Serco Work Experience

Emily Paterson

22/07/24 - 16/08/24

Executive Summary

- At Serco, I joined the RPA (Robotic Process Automation) team during a 4-week work experience placement. During this time, I worked on training modules for UiPath & Boomi, completed personal projects, developed a partial project for Serco, completed a site visit, and sat in on team & client meetings.

- The outcome of this project was the development of an RPA solution that will be used by Serco in the future. It involved developing an automated bot to take data from a Microsoft Power App to Assure (an internal incident reporting platform). The project included adding error handling and retries when necessary in order to make an efficient and reliable solution.

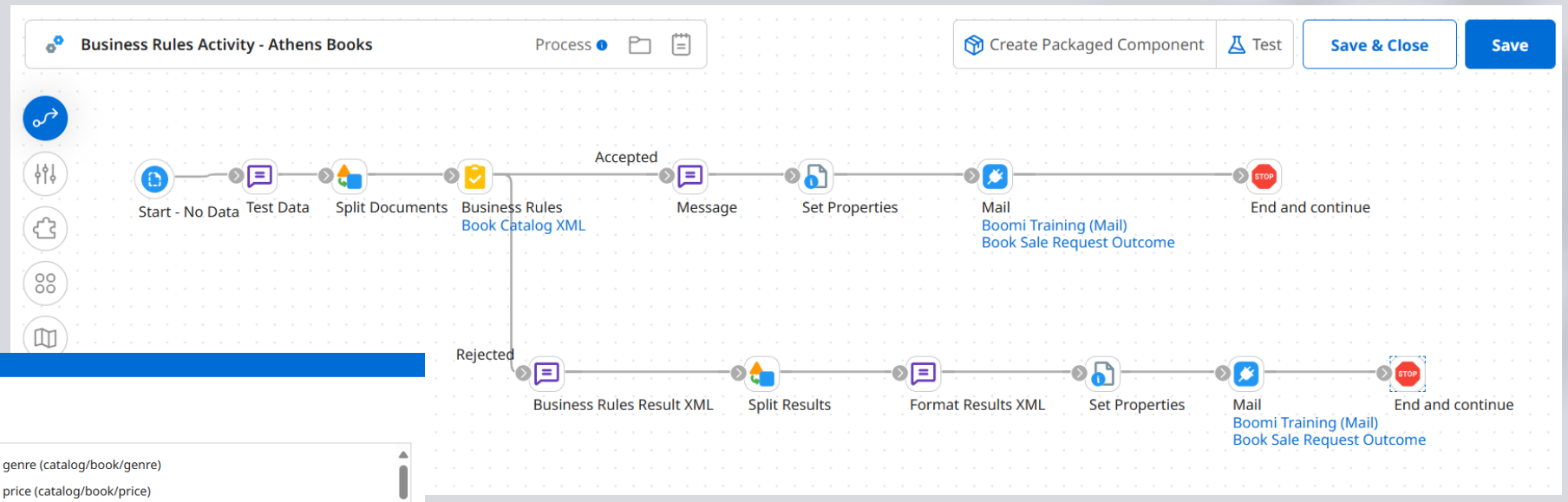
- This experience allowed me to develop new skills, learn how a business functions, further my understanding of the developer-client relationship, and become familiar with new software.

