**1. API Testing Automation using PyTest**

**Job Responsibility & Outcome:** I took full ownership of creating and automating API testing pipelines using PyTest to streamline unit testing processes, ensuring the highest code quality and speedier development cycles. The pipeline ensured consistent validation of APIs, identifying defects early and allowing rapid feedback loops to testers. API testing Automation works for any API to cover unit test cases and developed using generic mindset.

Tester has to put test cases in the excel sheet as per the programming design, test cases in the form of function will be generated as per each row in the excel sheet using Pandas library and then PyTest will be run to generate a report for each test case (unit testing). Please note that excel sheet already contains the standardised test cases

**Challenges:**

* *People*: Aligning with TestOps team to adopt this new automated testing framework was initially challenging.
* *Process*: Ensuring seamless integration of automated tests into existing CI/CD pipelines without disrupting regular release schedules.
* *Technology*: Handling complex API interactions and dependencies across microservices and mitigating intermittent issues due to test environment instability and passing response from one API Endpoint to another.

**Initiatives Taken:**

* Implemented PyTest automation in a scalable way, designed for easy integration into Jenkins, with reusable test frameworks.
* Conducted workshops to upskill developers and testers in using the PyTest framework, thus reducing dependency on manual testers.

**Customer First Attitude:** By automating API testing, I ensured quicker testing cycles, delivering on time and preventing defects from reaching customers. The quicker feedback loop improved TestOps Team trust in the system's reliability.

**Real-life Example:** Reduced manual API testing time by 70%, enabling the TestOps team to deliver testing projects in time.

**Business/Process Knowledge:** Utilized deep understanding of API structures, test coverage, and CI/CD processes to design a robust pipeline that catered to varying unit cases of API complexities and covered all.

**New Tech Adoption:** Successfully integrated PyTest with Jenkins, using advanced plugin features smoother execution and detailed reporting to improve test efficiency.

**Team Collaboration:** Worked closely with TestOps teams to streamline the test automation process, promoting cross-functional knowledge sharing.

**Certifications & Learning:** Completed a Learning in API testing automation using PyTest, which was pivotal in the development of this solution.

**Feedback:** TestOps Team praised the improved efficiency and ease of running automated tests, which consistently caught defects before production.

**Impact:** This automation resulted in a 10-20% reduction in bug-related delays, contributing to significant cost savings and improved customer satisfaction.

**HSBC Value - We Get It Done**:  
I implemented a highly efficient automation pipeline that significantly reduced manual testing, ensuring fast, accurate, and reliable results working with TestOps Team. My focus was on delivering a automated API testing solution which is generic for any API.

**2. Standardization of Test Cases using JMeter**

**Job Responsibility & Outcome:** I spearheaded the standardization of performance testing processes using JMeter, ensuring consistent test case design, enhanced reliability of results, and reduced execution time across various environments.

**Challenges:**

* *People*: Convincing teams to shift from disparate tools and custom scripts to a standardized approach required significant change management.
* *Process*: Ensuring test cases could be reused across environments while maintaining accuracy of load simulations.
* *Technology*: Managing and optimizing JMeter scripts for diverse systems with complex performance bottlenecks.

**Initiatives Taken:**

* Defined standardized templates for performance testing across services, which included best practices for testing, allowing the reuse of scripts and reducing maintenance efforts.
* Delivered hands-on training sessions for teams across departments, ensuring seamless adoption of JMeter.

**Customer First Attitude:** This initiative ensured a consistent and reliable performance evaluation with standardisation methodologies.

**Real-life Example:** The JMeter-based performance tests reduced efforts of TestOps team providing them with smoother and seamless experience.

**Business/Process Knowledge:** Showcased expertise in JMeter testing, workload simulations, to ensure the robustness of the solutions delivered.

**New Tech Adoption:** Utilized JMeter's advanced plugins and integrations to enhance real-time reporting, making it easier for TestOps team to make data-driven decisions.

**Collaboration:** Worked with TestOps team to adopt best practices for testing, fostering a culture of continuous improvement and knowledge sharing.

