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| Name / Surname: | Andile Mnukwa |
| ID Number: | 9612256038087 |
| Date: | 31/10/2023 |
| Type of Learning Intervention: | 4 IR Intern |
| Internship organization: | Pan African Information Communication Technology Association (“**PAICTA**”) |
| Name of the Mentor: | Pumela Rafane, Asive Mngqenge and Crestinah Mudau |
| Programme Name: | PAICTA-MICT SETA 4IR Digital Internship |
| Internship dates: | May 1, 2023 – April 30, 2024 |
| Qualification: | Information Technology (Software Development) |
| Mobile Number: | 0656071416 |
| Email Address (Work): | andile@paictasa.africa |
| Email Address (Personal): | mnukwa1996@gmail.com |

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# **Company information**

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| Pan African Information Communication Technology Association (PAICTA) is inspired by Pan-Africanism movement of bringing Africans to work together. It is an organization that advocates for SME’s young people, women, and people with disabilities by creating an integrated and inclusive society through integrated digital platforms. It inspires to help improve the quality of life for African citizens through enhanced communities, technology innovation, and digital transformation. |

# **Personal Objective of the Internship**

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| I’m keen in learning Python programming based on cybersecurity, to learn about cyber security on how to apply it in working environment, to enrol in courses that will be beneficiary for me as Software developer. I also want to work on my presentation and communication skills, and to be a proactive team player. |

# **What are your goals?**

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| I want to learn how to protect companies in cyberattacks and in cybercrime and to develop applications that secure companies and people against attacks. I would like PAICTA to assist me with a mentor. I would also want to learn new programming languages that are on demand in the IT industry. |

# **Internship description**

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| My role at PAICTA is to be a Cyber security engineer. I have finished cisco certificate such as Introduction to cyber security, Cybersecurity essential and other relevant courses, I also have a mentor at CSIR, and we are working on cybersecurity division. |

## **Overview of internship experience**

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| I am now prepared to arrange criminals and legendary qualities in the field of internet security based on the knowledge I've gathered from my ongoing internship. I have learnt Python fundamentals and numerous other programming languages are known to me, and they have benefited in my understanding of programming fundamentals, and I’m able to create environment in Django, to start project and to create risk register dashboard in Django. I also have experience on how to cyber security like staying safe online. I have learnt other C# methods where you will be asked to create class that captures data from the users and store them in database (SQL server). I am also learning on how web application hacking is being done, what tools do you need to hack web and learnt how penetration test is done. |

## **Ongoing consideration**

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| Working on IRMS project functionality  Presentation and report writing abilities, study on real-world examples based on weaknesses Make a table with specific code vs. CSIR deployment vulnerability.  Attend Microsoft training and take the test. |

# **Achievements**

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| Cisco | * Get Connected: Basic computer knowledge, Directories and files, the internet, exploring the human network. * Partner Cloud Security: Global implications of cyber threats, Impact of cybersecurity on industries. * Cybersecurity Essentials: Tactics, techniques, and procedures used by cyber criminals, Principles of confidentiality, integrity, and availability. * Introduction To Cybersecurity: Global implications of cyber threats, ways in which networks are vulnerable to attack, impact of cyber-attacks on industries, threat detection and defense. * Programming Essentials in Python: Data types, variables, operators, Boolean values, loops, lists, bitwise operations, functions, tuples, dictionaries, modules, Strings, list methods, exceptions. * Programming Essentials in C++: Introduction to computer programming, Advanced flow of control and data aggregates, pointers, functions, accessing various data types, Object-Oriented programming, Inheritance, Exceptions, Operators and enumerated types. |
| WatchGuard |  |
| Fortinet |  |
| Check Point | * Digital Forensics Essentials- By now I know concepts of computer forensic, digital evidence, forensic readiness and to I identify the roles and responsibilities of a forensic investigator. * Ethical Hacking Essentials- This course covers the fundamental concepts of information security and ethical hacking. It equips students with the skills required to identify the increasing information security threats which reflect on the security posture of the organization and implement general security controls. * Network Defence Essentials- I have learnt fundamental concepts of network security. * Cyber Security Essentials * Harmony Partner – Tech path and Sales Path * Cloud Guard Partner – Tech path and Sales Path * Quantum SMB Partner |
| Splunk | * What is Splunk? * Intro to Splunk (eLearning) * Using Fields (eLearning) * Scheduling Reports and Arts (eLearning) * Intro to Knowledge Objects |
| ITIL |  |
| Hpe |  |
| IBM | * Data Visualization with Python- I have learnt how to create plots and visuals. Generating different visualisation tools using Matplotlib such as line plots, area plots, histograms, bar charts, box plots and pie charts. * Data Science Tools- I have overview of languages, tools, and that data scientist use. * Big Data 101- I have clear understanding of what is Big Data and the characteristics of Big Data. * Data Analysis with Python- I have learnt how to load data to building basic machine learning models. * Data Science 101- I’ve learnt the definition of Big Data, strategies for Big Data and Big Data use cases. * Develop a Django App |