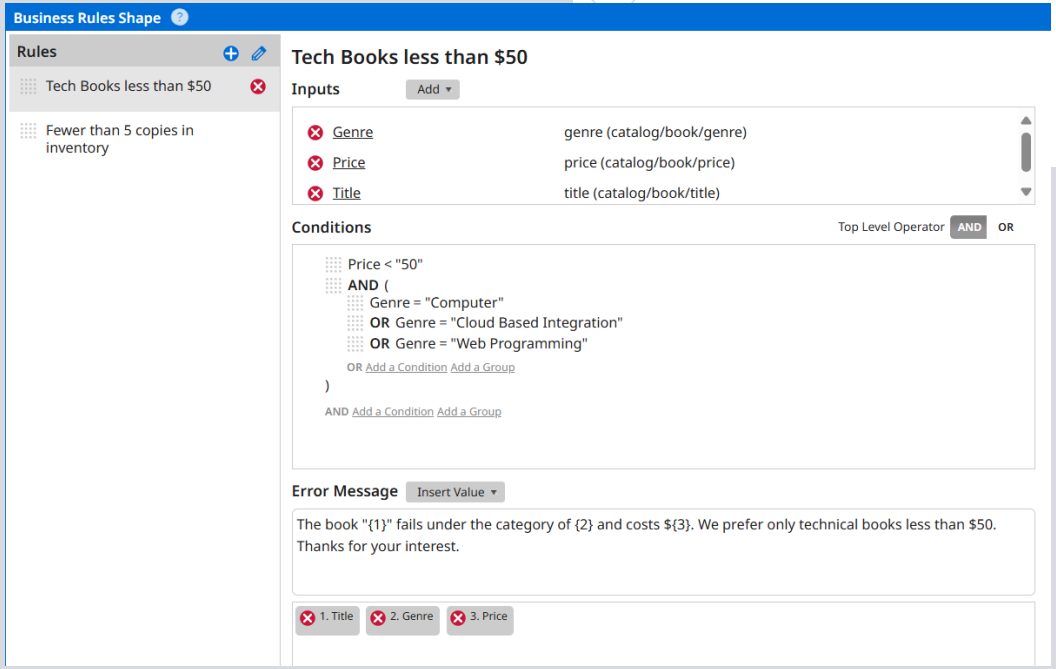
Week 1 – Boomi Training Modules

Associate Integration Developer Certification

Professional Integration Developer Certification

Examples of programs I developed during the Boomi Training Courses

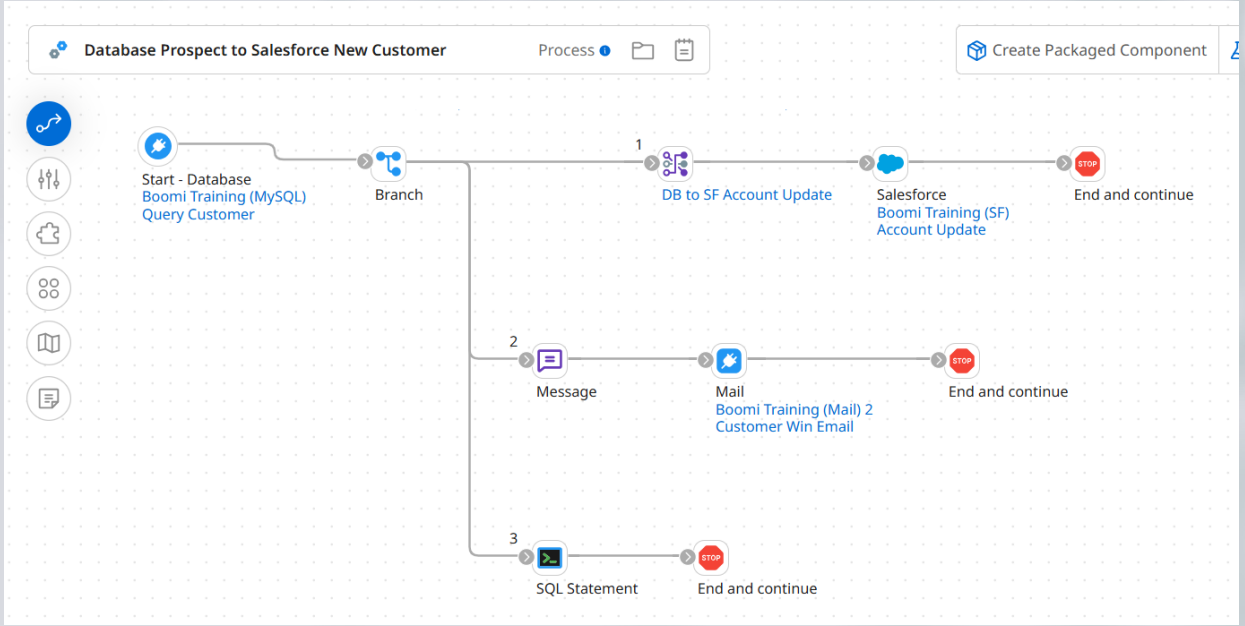




This program worked by getting a few books that a user wanted to sell to a bookstore. The program would then check the details of that book and see if it matched the criteria the store was looking for. If it did, the store would buy the book and email the user to say they are happy to purchase their book. If the book did not meet the criteria, an appropriate error message based on the failing criteria was formatted and this message was emailed to the user explaining why the store did not want to purchase their book.

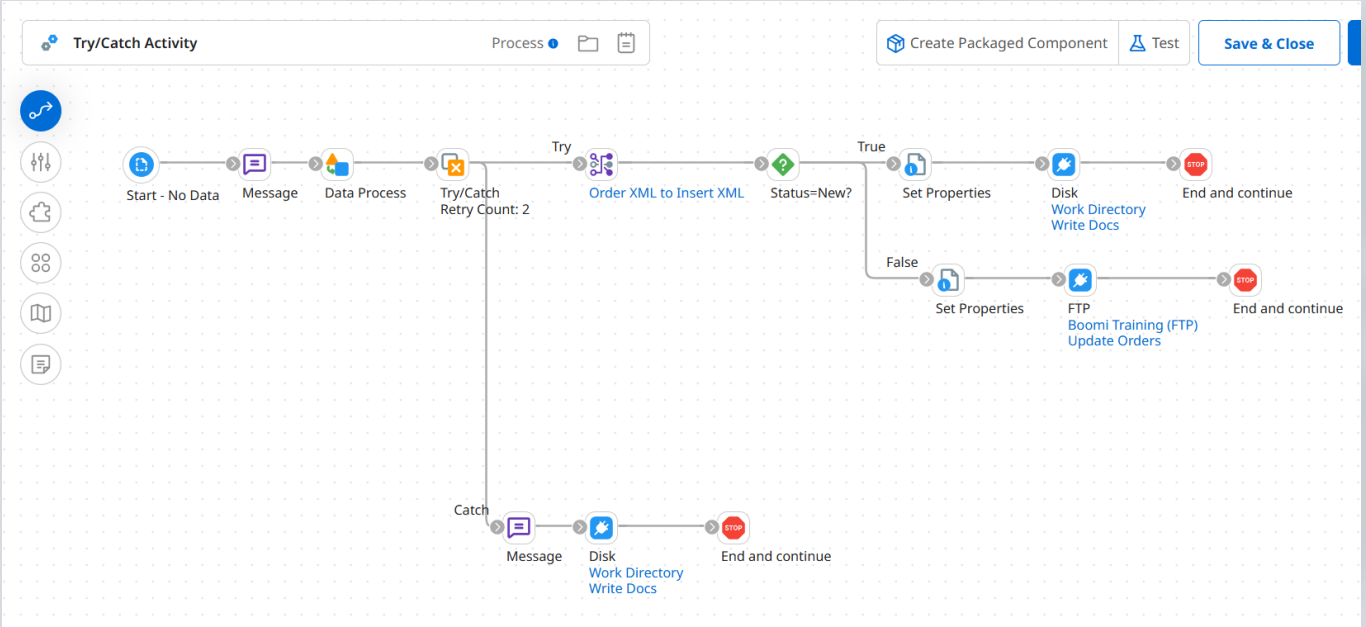
Examples of programs I developed during the Boomi Training Courses

- This program worked to take a database (DB) prospect and convert that to a new salesforce (SF) account.
- The program read in from the DB and followed 3 paths.
- First the DB was mapped to a SF account using a map
- Then a notification was sent out via email to say that the DB prospect has successfully been dealt with
- Then the DB record was updated using an SQL statement



