



2024-2025

---

# PFE Internship Book

---

## Engineering Department



## About Us

At **MASS Analytics**, we specialize in Marketing Mix Modeling (MMM) and Media Effectiveness Measurement. We offer our clients a comprehensive MMM software suite supported by a wide range of managed services solutions to help identify their sales drivers, measure MROI and optimize Marketing budgets.

## Why Join Us?

At **MASS Analytics**, we value a positive work environment made up of all of the elements that can affect your day-to-day productivity, including when, where, and how you work. Join a fun, collaborative, and creative workplace.





## TOPIC 1

# Automated Testing Framework for Web Application using Selenium

This project involves creating a dynamic and automated testing script with Selenium to improve the reliability and efficiency of our QA processes. The focus will be on leveraging continuous integration (CI) practices, advanced process automation, and a comprehensive approach to functional test automation. Starting with an in-depth analysis of MassTer's core functionalities, the project will involve designing and modelling an automation script that aligns with the application's specific requirements. Once developed, the automated tests will be deployed on a CI platform, enabling scheduled test execution and automated result reporting. This setup will provide real-time insights into the application's performance and stability, ensuring consistent quality with every code update.

## Main Competencies

Spring Boot, Java, Angular, OOP, Git, Selenium, Cross-browser and Cross-device testing, System tests, non-functional testing, and results reporting.

## Learning Outcomes

This web automation project provided practical experience with Selenium, demonstrating how automated testing enhances software quality and accelerates release cycles. By integrating CI/CD and collaborating on development challenges, you gained a clear understanding of the critical role automation plays in modern software development.



## TOPIC 2

# Interactive Dashboard for Performance Monitoring

This topic focuses on creating an interactive performance monitoring dashboard on AWS, with an emphasis on selecting tools, integrating systems, and visualizing data effectively. The process begins by examining criteria for choosing monitoring tools, such as usability, integration options, scalability, and cost-effectiveness. Participants will gain hands-on experience integrating these tools into a cohesive dashboard using APIs and SDKs, developing custom dashboards that aggregate data from various sources, and designing user-friendly interfaces that incorporate stakeholder feedback. Additionally, the topic covers establishing performance metrics and configuring alerts with AWS CloudWatch to proactively monitor system health.

## Main Competencies

Key skills developed include evaluating and comparing monitoring tools like AWS CloudWatch, Datadog, and Grafana, effectively integrating these tools, and building impactful visualizations using AWS QuickSight. Cost management strategies and validation techniques are also emphasized to create solutions that are accurate, budget-friendly, and user-centered.

## Learning Outcomes

Participants will be able to integrate appropriate monitoring tools, design efficient dashboards, and manage costs to deliver a robust and reliable performance monitoring solution.



## TOPIC 3

# Enhancing Desktop Application Performance by Leveraging AWS Lambda for Task Offloading

This topic explores how to optimize the performance of a desktop application by offloading resource-intensive tasks to AWS Lambda functions. By identifying high-latency processes within the desktop application, we'll outline methods for delegating these tasks to the cloud, where they can be processed efficiently in a serverless environment. AWS Lambda allows for scalable, on-demand execution of these jobs. The focus will include designing the workflow for task offloading, setting up secure data transfer between the application and AWS, and ensuring that Lambda functions are optimally configured to handle these jobs.

## Main Competencies

Key skills developed include understanding AWS Lambda's serverless architecture, creating and deploying Lambda functions, integrating AWS services with desktop applications, and implementing efficient data transfer methods. Additionally, competencies in optimizing resource usage and managing costs with AWS will be covered.

## Learning Outcomes

Upon completion, you'll be able to offload heavy processes to AWS Lambda effectively, reducing local processing time and boosting application performance.