

RPA Individual Project

BC3409 AI in Accounting and Finance

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Introduction

Robotic process automation (or RPA) is a form of business process automation technology based on metaphorical software robots (bots) or on artificial intelligence (AI)/digital workers. It is sometimes referred to as software robotics.

In traditional workflow automation tools, a software developer produces a list of actions to automate a task and interface to the back-end system using internal application programming interfaces (APIs) or dedicated scripting language. In contrast, RPA systems develop the action list by watching the user perform that task in the application's graphical user interface (GUI), and then perform the automation by repeating those tasks directly in the GUI. This can lower the barrier to use of automation in products that might not otherwise feature APIs for this purpose.

RPA tools have strong technical similarities to graphical user interface testing tools. These tools also automate interactions with the GUI, and often do so by repeating a set of demonstration actions performed by a user. RPA tools differ from such systems in that they allow data to be handled in and between multiple applications, for instance, receiving email containing an invoice, extracting the data, and then typing that into a bookkeeping system.

Potential RPA Projects

Price monitoring using web scraping

Manually keeping track of the pricing on different e-commerce sites can be time-consuming. With the use of robotic process automation, we can perform a scheduled web scraping process on a website and extract useful information.

Automating Email Responses

RPA can be used to automate the email responses to customers by validating the content of their enquiries and sifting out the important emails from the less important ones.

Bank statement reconciliation

Extracting data from bank statements to reconcile records and compare them against the company's own records was manually done via complex spreadsheets. This is a process that can relatively easily be automated using UiPath.

Forms Processing

Many organizations have to process forms received from clients. Some of these forms may include empty or incorrect fields that are required to be filled. This process can be automated by reading in the forms using RPA and using manual data entry to simultaneously fill in the missing fields in the forms.