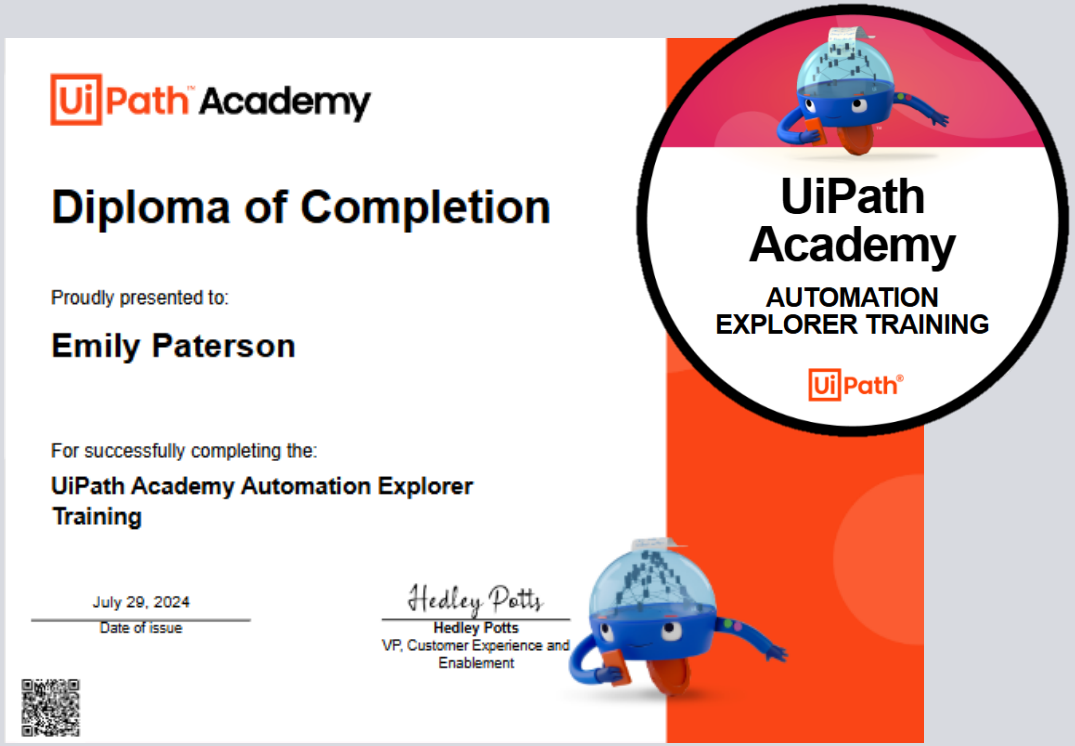
Examples of programs I developed during the Boomi Training Courses

- This program took in a number of orders and tried to either create a new order in the directory or update the current order.
- The order XML is mapped to the Insert XML
- If there are any issues with the mapping process, the file will go down the catch route where an error message is formatted. The order is them saved as it is so a human developer can go and look into the error.
- Otherwise, the order is now checked to see if it's a new order or it is updating a current order. Based on this check, the order is either added to the directory or the order is pulled from the directory and updated.



Week 2 – UiPath Training

Automation Explorer Training Course

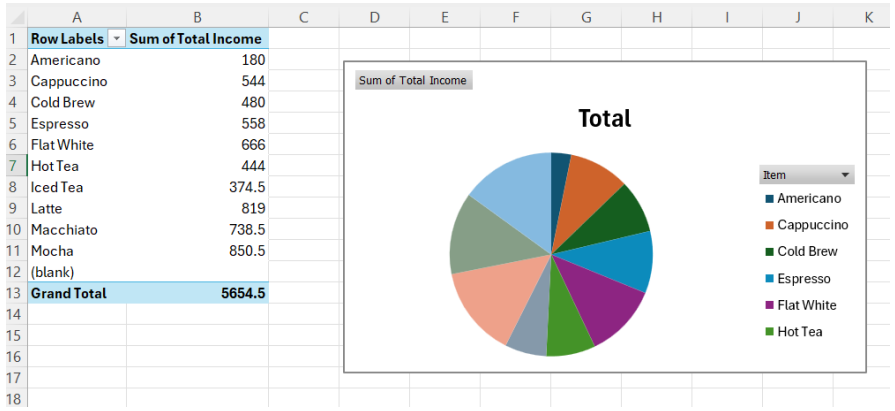


2 main projects

- Scraping Data from a website into an excel file and formatting that data
- Sorting an outlook inbox by getting the sender name and email address and creating folders/subfolders & moving the emails to the appropriate location

Example automation made during the UiPath Automation Explorer Course

- This project involved taking multiple excel sheets and combining them into one single file to compare the data for multiple days in a coffee shop
- Then (using a pivot table) a chart was created so the data is easy to read and understand
- It includes error checking for when the sheet name is not what we would expect causing us to miss data



Row Labels	Sum of Total Income
Americano	180
Cappuccino	544
Cold Brew	480
Espresso	558
Flat White	666
Hot Tea	444
Iced Tea	374.5
Latte	819
Macchiato	738.5
Mocha	850.5
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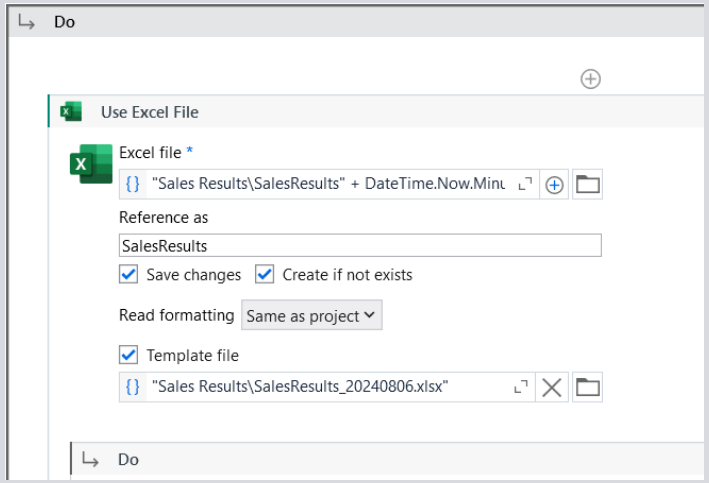
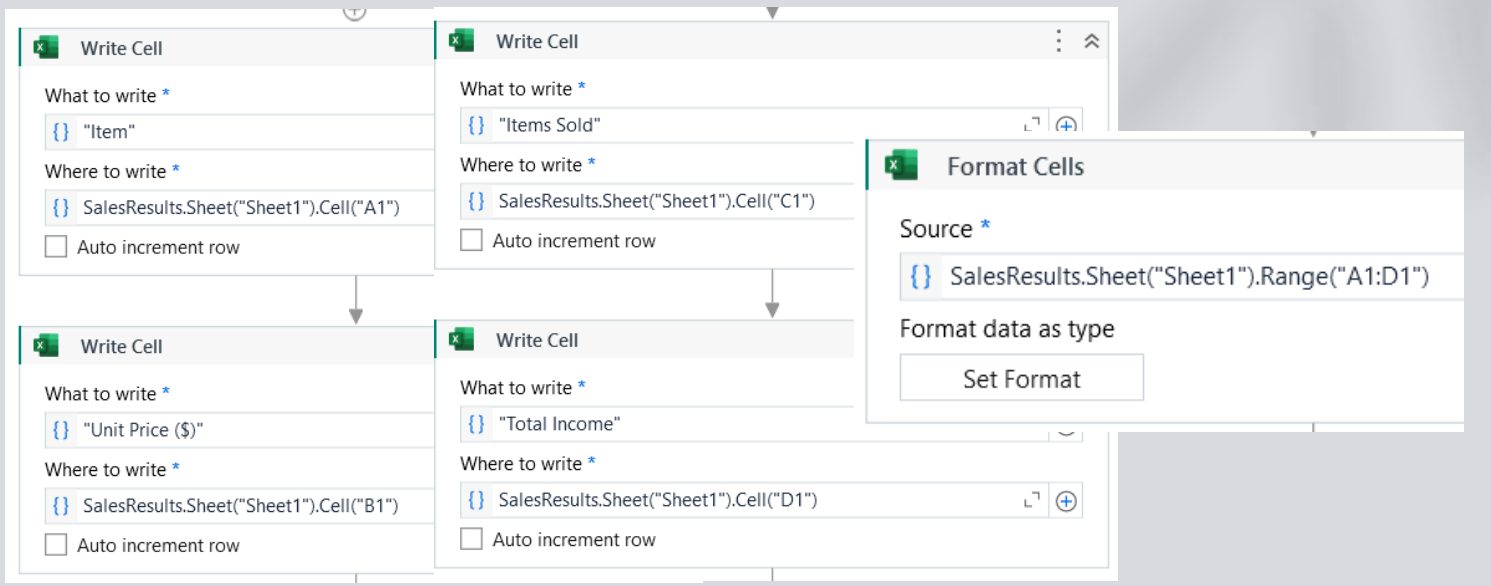
Grand Total	5654.5

