

**BA ISAGO UNIVERSITY IN COLLABORATION WITH NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**FACULTY OF COMMERC**

**DEPARTMENT OF RISK MANAGEMENT, INSURANCE AND ACTUARIAL SCIENCE**

**BACHELOR OF COMMERCE (HONS) DEGREE IN ACTUARIAL SCIENCE**

**INDUSTRIAL ATTACHMENT CIN3001**

**INDUSTRIAL ATTACHMENT LOGBOOK**

Student Name: Lubasi Sebopeng Nkalolang

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Host Organization: Empirica Analysis

Department: Actuarial Department

Company Supervisor: Edwin Afitile

University Supervisor: Suleman Patel

Course Title: Industrial Attachment

Course Code: CIN3001

Duration: 20/03/2024 – 30/11/2024

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| Month | Activities/Duties Performed | Amount of time spent on each activity/duty (percentage) | Level of performance - self evaluation (good, fair, or need for improvement) | How I will improve my level of performance | Personal lessons learned | Supervisor sign-off (i.e., signature of host company signature |
| **MARCH** | **Introduction to R and Python** | 20% | Good | Research best practices and advanced features of R and Python | Learned foundational programming concepts and basic syntax for both languages. Realized the power of these languages in data analysis. |  |
|  | **Research into the Botswana and Zambia insurance industry** | 20% | Good | Study market reports and case studies to deepen industry understanding | Gained insights into the regulatory and competitive environment in Botswana and Zambia's insurance markets. |
|  | **Introduction to IFRS17** | 30% | Fair | Review IFRS17 literature and attend training sessions if available | Understood the basic framework of IFRS17 and its significance in insurance reporting. |
|  | **Basic Programming Analysis of Expected and Actual Insurance Variables** | 30% | Fair | Seek guidance on how to link actuarial variables to coding practices | Discovered how expected and actual values are used in financial projections. |
| APRIL | Research into R and Python programming languages in real-world applications | 15% | Good | Explore more case studies and practical projects in these languages | Gained awareness of real-world applications of R and Python in data science and actuarial tasks. |  |
|  | Introduction to IFRS17 Software Tool | 20% | Fair | Familiarize with the tool's functions and attend demonstrations if available | Initial exposure to a specialized IFRS17 tool and its reporting capabilities. |
|  | Codebase Restructuring of IFRS17 Software Tool | 20% | Fair | Focus on modularizing and organizing code for efficiency | Learned how organized code improves maintainability and readability in large-scale projects. |
|  | Refactoring, Optimization, and Updating of IFRS17 Software Tool | 15% | Need Improvement | Study optimization techniques to enhance performance | Began understanding the need for performance optimization in high-computation actuarial scripts. |
|  | Analysis of Insurance and Reinsurance Portfolio Cashflows | 15% | Good | Engage with portfolio data for a deeper understanding of cash flow behavior | Learned the importance of monitoring cash flow from both insurance and reinsurance for financial health. |
|  | Exposure to Actuarial Modelling Results | 15% | Fair | Analyze sample models and interpret the results | Began appreciating the complexity and precision of actuarial modeling in insurance operations. |
| MAY | Automation of Actuarial Models | 15% | Good | Enhance automation skills with practical exercises | Understood how automating models can save time and reduce error in actuarial calculations. |  |
|  | Claims Calculations | 10% | Good | Work on different claim scenarios to strengthen understanding | Gained knowledge in calculating and projecting claims liabilities, essential in the insurance industry. |
|  | Forward Rate Projections | 10% | Fair | Seek further training on forward rates and macroeconomic factors affecting them | Developed an understanding of the impact of forward rates on future cash flow estimates. |
|  | Variance Analysis | 10% | Fair | Practice variance calculations to improve accuracy | Realized the importance of variance analysis in comparing actual vs. expected results. |
|  | Analysis of Surplus | 10% | Good | Delve into surplus analysis methodology | Gained insight into how surpluses impact company reserves and solvency. |
|  | Budget Analysis of Cashflows | 10% | Good | Examine more budget reports for pattern identification | Learned to analyze budgeted vs. actual cash flows to enhance financial forecasting. |
|  | Introduction to General Measurement Approach (GMM) of Premium Calculations | 15% | Fair | Study more on GMM principles and formulas | Acquired an understanding of premium calculations and their variables within GMM. |
|  | Analysis of GMM Cashflow Variables | 10% | Fair | Familiarize with GMM cash flow components and their significance | Enhanced understanding of the cash flow dynamics under the General Measurement Model. |
|  | Introduction to Cloud Computing | 10% | Good | Enroll in basic cloud computing training courses | Learned the role of cloud infrastructure in improving scalability and accessibility of data. |
|  | Codebase Restructuring of IFRS17 Tool for Cloud Computing | 10% | Fair | Study cloud architecture design principles | Realized the importance of structuring code to enable seamless deployment on cloud platforms. |