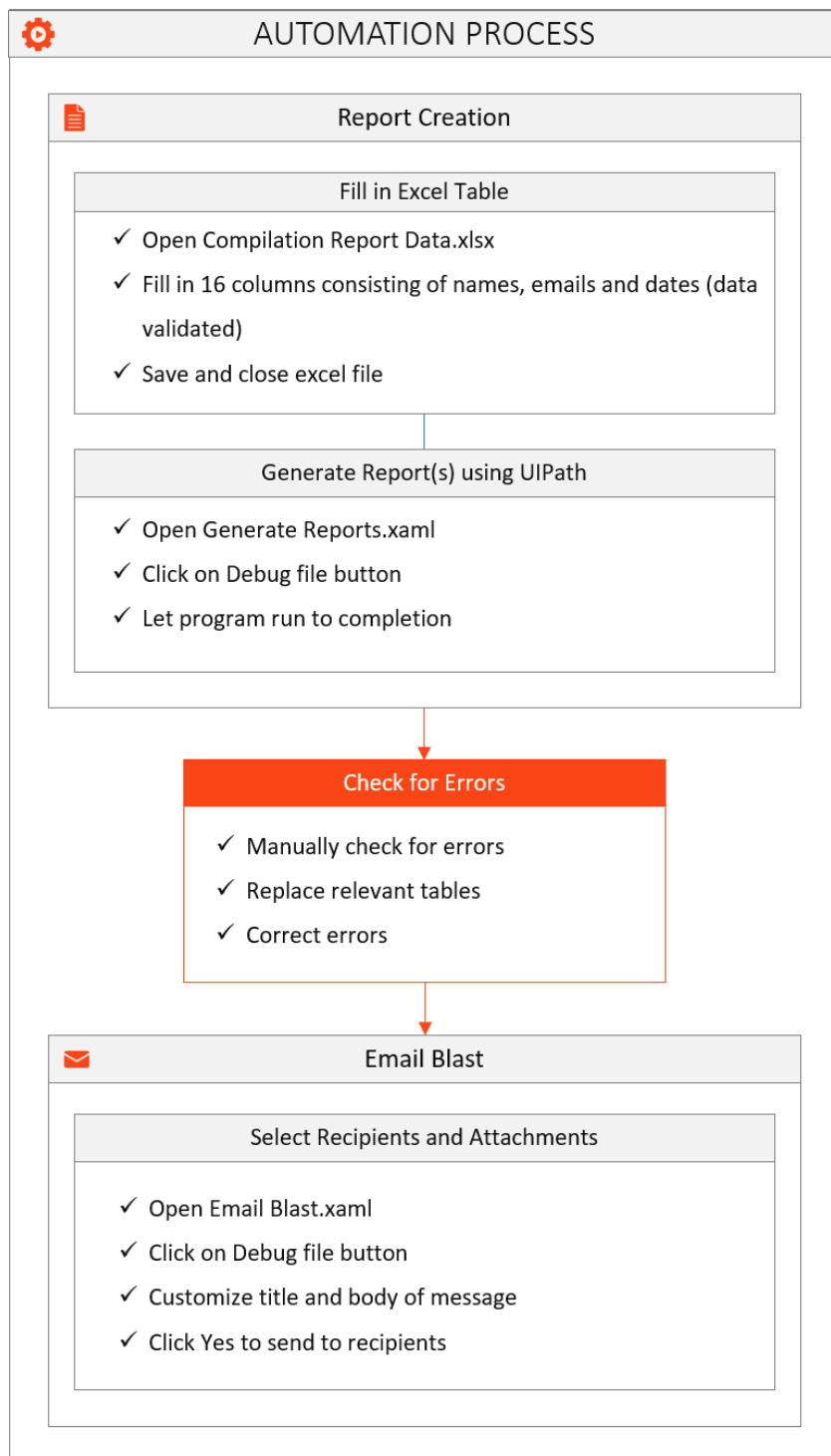
Claims Processing

Many insurance companies have to process claims that are raised against insured members for any initial process to trigger claims processing in their system and which also forms the paper-based proof that can be saved for further use in investigations. Processes as like these can be automated such that the forms can be read by an RPA solution and then the manual data entry to the applications where these claims are processed, can be done by the RPA solution.

Project Objectives

The objective of this project is to generate a compilation report from a word document template by automatically filling in the dates and names present in an excel sheet. The reports will then be sent to the accountant for further review.

Overview of Automation Process



Filling in Excel Table

The excel sheet Compilation Report Data.xlsx consists of 16 columns that needs to be filled. (FILE_NAME, COMPANY_NAME, REGISTRATION_NO, DIRECTOR_NAME, SECRETARY_NAME, SHAREHOLDER_NAME, APPOINTMENT_DATE, START_DATE, END_DATE, PREV_START_DATE, PREV_END_DATE, INCORP_DATE, ADDRESS_1, ADDRESS_2, ADDRESS_3, POSTAL_CODE).

FILE_NAME	COMPANY_NAME	REGISTRATION_NO	DIRECTOR_NAME	SECRETARY_NAME	SHAREHOLDER_NAME	APPOINTMENT_DATE	START_DATE	END_DATE
Xin Yang Financial Report	XIN YANG GOURMI	201814626N	LUAN YANG	TEOH TEIK TOE	Luan Yang	30 Apr 2018	1 May 2019	30 Apr 2020
Innerdrive Financial Report	Innerdrive Pte Ltd.	201814626N	Forest Willard	Amy Liu	Marcus Bromander	30 Apr 2018	1 May 2019	30 Apr 2020

Figure 1: Example of completed fields on Compilation Report Data.xlsx

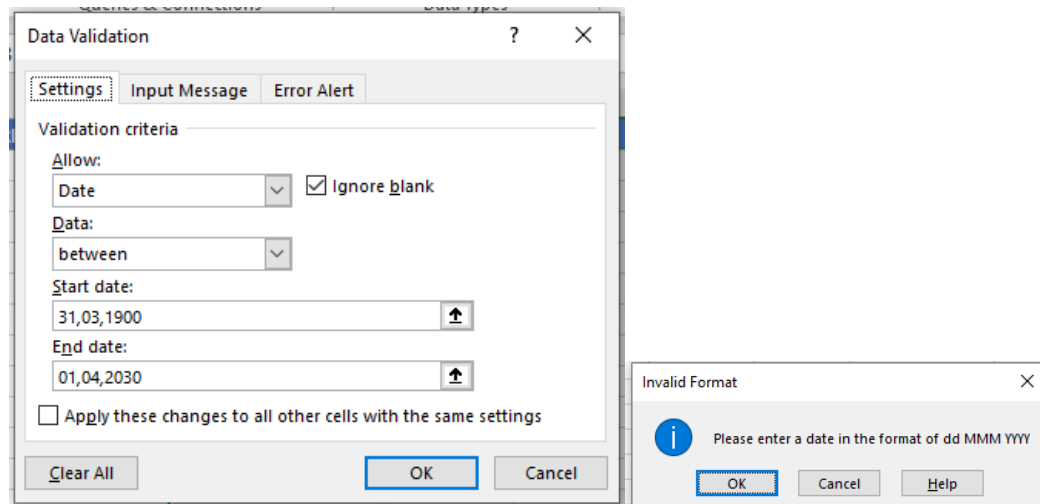


Figure 2: Data Validation in Excel Spreadsheet

For columns containing dates, data validation has been applied to ensure that the user enters in the correct date format to be processed by UiPath.