Step 1: Create the Sales Results file & header columns

Dynamically creates a sales results file using the current time

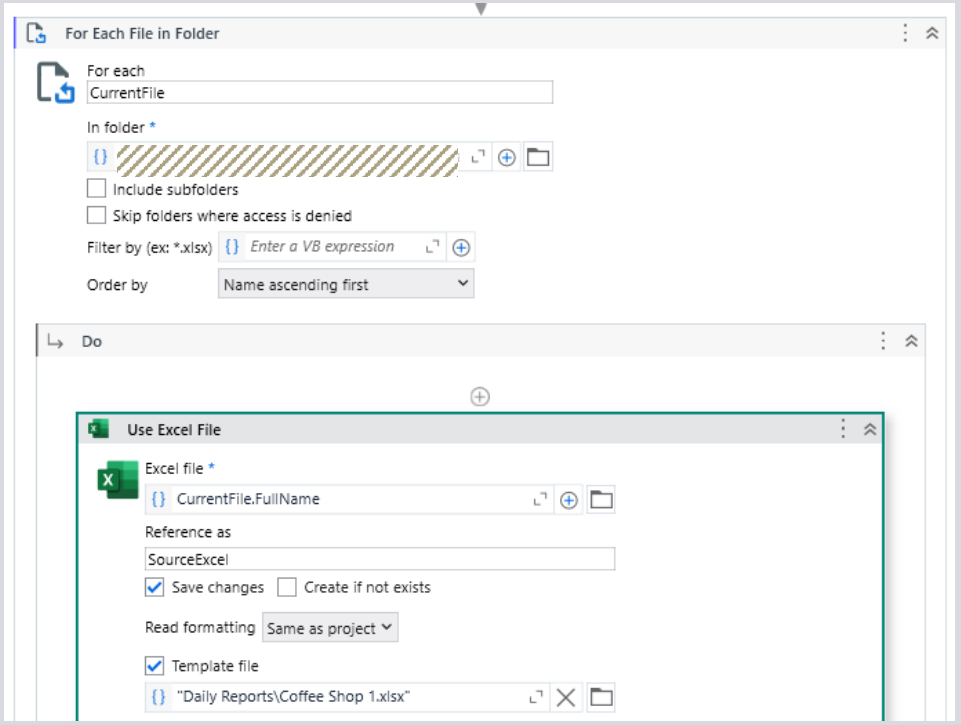


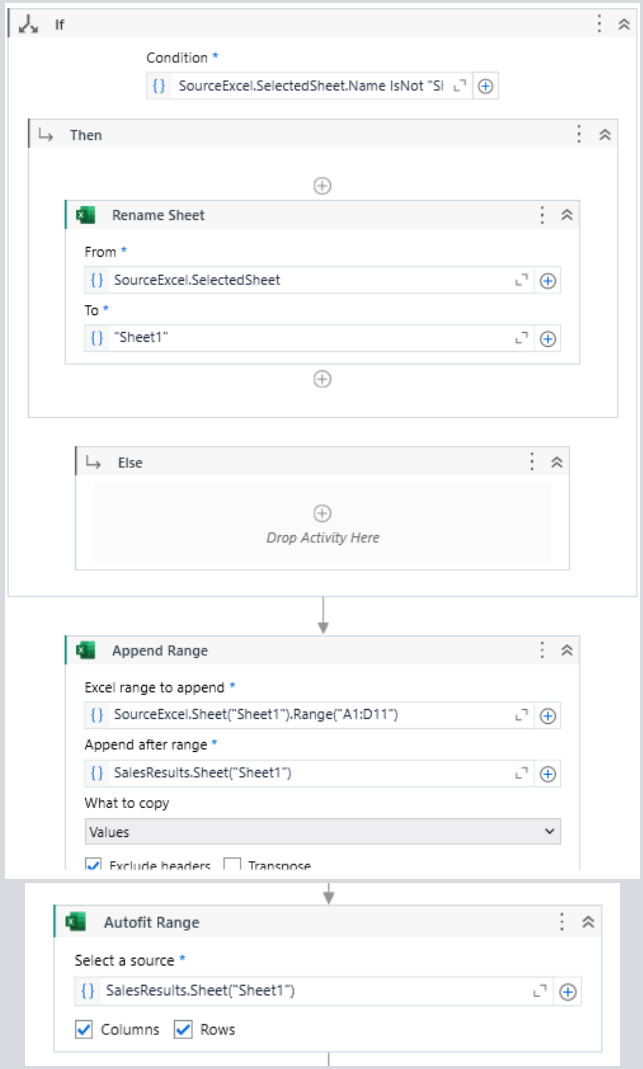
Create the header columns in the excel sheet & format them