### **Internship Industry Experience Projects**

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| I've learned a lot from the project and the Django packages like models, templates, CSS, html, and bootstrap and associated classes. I have gained skills on developing WordPress website; I know how to play with tools that are on word press. I gained a lot from the cybersecurity labs on how to hack web applications from CSIR mentor. I have gained a lot from Rutilogix where we created application using C# programming language. |

# **Motivational / Chill Conversations Experience**

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| May Chill session with Dr MathibeDr Mathibe made the session valuable and credible. She talked about Black tax, where individuals who have attained financial success or higher income face increased expectations from their extended family or community to provide financial support. Dr Mathibe shared strategies and advice on how to handle the Black tax problem and minimize its impact on personal finances. Overall, the session with Dr Mathibe provided valuable insights and knowledge. July Motivational session with Professor Magwegwe  Financial well-being is a multifaceted concept that encompasses personal wealth, mental health, and social support. Depriving oneself and succumbing to the pressure of fitting in with the expectations of youth can lead to chronic disease and poor mental stress, often associated with cortisol disease. However, by taking control of our choices, setting boundaries, and believing in ourselves, we can build resilience and manage our resources effectively. I was fortunate to have Professor Magwegwe as a guide and mentor. His wisdom and expertise inspired and educate me to create a more stable and prosperous financial future.  September Chill session with Mr Yanesh Naidoo  Mr Naaidoo walked us through what their company (Jendmark) had to offer. Automation (Design, Manufacture, Commissioning, and Installation), Digital Manufacturing, Digital Education, and Consulting are their areas of expertise.  He discussed the distinction and significance of Automation and Digitalization. He mentioned that European countries focus more on automation because there are fewer people, so more technology is required to perform human activities, whereas in Africa there is a large population, so there is a growing demand for goods and services as African populations grow, so digitalization is more effective. |

# **Any additional Activities**

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| We have recently received our first project which was to customize a risk register and we also have webinars every Wednesdays, where we discus about certain topics. Creating methods and functions on C# programming language and how to store data in SQL server from Microsoft classes. We have started with the Internship Recruitment Management System (IRMS) and the project is on track. |

# **Tools**

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| * Python * CSS * HTML * Django * Bootstrap * JavaScript * PostgreSQL * SQL server * C# * Penetration testing * XSS |

# **Challenges experienced.**

| I had a problem with a Microsoft test; I did not finish it on time, so I failed, and I did not have enough time to read the PL-900 paper since Microsoft provided it late, and my concentration was on laboratories and practice assessments. |
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# **Detailed account all activities (Monthly)**

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| I took Microsoft courses wrote a test, gave a progress report presentation in CSIR, and worked with the team to construct a login page, signup page, and profile page for the IRMS project.  I did research to discover the most prevalent and latest security problems in online apps and websites, and I received CSIR certification in Cybersecurity Roles, Processes, and Operating System Security on IBM. With the team, we made various improvements to the PAICTA website's landing page, services, and about us. |

# **Industry Soft Skills (Friday Sessions)**

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| Communication  Self-Discipline  Team player  Time management  Multitasking |

**Industry Technical Experience (Exposure)**

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| Python  Creating virtual environment, activate environment, install Django, create project & create Risk register app.  Immersive labs  C#  Web app hacking  IRMS project |

**Cybersecurity: Theory & Technical Experience**

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| I conducted research about recent security flaws in web applications and websites from CSIR |

# **Ongoing consideration**

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| Working on IRMS project functionality  Presentation and report writing abilities, study on real-world examples based on weaknesses Make a table with specific code vs. CSIR deployment vulnerability.  Attend Microsoft training and take the test. |

# **What suggestions could you make to PAICTA to improve the present programme?**

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| Everything is working properly for now. |

# **What do you think of the Learning Intervention Programme?**

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| The Learning Intervention Programme is designed to provide targeted support and assistance to challenges I may be facing as a Software Developer. It aims to help me overcome obstacles, improve my understanding of the subject matter, and enhance overall learning experience.  Ultimately, my role as software developer would involve working closely with the team, understanding the requirements and goals of the Learning Intervention Programme, and contributing to the development process to create a reliable and efficient software solution to support the programme's objectives. |

# **Where do you see yourself upon completion of this Learning Intervention?**

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| Upon completion of this Learning Intervention, I envision myself growing into a more proficient and confident Cyber security engineer with an expanded skill set. I hope to have a deeper understanding and best practices of Cyber security.  In the short term, I see myself actively applying the knowledge gained during the Learning Intervention to contribute effectively to the development projects and secure company in cyberattack and cybercrime.  Looking further ahead, I aim to take on more challenging tasks and projects, gradually increasing.  my responsibilities as I gain experience and prove my abilities Ultimately, I want to continue growing as a Cyber security engineer, potentially taking on leadership roles in projects and eventually becoming a more experienced. I understand that the journey of learning and development is continuous, and I am committed to self-improvement and staying up to date with the ever-changing landscape of software development. |

# **In conclusion**

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| So far, in what the company is providing and offering I am happy, and I really appreciate that. I am still willing to gain more skills, more specifically my programming and soft skills. |