Generating Report

Template Example

```
<COMPANY_NAME>
Reg. No <REGISTRATION_NO>

FINANCIAL STATEMENTS
OF
<COMPANY_NAME>
(Incorporated in Singapore)

CORPORATE INFORMATION

Company Reg No: <REGISTRATION_NO>
Directors: <DIRECTOR_NAME>

Company Secretary: <SECRETARY_NAME>

Registered Office: <ADDRESS_1>
                   <ADDRESS_2>
                   <ADDRESS_3>
                   SINGAPORE <POSTAL_CODE>

Place of Incorporation Singapore
Date of Incorporation <INCORP_DATE>
```

Figure 3: Example of template replace fields

Automation Process of Generate Reports.xaml

1. Read the excel file Compilation Report Data.xlsx
2. Read each row of the spreadsheet
3. Read the word file Financial Report Template.docx
4. Make a new copy of the docx file and place it into Attachments folder
5. Replace the values with "<>" with the cells in the Nth row
6. Repeat the process till all financial reports have been created
7. Inform the user that the process has been completed

** The dates in the excel file will be formatted as dd MMM YYYY like the original template.*

** The program will fail if the Attachments folder contains the report files with the same file name.*

Check for Errors

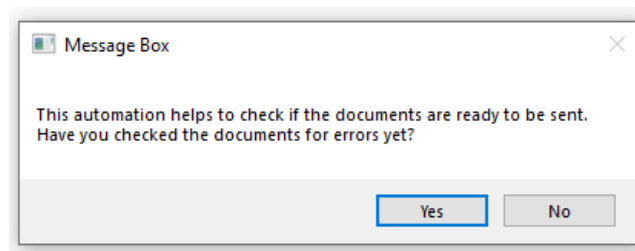
As the RPA process may not fully cover the editing process of each company's report, it is highly recommended that the user manually checks that the files created are error-free before sending the reports.

Handling Emails

Once the user has verified the correctness of the reports, the Email Blast.xaml file can be opened.

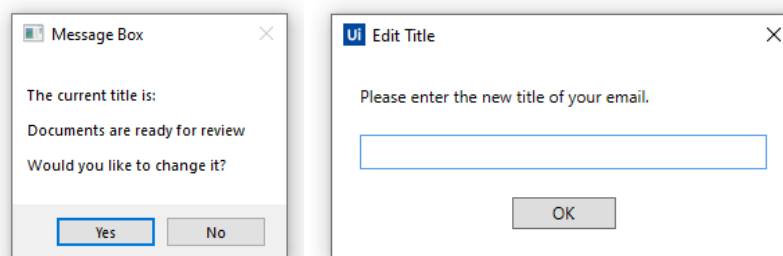
Automation Process of Email Blast.xaml

1. Verify if user has checked the documents in Attachment folder



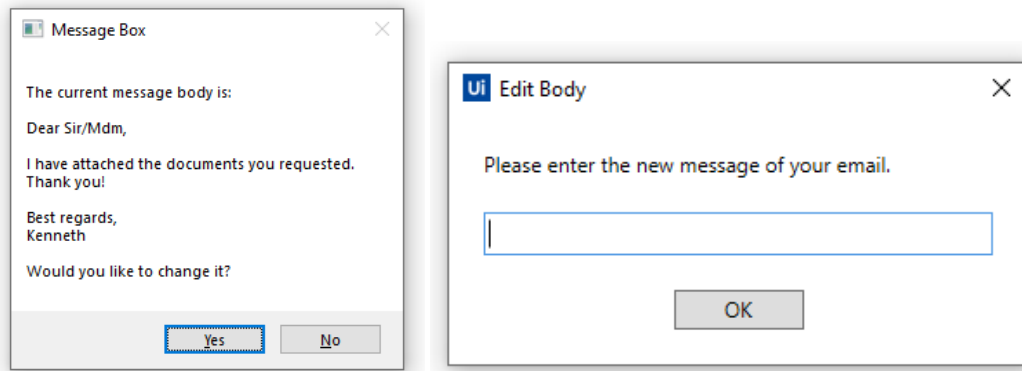
** If the user clicks No, the program is terminated*