Step 2: Go through each of the excel files in the daily reports folder

Iterating through each excel file in the folder

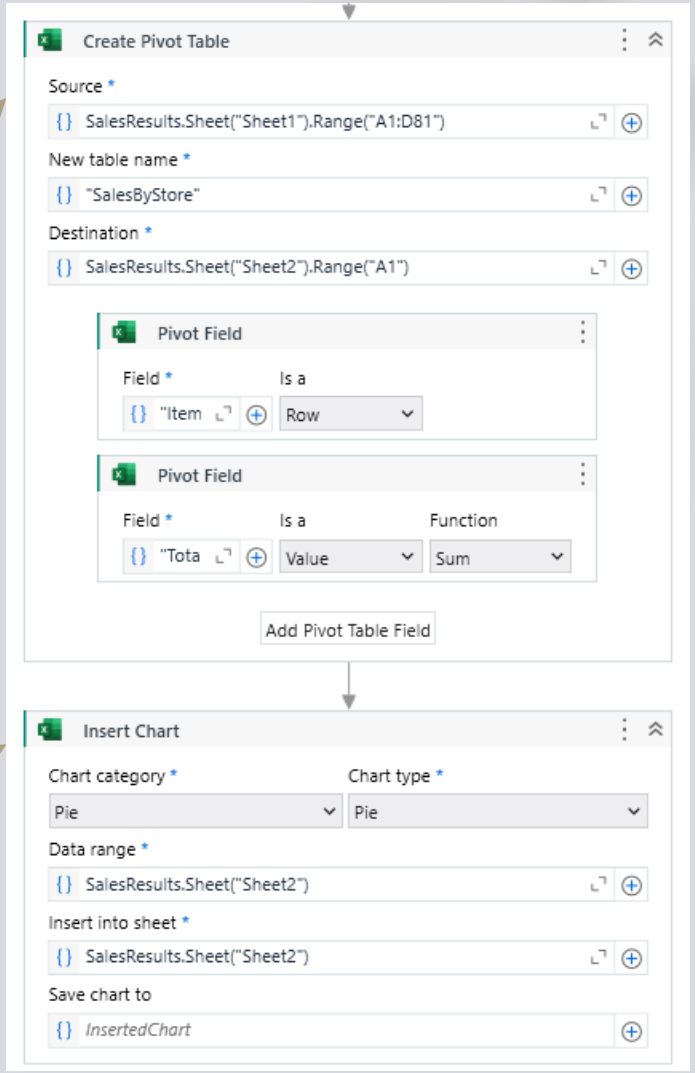




- *Then we have an error checking IF statement to make sure that we collect all the data from the files*
- *We check that the current sheet is called "Sheet1" otherwise its not picked up by Append Range. If it is not "Sheet1" update the title*
- *Then get the data & append to the results sheet & autofit*

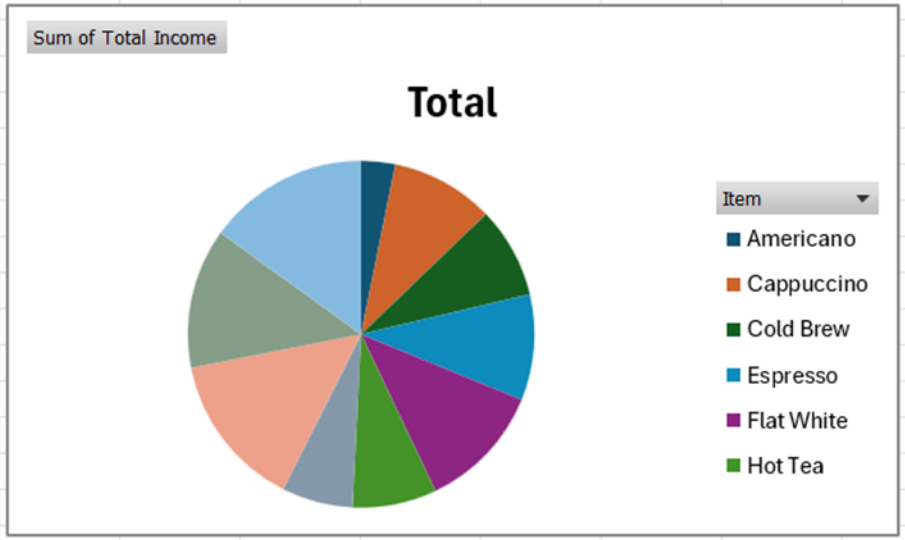
Step 3: Create a pivot table that can be used to make a pivot chart

- *Get the full range of data from the results sheet & create the table with this data*
- *The 2 fields we want displaying on the chart are item name and their total income so we set these as pivot fields*
- *Then we can create a pie chart using the pivot table stored in "Sheet2" & add it in*



