National College of Ireland

Configuration Manual

MSc Research Project
MSc. Artificial Intelligence for Business

Joshua Komolafe
Student ID: x22124926

School of Computing
National College of Ireland

Supervisor: Victor Del Rosal

National College of Ireland

MSc Project Submission Sheet

School of Computing

Student Name: Joshua Komolafe

Student ID: x22124926

Programme: MSc. Artificial Intelligence for Business **Year:** 2023

Module: MSc. Research Practicum

Lecturer: Victor Del Rosal

Submission Due Date: 31/01/2024

Project Title: Exploitation of Natural Language Processing for Financial Audits

Word Count: 414 **Page Count:** 7

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Date: 31/01/2024

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Configuration Manual

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1 Introduction

This configuration manual provides guidance for replicating SwiftAuditAI bot within the NCI research project. It also outlines the process for designing and implementing the bot.

2 Software requirements

The SwiftAuditAI is built on poe.com and modelled with Claude-2-100k, a Large Language Model (LLM) that is powered by Anthropic with a subscription fee paid to poe.com to use this model without limitations. The survey for the bot was carried out with a timer to check speed and the BERT Model and Cosine similarity to check for contextual accuracy using a python code on the Google Colab environment.

Figure 1.

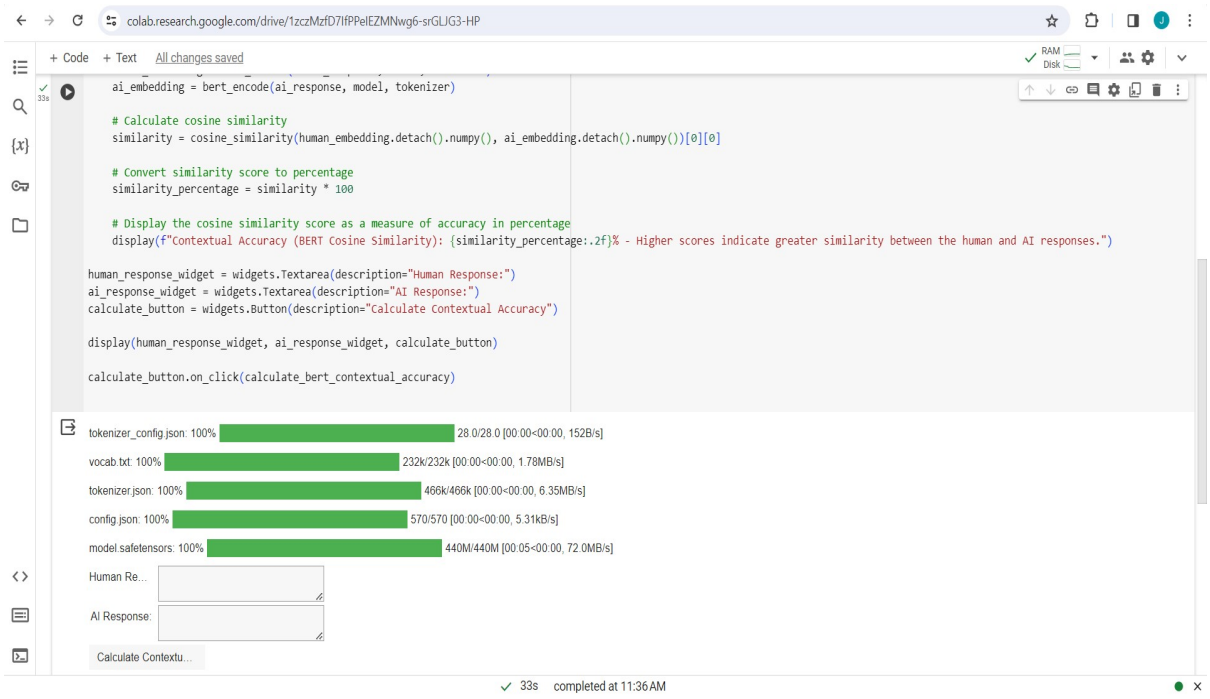

Figure 2.

