 7, pp. 80-85, July 2019.
- [6] SeleniumHQ, "Selenium WebDriver Documentation," Selenium, 2023. [Online]. Available: https://www.selenium.dev/documentation/webdriver/.
- [7] M. Sharma and R. Bhargava, "A Comparative Study of API Testing Tools: Postman vs. RestAssured," in *Proceedings of the 2021 IEEE International Conference on Emerging Trends in Computing and Engineering Applications (ETCEA)*, Jaipur, India, 2021, pp. 234-239.
- [8] RestAssured, "RestAssured: API Testing for Java Developers," GitHub, 2023. [Online]. Available: <a href="https://rest-assured.io/">https://rest-assured.io/</a>. [Accessed: 19-Mar-2025].

## References (cont...)



- [9] Postman, "API Testing with Postman and RestAssured," Postman, 2023. [Online]. Available: <a href="https://blog.postman.com/api-testing-with-rest-assured/">https://blog.postman.com/api-testing-with-rest-assured/</a>.
- [10] S. R. Das and T. S. Rao, "Comparative Study of Automated Testing Tools: Selenium vs. QTP," in *Proceedings of the 2018 IEEE International Conference on Innovations in Engineering, Technology and Sciences (ICIETS)*, Bangalore, India, 2018, pp. 195-200.



## Thanks.