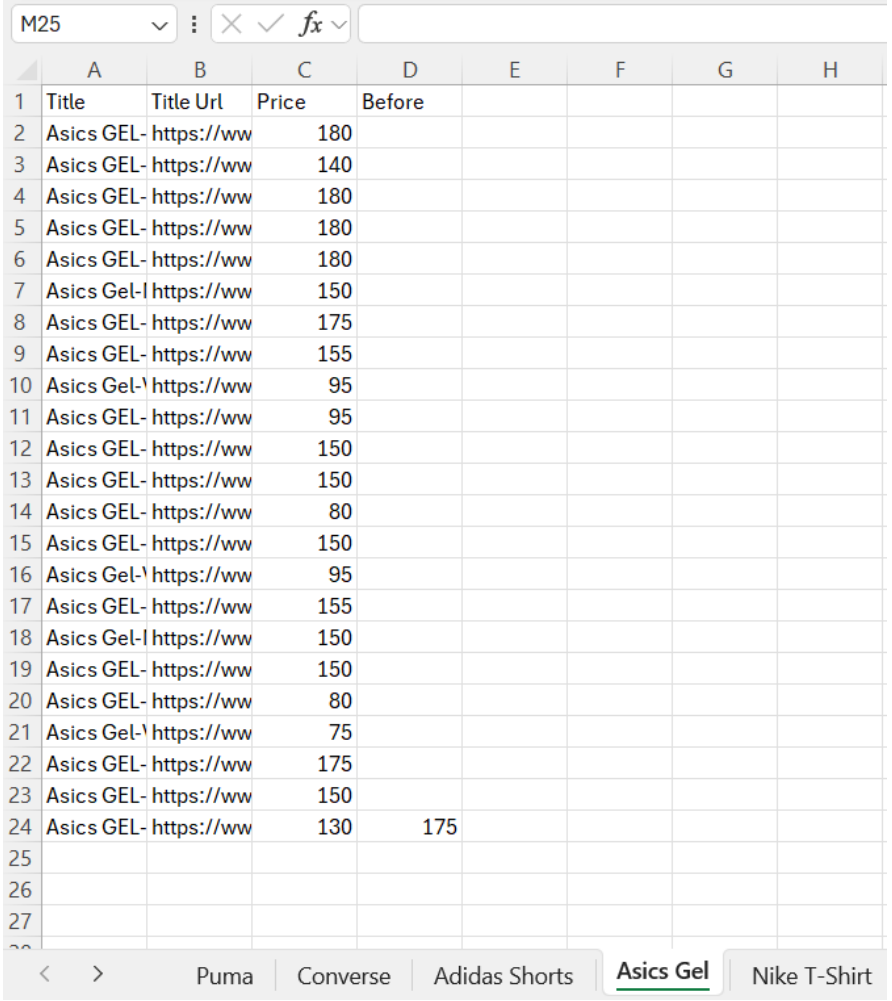
Step 4: View the data in excel

Row Labels	Sum of Total Income
Americano	180
Cappuccino	544
Cold Brew	480
Espresso	558
Flat White	666
Hot Tea	444
Iced Tea	374.5
Latte	819
Macchiato	738.5
Mocha	850.5
(blank)	
Grand Total	**5654.5**



Web Scraping Data Project

- This project loaded up a webpage (JD Sports) and searched for various items. The process used an excel sheet for the input and that sheet contained a list of items the user wanted information about. The project took in the item name, URL, Standard price and (if applicable) a discounted price if a sale was currently running.



M25

	A	B	C	D	E	F	G	H
1	Title	Title Url	Price	Before				
2	Asics GEL-	https://ww	180					
3	Asics GEL-	https://ww	140					
4	Asics GEL-	https://ww	180					
5	Asics GEL-	https://ww	180					
6	Asics GEL-	https://ww	180					
7	Asics Gel-I	https://ww	150					
8	Asics GEL-	https://ww	175					
9	Asics GEL-	https://ww	155					
10	Asics Gel-\	https://ww	95					
11	Asics GEL-	https://ww	95					
12	Asics GEL-	https://ww	150					
13	Asics GEL-	https://ww	150					
14	Asics GEL-	https://ww	80					
15	Asics GEL-	https://ww	150					
16	Asics Gel-\	https://ww	95					
17	Asics GEL-	https://ww	155					
18	Asics Gel-I	https://ww	150					
19	Asics GEL-	https://ww	150					
20	Asics GEL-	https://ww	80					
21	Asics Gel-\	https://ww	75					
22	Asics GEL-	https://ww	175					
23	Asics GEL-	https://ww	150					
24	Asics GEL-	https://ww	130	175				
25								
26								
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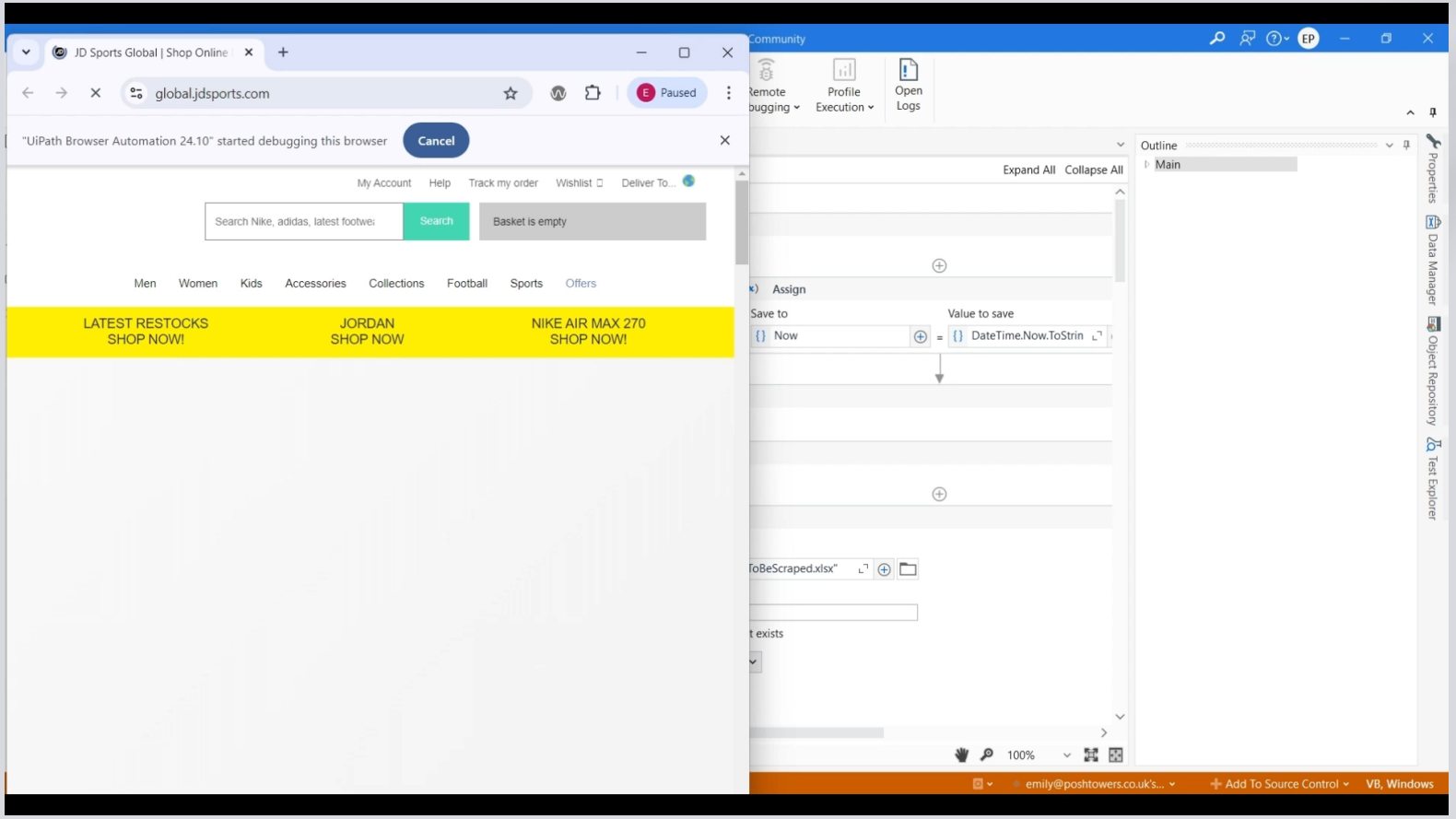
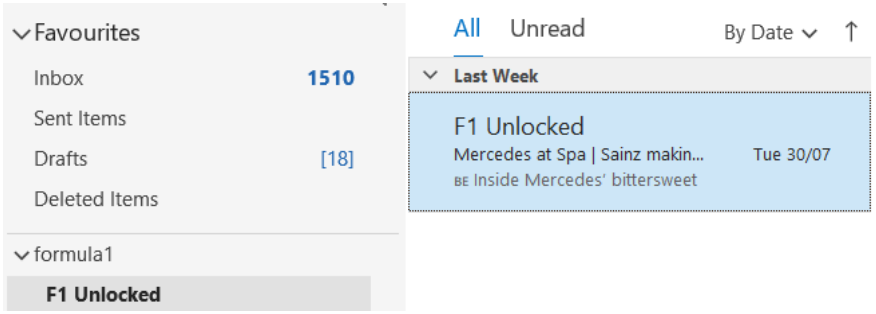
Puma | Converse | Adidas Shorts | Asics Gel | Nike T-Shirt