3 Hardware Requirements

The project was implemented under the following configurations:

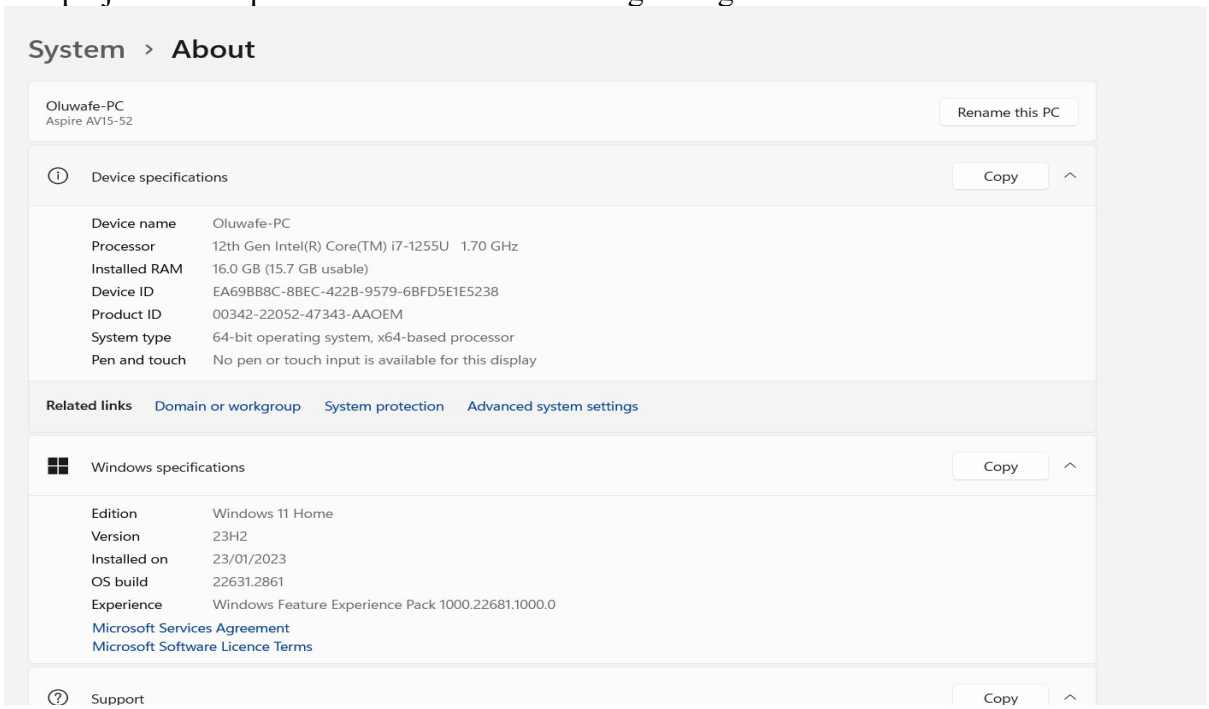

Figure 3

4 Dataset Description

Dataset1 (Suzano Consolidated Financial Statements)
Dataset2 (International Standard on Auditing (Ireland) 700 Updated October 2023

Dataset3 (International Financial Reporting in your Pocket by Deloitte)

5 Model Preparation

The initial step involved collecting the required datasets, which included financial statements from Suzano and standards from the International Auditing and Accounting Organization.

The second step removed unwanted content, like the auditor's report, to make the AI solution independent of human judgments.

The third step had the AI system, called SwiftAuditAI, upload the datasets except for the one to be audited to its knowledge base.

The fourth step prompted SwiftAuditAI to arrange financial figures from statements into clearly separated columns using pipe symbols to improve readability for its analysis.

The fifth step was the modeling process, where SwiftAuditAI's behavior was determined by prompts fed to its Claude-2-100k model. This model drew from the knowledge base to inform responses based on a custom temperature of 0, ensuring strictly accurate instead of abstract answers.

The sixth step evaluated both the AI system and human performance on speed and accuracy to assess the results .