| JUNE | CM1 Exam Preparation | 10% | Fair | Dedicate more time to exam practice papers | Developed problem-solving skills crucial for actuarial calculations. |  |
|  | GitHub Integration for Collaborative Programming | 10% | Good | Practice using Git commands regularly | Understood the significance of version control in collaborative environments. |
|  | Development of Policy Administration System | 10% | Fair | Review best practices in system design and documentation | Gained experience in designing systems for policy management in insurance. |
|  | Development of a GMM Premium Calculation Tool | 15% | Fair | Review technical aspects of premium calculations | Learned the technicalities involved in automating premium calculations. |
|  | Development of Excel Add-in Interface for GMM Tool | 10% | Fair | Explore advanced VBA for Excel interface design | Understood the use of Excel Add-ins in enhancing user experience. |
|  | Analysis of Yield Curve Results from GMM Tool | 10% | Fair | Study factors influencing yield curves | Learned about yield curve behavior in assessing liability and cash flow. |
|  | Integration of Pricing Model Feature in Policy Admin System | 10% | Fair | Explore actuarial pricing methods | Started learning the significance of pricing models in determining policy rates. |
|  | Development of Office Admin Assumption Manager Tool | 10% | Fair | Study assumption management best practices | Understood the importance of managing assumptions in actuarial models. |
| JULY | Research on xlwings Development | 10% | Fair | Explore xlwings documentation and case studies | Discovered the utility of xlwings for advanced Excel integrations with Python. |  |
|  | Add-in Integrations | 10% | Good | Learn advanced add-in integration techniques | Enhanced technical skills in integrating multiple add-ins for seamless user experience. |
|  | Integration of Own Risk and Solvency Assessment (ORSA) into GMM Tool | 10% | Good | Research ORSA framework | Learned the importance of ORSA in assessing organizational risk and solvency requirements. |
|  | Creation of CSM Release and NB Recognition Reports | 10% | Fair | Seek guidance on CSM release report structuring | Gained experience in creating detailed compliance reports. |
|  | Improvement of GMM User Interface | 10% | Fair | Study UI/UX principles for better user experience | Recognized the importance of an intuitive user interface for client interactions. |
|  | Creation of Functionality to Specify Fulfilment Cashflow Variables | 10% | Fair | Focus on variable customization methods | Developed skills in customizing models to meet specific client requirements. |
|  | Programming Subledger and Trial Balance Automation | 10% | Good | Enhance knowledge of accounting and trial balance coding | Learned about automated subledger and trial balance calculations for financial accuracy. |
| AUGUST | Introduction to PAA Tool | 10% | Fair | Study introductory material on the Premium Allocation Approach (PAA) | Understood the basic structure and function of PAA in insurance accounting. |  |
|  | Coding of PAA Tool | 20% | Good | Review and optimize code as needed | Developed coding skills specific to premium allocation and handling cash flow. |
|  | VBA Script Programming for GMM and PAA Excel Frontend | 15% | Fair | Focus on enhancing VBA skills | Gained experience in automating Excel tasks and creating interactive frontends for actuarial tools. |
|  | Further Development of Office Excel Add-in | 10% | Good | Improve add-in functionality | Enhanced Excel integration with additional functionalities, optimizing workflow for users. |
|  | Frontend Development of GMM and PAA Tool | 10% | Fair | Study frontend design practices | Developed knowledge on frontend user interfaces and their role in user experience for actuarial applications. |
| **SEPTEMBER** | Development of GMM and PAA Tool | 20% | Good | Focus on finalizing tool features | Refined skills in actuarial tool development to meet user needs in the insurance industry. |  |
|  | Further Development of Policy Admin System | 20% | Good | Test and enhance feature functionality | Improved functionality and usability of the policy admin system, aligning it with industry standards. |
|  | Final Development in Preparation for Gralix InsurTech Conference | 20% | Good | Review all features and performance metrics before conference | Prepared the tool for demonstration, emphasizing polished design and reliable functionality. |
| OCTOBER | Research on Python Django Web Framework | 10% | Fair | Continue practicing Django projects | Gained basic understanding of Django and its application for web-based actuarial solutions. |  |
|  | Updating IFRS17 Master Results with the Latest Template | 10% | Good | Ensure consistency and accuracy | Learned the importance of consistency in financial report templates for IFRS compliance. |
|  | Report Updates (Liability Component Buildup, CSM Run-off ORSA, NB Recognition ORSA) | 20% | Good | Standardize report formatting | Improved reporting skills and learned how ORSA requirements integrate with financial statements. |
|  | Fetching Actuarial and PAA Reports | 20% | Good | Increase accuracy in fetching processes | Learned to navigate complex datasets efficiently to retrieve necessary report data. |
|  | Migration of GMM and PAA Tool to Django | 10% | Fair | Focus on Django framework mastery | Recognized Django's advantages for web-based actuarial tool deployment. |
| **NOVEMBER** | Finalizing and Testing All Tools for Presentation | TBD | TBD | TBD | TBD |  |