Video Of Process: (Actions in video are being completed by the bot)



Outlook Sorting Project

- This project goes through each email in my inbox and extract the name of the email sender. It will then check if I have requested that sender have a parent folder via an excel sheet. If I have, a parent folder is created first then the subfolder. If at any point the program runs into an error and the folder has already been created, then this is noted in the excel file and then the program can check if the folder has already been made rather than having to encounter the file already made error several times. After the folders are made, the email is moved to the corresponding folder.

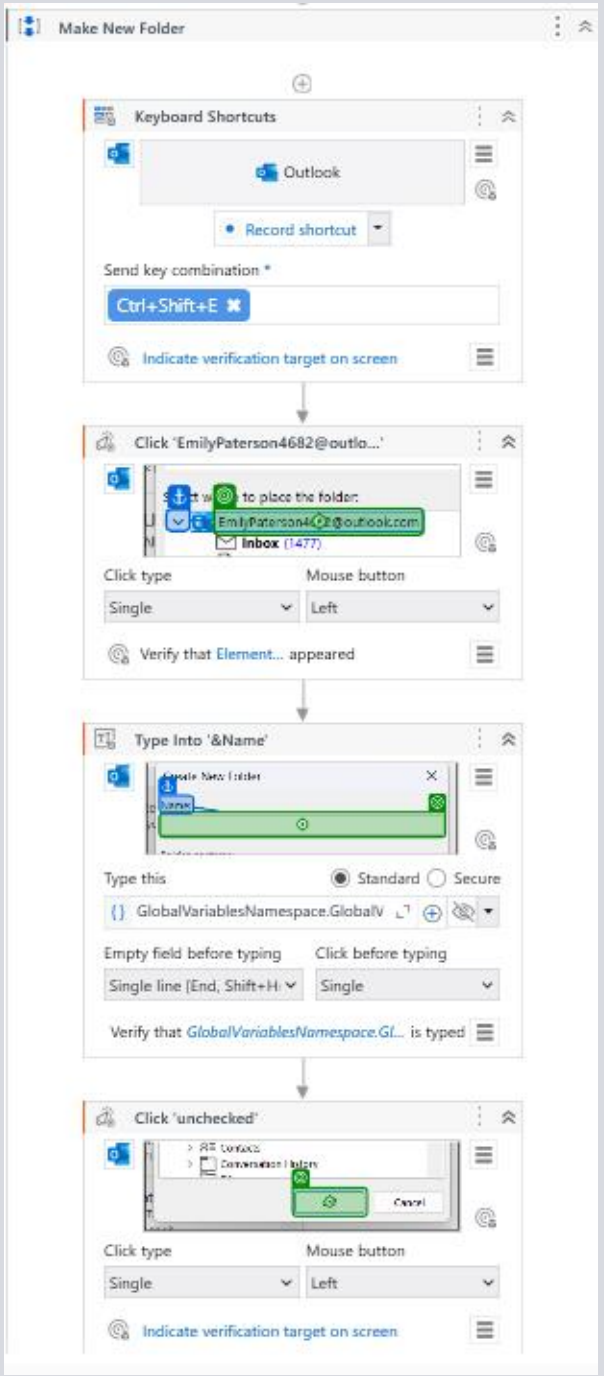


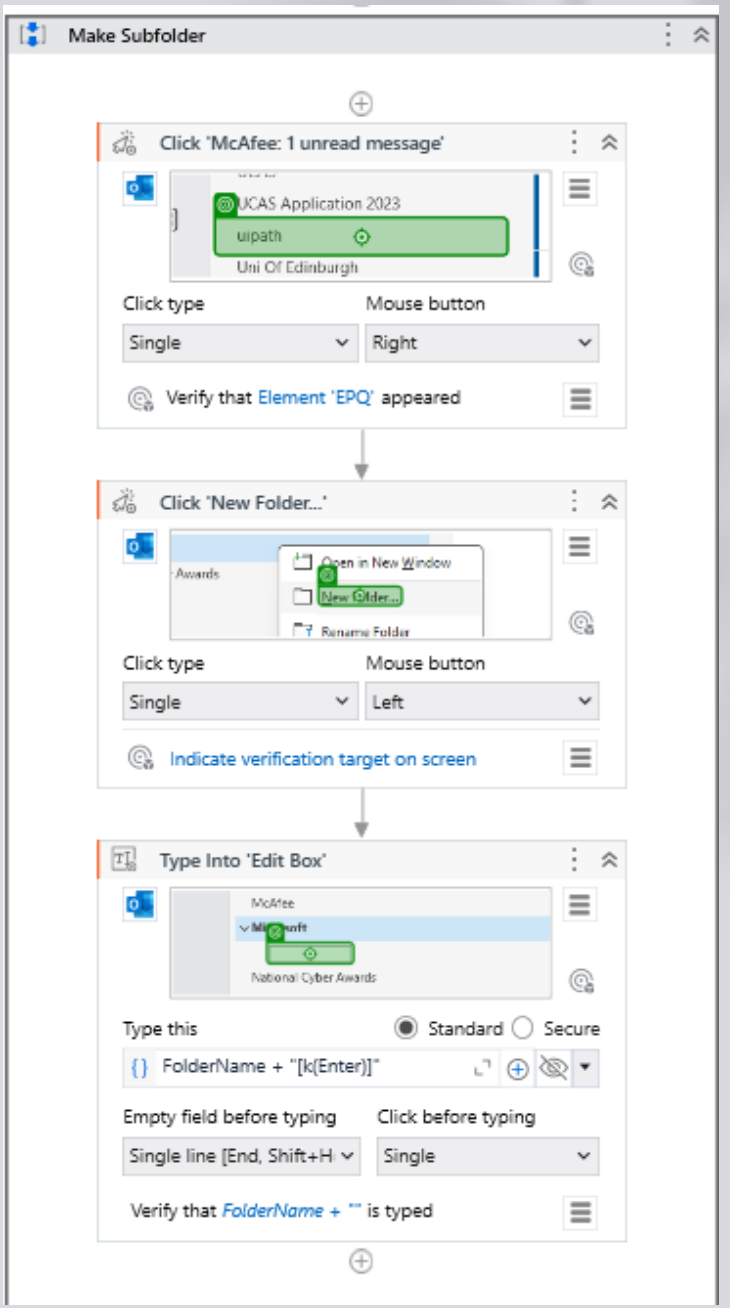
Video of process working: (Actions in video are being completed by the bot)