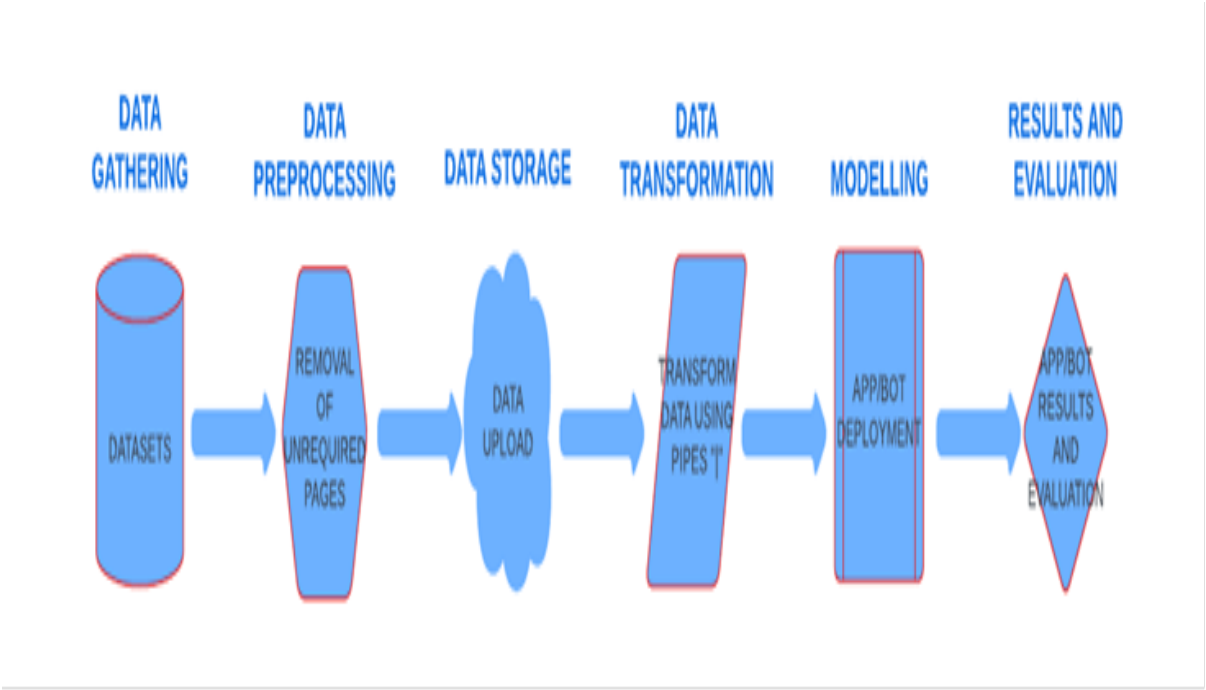

Figure 4

6 Design Specification

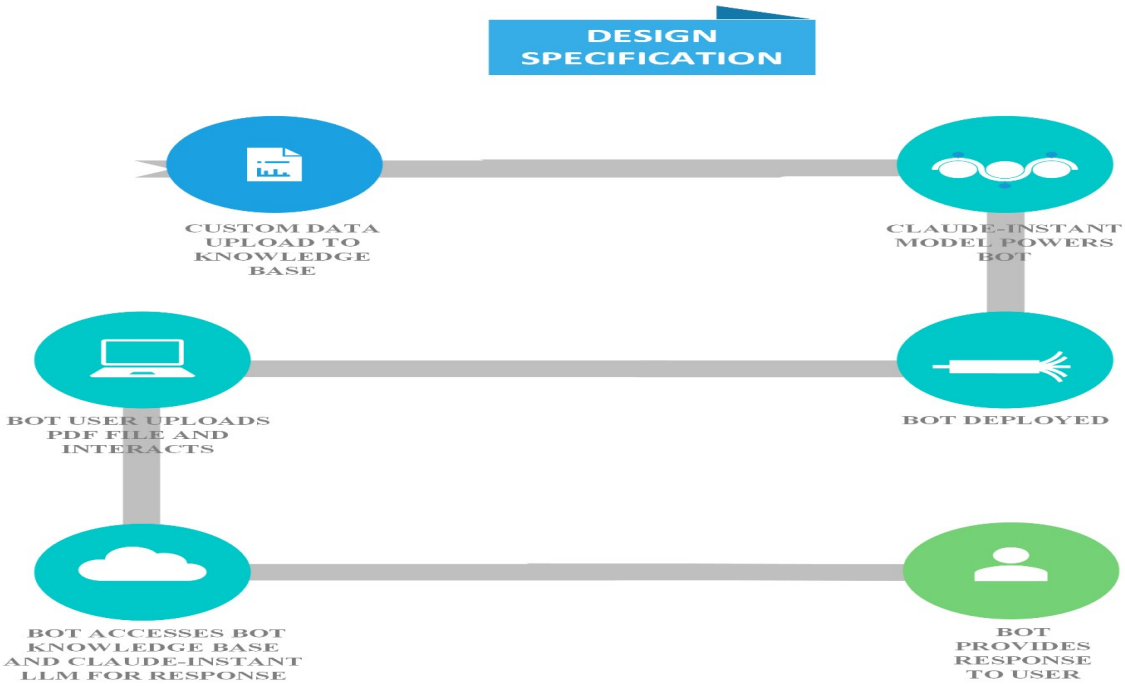

Figure 5

7 Design Implementation

SwiftAuditAI was implemented as a chatbot on the Poe platform using the Claude-2-100k large language model. The user interface was Poe's chat function, allowing users to upload financial statements PDFs. Based on prompts, answers were generated from Poe's knowledge base where relevant data was stored and the LLM. The bot's temperature was set to zero to avoid abstraction in responses. It was given a profile name, photo, and welcome message for context. The hardware used had 16GB RAM, 1TB hard drive, and 12th Gen Intel Core i7-1255U 1.70GHz processor.

