

Impact of Robotic Process Automation in Accounting Industry

MSc Research Project
MSc in Fintech

Veena Hanumanthu Chenneti
x21170487@student.ncirl.ie

School of Computing
National College of Ireland

Supervisor: Brian Byrne

National College of Ireland
MSc Project Submission Sheet
School of Computing



Student Name: Ms. Veena Hanumanthu Chenneti

 X21170487
Student ID:
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Configuration Manual

Veena Hanumanthu Chenneti
Student ID: x21170487

1 Introduction

As a requirement for submission of the research paper titled – “Impact of Robotic Process Automation in Accounting Industry”, the system requirements and steps required for reproducibility of the analysis conducted in the study are described in this configuration manual.

2 System Requirements

2.1 Hardware

Device name LAPTOP-M1H0NB2Q
Processor 12th Gen Intel(R) Core(TM) i5-1235U 1.30 GHz
Installed RAM 8.00 GB (7.68 GB usable)
System type 64-bit operating system, x64-based processor

2.2 Software

Accounting software Xero - Xero is a widely used accounting software designed for small and medium-sized enterprises established in 2006 in New Zealand, it has garnered substantial attention within the accounting and bookkeeping sector owing to its intuitive user interface and comprehensive functionalities. The last update was in September 2021.

Microsoft Excel 2007: The data was extracted into a format readable by Excel which was then converted to CSV. For importing the data into Accounting software Xero, the data was transposed in Excel and the formula like vlookup function was used.

Google Colaboratory: Google Colaboratory, is a cloud-based platform provided by Google that offers a free environment for writing and executing Python code. It's designed to facilitate collaborative and interactive coding using Jupyter notebooks, which are a popular tool for data analysis, machine learning, and other programming tasks.

Free Excel to PDF Converter: Free application from app store was downloaded to convert multiple excel sheets into pdf in a single go.

3 Data

The research focused on primary data, created by researchers using Microsoft excel sheet and then converting in pdf format using free application.

4 Analysis

4.1 Install Packages

- library pandas - Pandas is a Python library for data manipulation and analysis, providing data structures and functions to efficiently work with structured data.
- library openpyxl - Openpyxl is a Python library for reading and writing Excel (xlsx) files, allowing programmatic manipulation of spreadsheet data.
- library os - The "os" module in Python provides functions for interacting with the operating system, including file and directory operations.
- library re - The "re" module in Python is used for regular expression operations, enabling pattern matching and manipulation of strings.
- library pdfplumber - library used to extract text and table data from PDF files for further analysis and manipulation.