**Impact:** Cut down testing cycles by 40%, significantly improving quality and standardisation of testing improving productivity.

**HSBC Value: We Succeed Together**:  
By working closely with TestOps team, I established a standardized, reusable framework that empowered everyone to execute performance tests independently. This collaboration ensured collective success, making the testing process standardised and more scalable.

**3. Citrix Virtual Apps and Desktops Delivery Controller Certificate Renewal**

**Job Responsibility & Outcome:** I led the automation of the certificate renewal process for Citrix Virtual Apps and Desktops Delivery Controller using Venafi APIs and HTTPS bindings to Citrix Broker service.

**Challenges:**

* *People*: Work with Citrix Team and ensured the automation covers all part of the activity.
* *Process*: Ensuring the renewal process did not affect live services, which required a zero-downtime solution.
* *Technology*: Automating the process of Certificate renewal using Venafi API and binding HTTPS certificates to Citrix Broker service. This is done via PowerShell script integrated using Jenkins Pipeline.

**Initiatives Taken:**

* Built a fully automated pipeline that seamlessly integrated Certificate renewal using Venafi API and ensuring secure communication by binding HTTPS certificates to Citrix Broker service.
* Developed a fallback mechanism that ensured services continued to function even if the certificate renewal failed.

**Customer First Attitude:** The automation ensured that customers experienced zero service interruptions during certificate renewals, boosting confidence in the system's reliability and security.

**Real-life Example:** Automated certificate renewals without any service disruption, ensuring continuous security compliance across environments.

**Technology Adoption:** Adopted usage of Venafi APIs and used PowerShell skills to renew certificates and HTTPs binding to Citrix Broker Service, ensuring seamless and automated renewals.

**Collaboration:** Coordinated with Citrix Operations team to design a secure and efficient process, fostering cross-team collaboration for smooth rollouts.

**Impact:** Reduced manual efforts by 90%, leading to significant cost savings, and ensured 100% compliance with security policies.

**HSBC Value: We Take Responsibility**:  
I ensured that the certificate renewal process was automated without any service interruptions, taking full accountability for the end-to-end solution. By mitigating risks and creating robust rollback mechanisms, I guaranteed seamless operation, which can be run during even in critical business hours.

**4. Citrix NetScaler Firmware Upgrade using ADM API**

**Job Responsibility & Outcome:** I engineered a Jenkins pipeline using the ADM API to automate firmware upgrades for Citrix NetScaler via PowerShell, ensuring the security and performance of Citrix NetScaler environments with minimal downtime.

**Challenges:**

* *People*: Engaging Citrix infrastructure teams to align on automation strategies for critical NetScaler Firmware upgrades.
* *Process*: Managing multiple device upgrades while ensuring high availability and failover strategies.
* *Technology*: Handling complex upgrade scenarios with NetScaler HA pairs, ensuring rollback mechanisms were in place in case of failure.

**Initiatives Taken:**

* Developed a dynamic solution using the Citrix ADM API to automate firmware upgrades, including pre-upgrade checks, post-upgrade validations, and rollback mechanisms.
* Devised detailed documentation and workflows to ensure minimal disruption during upgrades.

**Customer First Attitude:** Delivered a robust solution that guaranteed NetScaler firmware upgrades were executed without any disruptions to end users, ensuring service continuity and compliance.

**Real-life Example:** Upgraded NetScaler firmware in high-availability pairs with zero service disruption, ensuring customers experienced no downtime.

**Technology Adoption:** Leveraged Citrix ADM API to automate every aspect of the upgrade process, ensuring scalability and repeatability across environments. Developed using PowerShell script integrated into Jenkins Pipeline.

**Collaboration:** Worked closely with Citrix infrastructure team, ensuring thorough planning and seamless execution.

**Impact:** This initiative will reduce the time spent on manual upgrades by 80%, ensuring quicker updates and enhanced security across systems.

HSBC Value: **We Take Responsibility**:  
Despite the complexity of HA pair upgrades and managing failover scenarios, I delivered a fully automated firmware upgrade solution with minimal downtime.