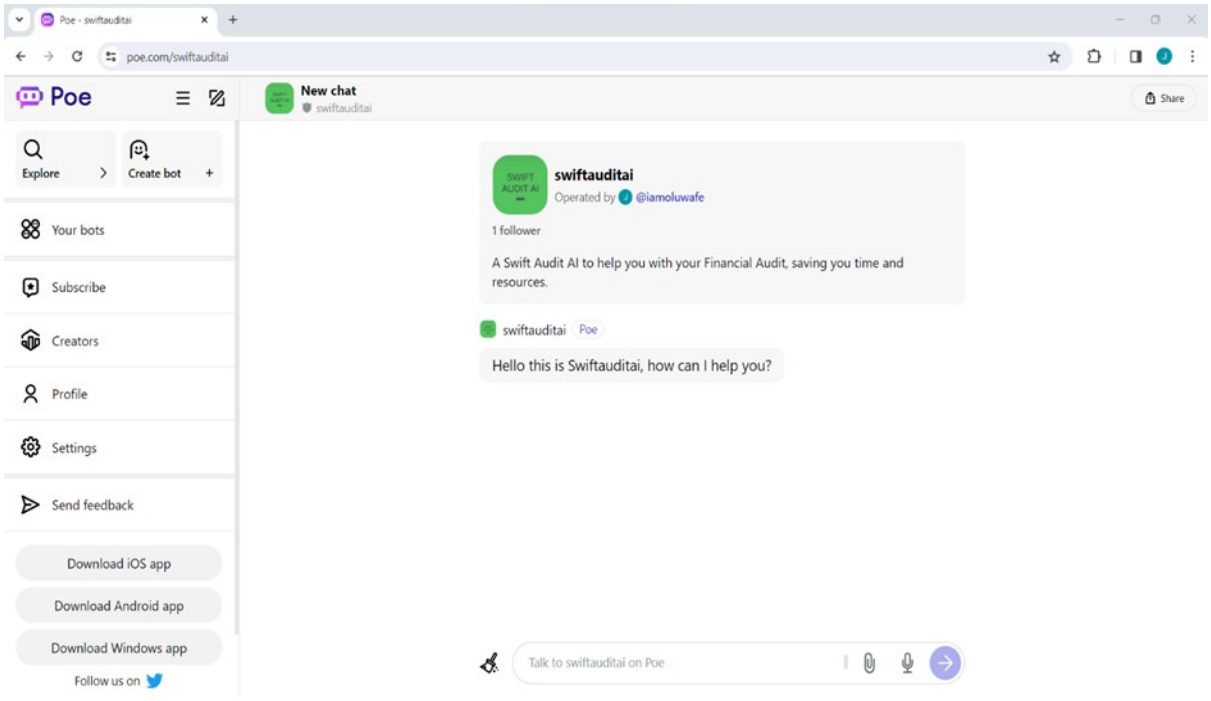

Figure 6

Figure 7

8 Design Implementation

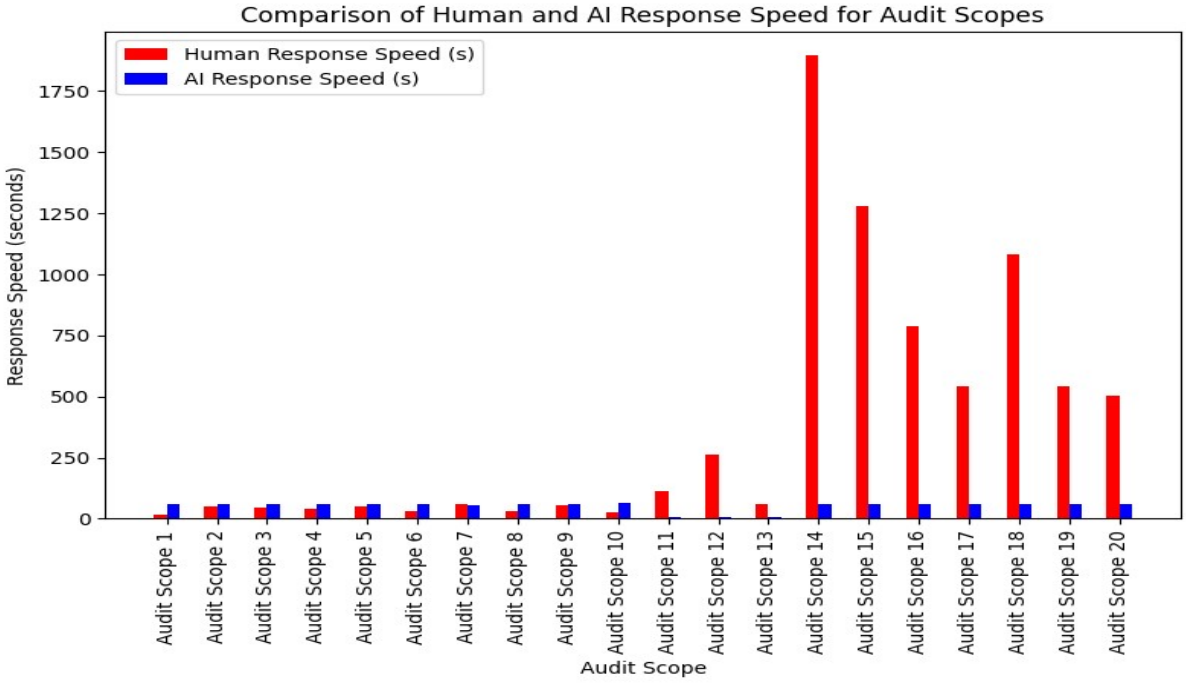

Figure 8.

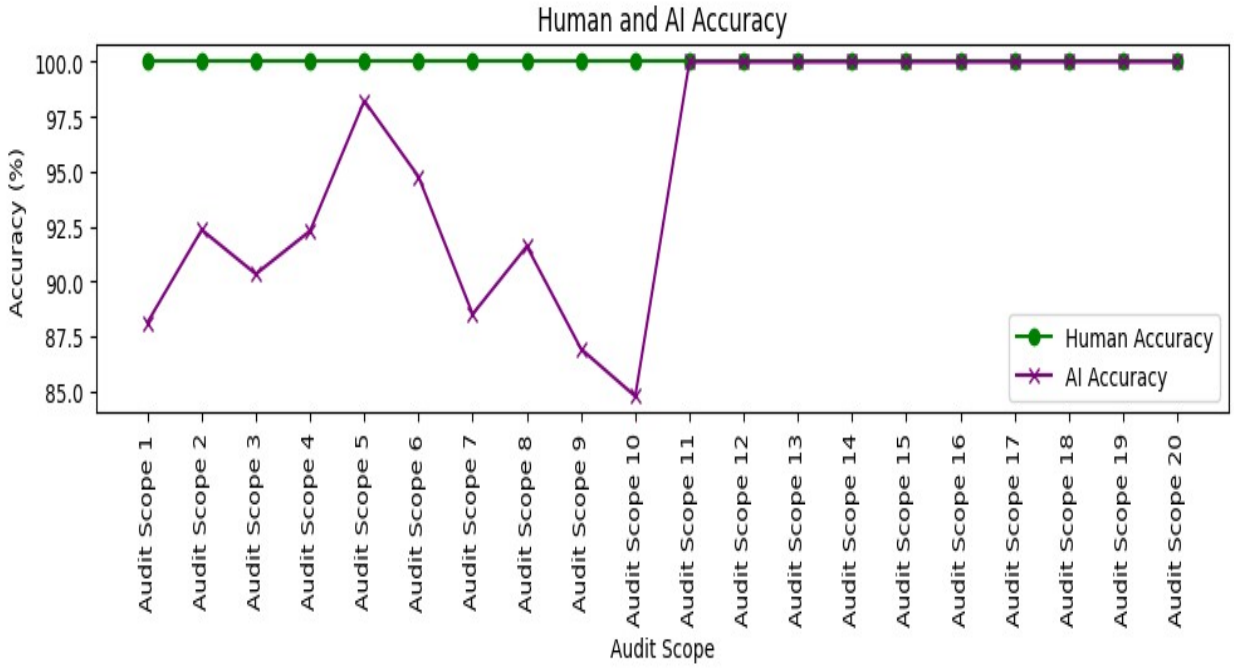

Figure 9

References

Dataset1 (Suzano Consolidated Financial Statements) – Source: https://s201.q4cdn.com/761980458/files/doc_news/2023/02/4Q22/2022-12-DFP-EN.pdf

Dataset2 (International Standard on Auditing (Ireland) 700 Updated October 2023) – Source: https://iaasa.ie/wp-content/uploads/2023/10/ISA_700_UpdatedOct2023.pdf

Dataset3 (International Financial Reporting in your Pocket by Deloitte) – Source: https://www.iasplus.com/en/publications/global/ifrs-in-your-pocket/2023/at_download/file/IFRS%20in%20your%20pocket%20-%202023.pdf