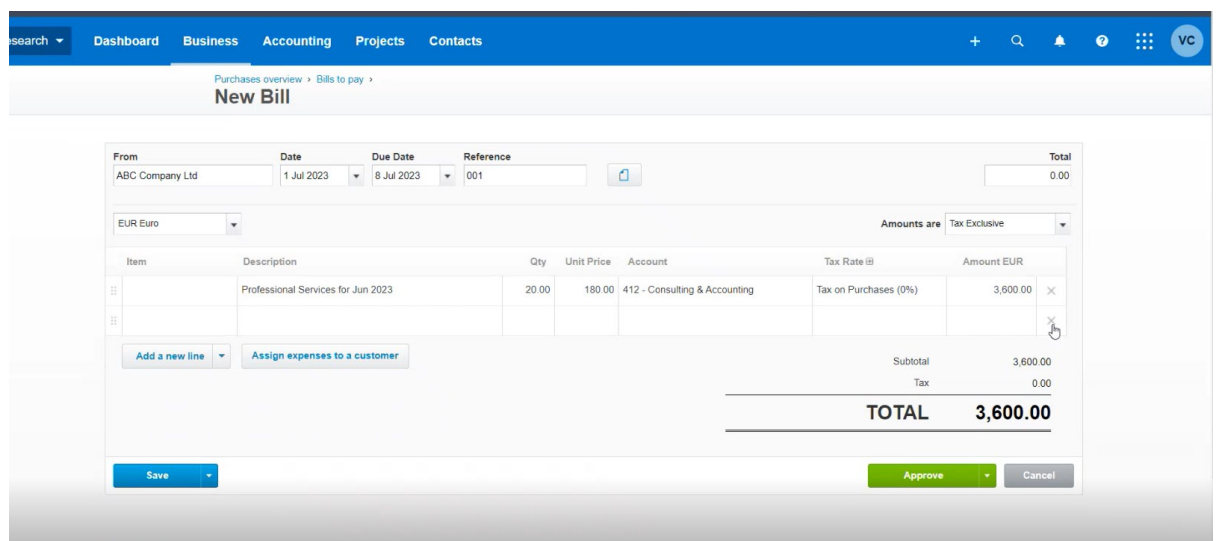
4.2 Data preparation

12 set of different invoices were created in an excel worksheet with dummy name and values. These 12 invoices were then duplicated again, and invoice number were changed accordingly multiple times till the total invoice counts were 108.

4.3 Data processing

4.3.1 Invoice booking manually in Xero

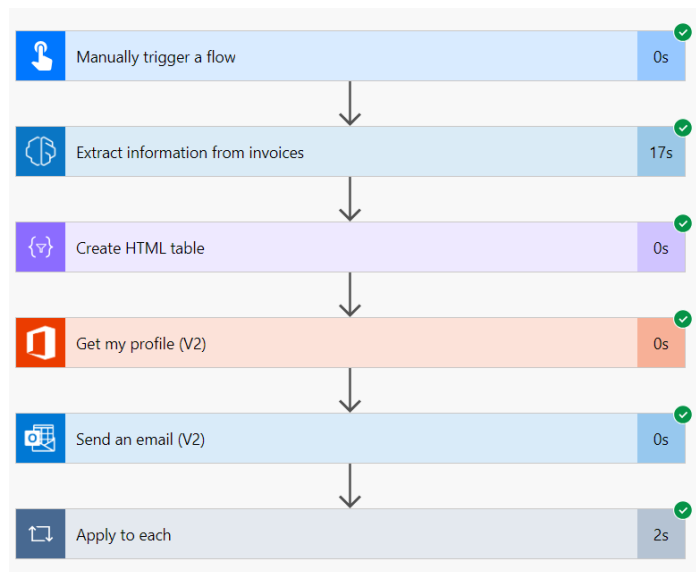
The research had 3 different ways of processing invoices into Accounting software Xero. Invoice 1 to 36 was processed into Xero manually and the time was noted for same and scaled to 108 invoices and estimated time for same is taken into consideration for analysis.



4.3.2 Invoice booking using Power Automate

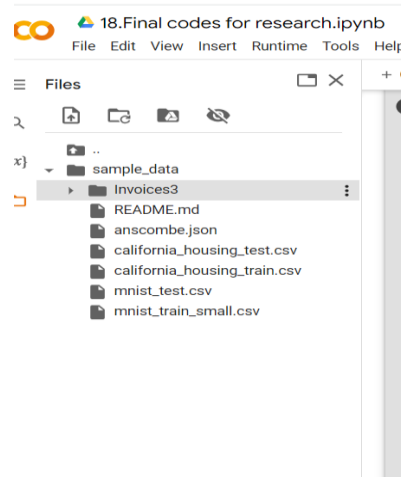
A power Automate flow should be created using Microsoft login. Similarly from invoice 37 to 72 invoices were loaded into Xero by extracting data into excel with help of Power Automate method and then converted the extracted data from excel to csv using vlookup and logic and time was recorded for same. This was again scaled for 108 invoices and estimated time for same is recorded and taken into consideration for analysis.