2. Check if user wants to change the default title of the email



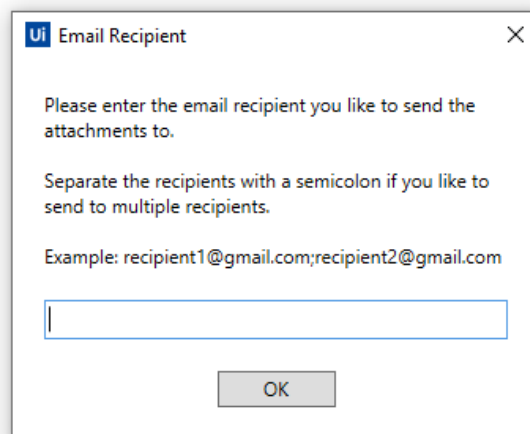
** If the user clicks Yes, he/she will be prompted with a new dialog box to enter the new title.*

3. Check if user wants to change the default message body of the email

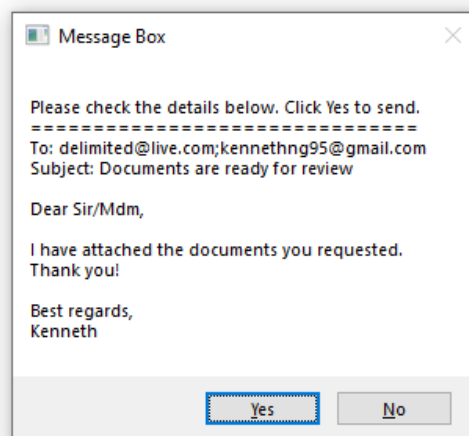


** If the user clicks Yes, he/she will be prompted with a new dialog box to enter the new message of the email.*

4. Enter email recipients

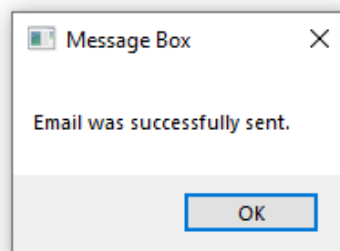


5. Check email content before sending

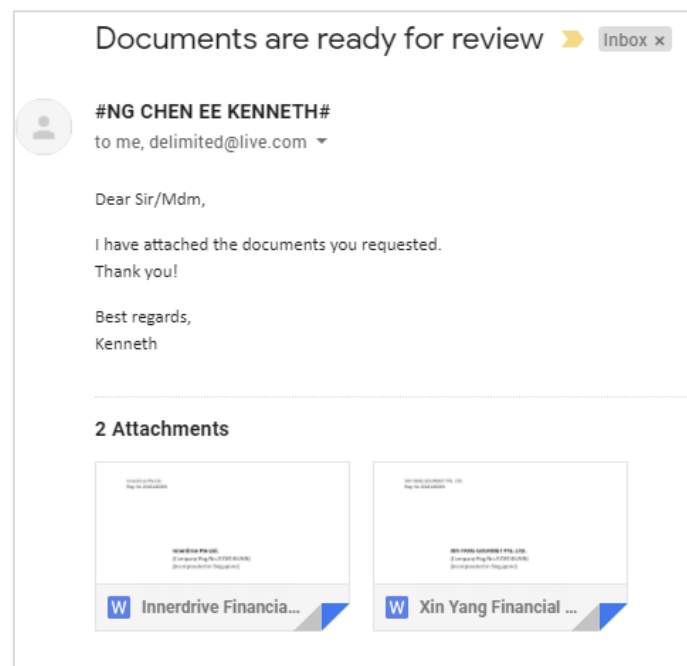


** If the user clicks No, the program is terminated*

6. Inform user that the email has been sent



Results



Conclusion

RPA robots can be utilized to greatly reduce the amount of time needed to perform mundane tasks. However, some decision-making aspects of the automation process cannot be automated without a clear identification of the edge cases. Customization and verification of a process may be needed to ensure that the robot runs exactly as intended by the user.

Appendix

XIN YANG GOURMET PTE. LTD. Reg. No 201814626N	
FINANCIAL STATEMENTS	
OF	
XIN YANG GOURMET PTE. LTD. (Incorporated in Singapore)	
CORPORATE INFORMATION	
Company Reg No:	201814626N
Directors:	LUAN YANG
Company Secretary:	TEOH TEIK TOE
Registered Office:	500A MARINE PARADE ROAD #19-04 LAGUNA PARK SINGAPORE 449284
Place of Incorporation	Singapore
Date of Incorporation	30 Apr 2018

Figure 4: Example of completed fields filled in report

