Optimizing Cybersecurity and Data Management with Mobius
A Professional Readiness Experiential Program (PREP) Project Effort

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Interested in being an Industry Participant and or PREP Sponsor? Please reach out to bngac@gmu.edu, Thanks!

Introduction

During the Summer and Fall 2023 internships at Mobius, multiple students worked on distinct yet interconnected projects aimed at improving cybersecurity, identity and access management (IAM), automation, and data analytics. The interns tackled key challenges such as inefficient employee communication systems, secure access management, and effective data handling. Their contributions helped streamline company processes while strengthening their own technical expertise in tools like Microsoft Azure, Power Automate, Microsoft Dynamics, Power BI, and IAM best practices.

Business Challenge

One of the challenges was replacing the inefficient email-based ticketing system. Mobius' reliance on email for tracking employee questions and requests led to inefficiencies due to the increasing volume of inquiries. The lack of an organized system for managing, categorizing, and responding to employee queries caused delays and accountability issues. The goal was to replace the outdated email system with an automated ticketing solution that could handle high volumes, provide tracking, and improve response times.

Another challenge was strengthening identity and access management (IAM) for Mobius. The team needed to gain proficiency in Microsoft Azure and IAM practices to ensure secure access to cloud resources. Their goal was to prevent unauthorized access, maintain data integrity, and ensure compliance with NIST guidelines. A major focus was developing IAM tutorials to assist future interns and employees in navigating IAM security best practices.

A third challenge was related to enhancing data analytics and visualization. As Mobius worked with large datasets, there was a need to collect, transform, and analyze data more efficiently. The objective was to leverage Power BI for data visualization and use Power Automate for data transformation and cleaning, ensuring consistency and accuracy. The final goal was to provide insightful information for project evaluations and decision-making

Activities Done to Address the Business Challenge

For the first project of Implementing a New Ticketing System, the interns used Power Automate to automate ticketing workflows, designed Microsoft Forms for easy submission of queries, and integrated Microsoft Dynamics for tracking, analytics, and data management. They developed custom connectors for seamless platform integration, conducted iterative testing to refine the user experience, and created a custom dashboard in Dynamics for real-time tracking and analytics.

For the second project of Improving IAM & Security Documentation, the interns developed IAM tutorials as a training resource for new interns and employees, reviewed Mobius' documentation to ensure compliance with NIST guidelines, and then tested IAM security measures within Microsoft Azure to prevent unauthorized access.

For the third project of Data Analytics and Visualization, the interns collected data from various pipelines and centralized it in SharePoint, transformed that data using Power Automate to clean

and prepare it for analysis, and then built Power BI dashboards to visualize contractor review ratings, aiding decision-making.

Results & The Positive Impact

The work resulted in four major positive impacts for Mobius:

- Enhanced Efficiency in Employee Communication: The new ticketing system automated request handling, significantly improving response times and internal operations.
- Strengthened Cybersecurity & Access Management: The IAM tutorials and documentation aligned Mobius' security with NIST industry standards. The better access control measures reduced security risks.
- Improved Data Analytics & Decision-Making: The Power BI dashboards provided valuable insights, helping Mobius evaluate contractor performance more effectively. Automated data collection and transformation ensured data accuracy and consistency.
- Professional Growth for the Interns: Developed hands-on experience with Power Automate, Dynamics, Azure, IAM, and Power BI. And also gained valuable cybersecurity and data management expertise applicable to future careers.

Conclusion

The Summer and Fall 2023 Mobius Internship allowed students to contribute to significant security, automation, and data analytics improvements within the company. The projects not only enhanced Mobius' operational efficiency and cybersecurity posture but also helped interns develop critical technical and problem-solving skills. Their efforts modernized internal processes, improved security compliance, and provided meaningful insights—all of which will have a lasting impact on the organization.

PREP Student Reflection

In their final presentation to Mobius, the interns reflected on their experiences as follows:

- Learning Practical IT and Security Skills: Interns appreciated the chance to apply their academic knowledge to real-world cybersecurity and automation challenges.
- Gaining Hands-on Experience with Industry Tools: Exposure to Microsoft Azure, Power Automate, Power BI, and IAM provided valuable career preparation.
- Understanding the Importance of Collaboration: Working on group projects taught them how to communicate effectively and align efforts for success.
- Overcoming Technical Challenges: They learned to troubleshoot issues, refine workflows, and adapt to new technologies efficiently.