Link for creation of flow - [MS Power Automate flow and extracting invoices details.mp4](#)

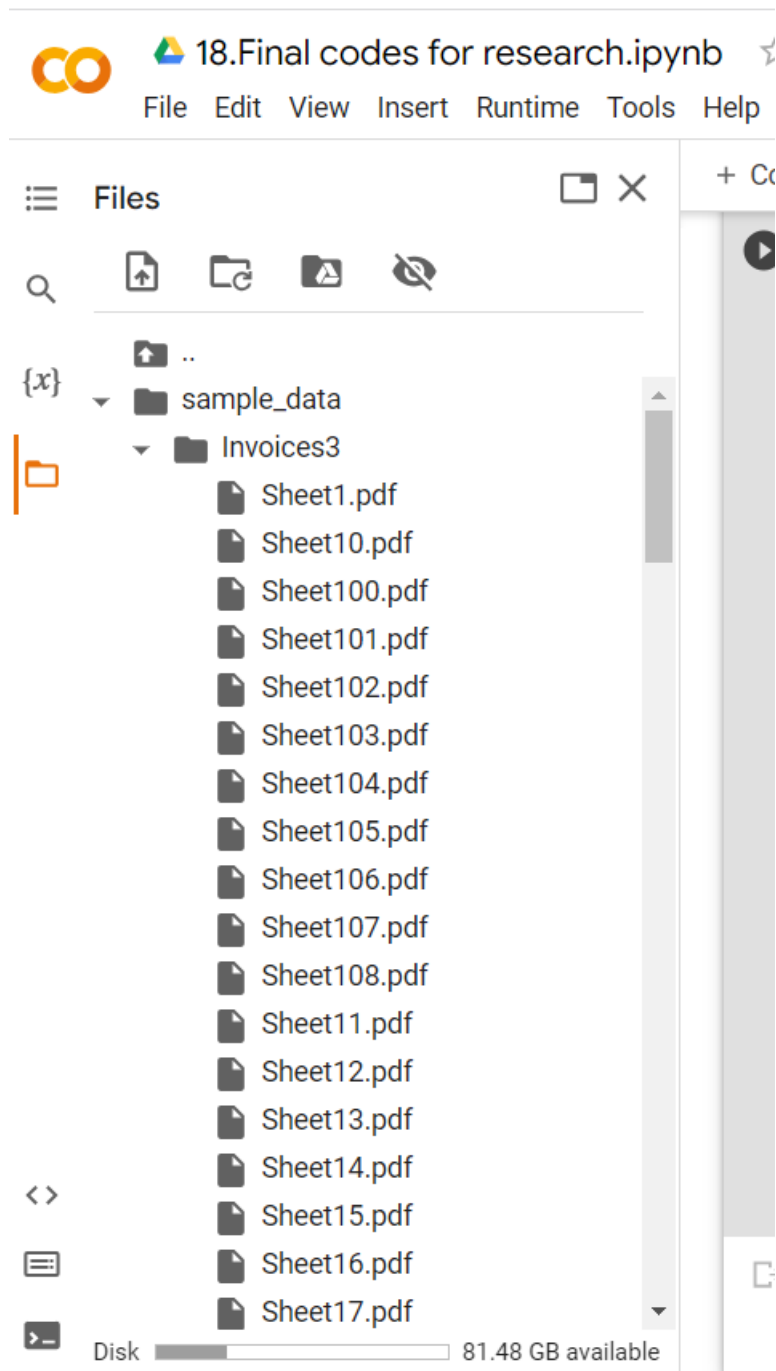


4.3.3 Invoice booking using Python

At last, 108 invoices were loaded into Google colab directory and processed using libraries like openpyxl, pdfplumber, os, pandas and re. The extracted data in excel and these details were again saved in csv format similar to previous methodology and imported to Xero and time was recorded.



Screenshot after loading the invoices



4.4 Data Analysis

All the time was recorded and analysed basis the accuracy of the data imported and method taking shortest time is considered as the best method.