An example of a couple of standard subprocesses used within the program

1. *Making a new folder using the CTRL + Shift + E shortcut. Selects main folder for destination, types the folder name in and then presses ok*

2. *Making a subfolder, right clicks on parent folder to make a subfolder, types in the subfolder name and presses enter*





Week 3 – Further Work On UiPath

1 personal project

- Involved taking employee data from an excel file, performing calculations on that data in order to format and email a payslip to that employee.

Started working on/overshadowing the development of a healthcare app system

- Development of the dispatcher & performer processes
- Started work on the dispatcher process in order to get a list of all the current reports in the Safety Observations Power App
- Then started work on the performer to analyse the data in those reports and collect the relevant data

Payslip Generator Project

- This project takes in data about employees from an excel file. It reads all the data and converts this into a data table within UiPath so the data can be easily accessed from within the program. The program can process 3 types of pay slips (UK, USA and Europe (Belgium)) based on the employee's home office.
- The program will then calculate the employee's monthly income based on their completed contract hours and (if applicable) overtime ours and holiday days (holiday day is assumed to be 8 hours). The program then calculates all relevant taxes based on their location. The program will then take all this data and format it into a pay slip.
- The pay slip can then be saved as a PDF and emailed to the employee (Currently my email address is used instead of the employees to avoid sending people random emails).

SERCO PAYSLIP

EMPLOYEE INFORMATION	PAY DATE	HOME OFFICE ADDRESS	EMPLOYEE ADDRESS	NI NUMBER	EMAIL	JOB TITLE
SADIE OWENS	08/05/2024 22:10:18	16, Bartley Wood Business Park, Hook, RG27 9UY	1 Church Lane,Portsmouth,PO57 7XK	FJ375937O	sadie.owens4@serco.com	Cleaner

EARNINGS	HOURS	RATE	TOTAL
STANDARD PAY	120	14	1680
OVERTIME PAY	8	21	168
HOLIDAY PAY (3 DAYS)	24	10	252

DEDUCTIONS	TOTAL
NATIONAL INSURANCE	84
INCOME TAX	210
PENSION CONTRIBUTION	
STUDENT DEBT REPAYMENT	

UK Pay slip

SERCO PAYSLIP

EMPLOYEE INFORMATION	PAY DATE	HOME OFFICE ADDRESS	EMPLOYEE ADDRESS	SOCIAL SECURITY NUMBER	EMAIL	JOB TITLE
LIBERTY FLETCHER	08/05/2024 23:13:31	12930 Worldgate Drive, Suite 6000, Herndon, VA 20170	Suite 108 7129 Thiel Meadows,New Latesha,KY 54619-6353	573-34-4535	liberty.fletcher3@serco.com	Intern

EARNINGS	HOURS	RATE	TOTAL
STANDARD PAY	160	10	1600
OVERTIME PAY	40	15	600
HOLIDAY PAY (0 DAYS)	0	8	0

DEDUCTIONS	TOTAL
MEDICARE TAX	175
FEDERAL INCOME TAX	246
SOCIAL SECURITY TAX	136
STUDENT DEBT REPAYMENT	0

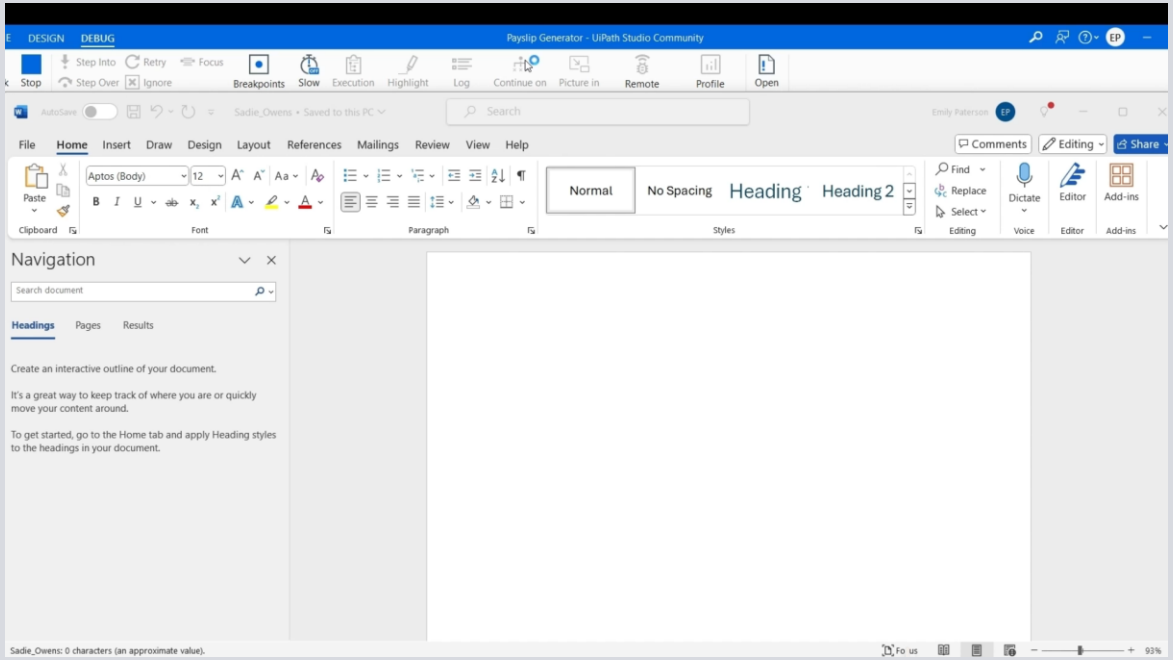
GROSS PAY : $2200, **TOTAL DEDUCTIONS**: $556.77

NET PAY : $1643.23

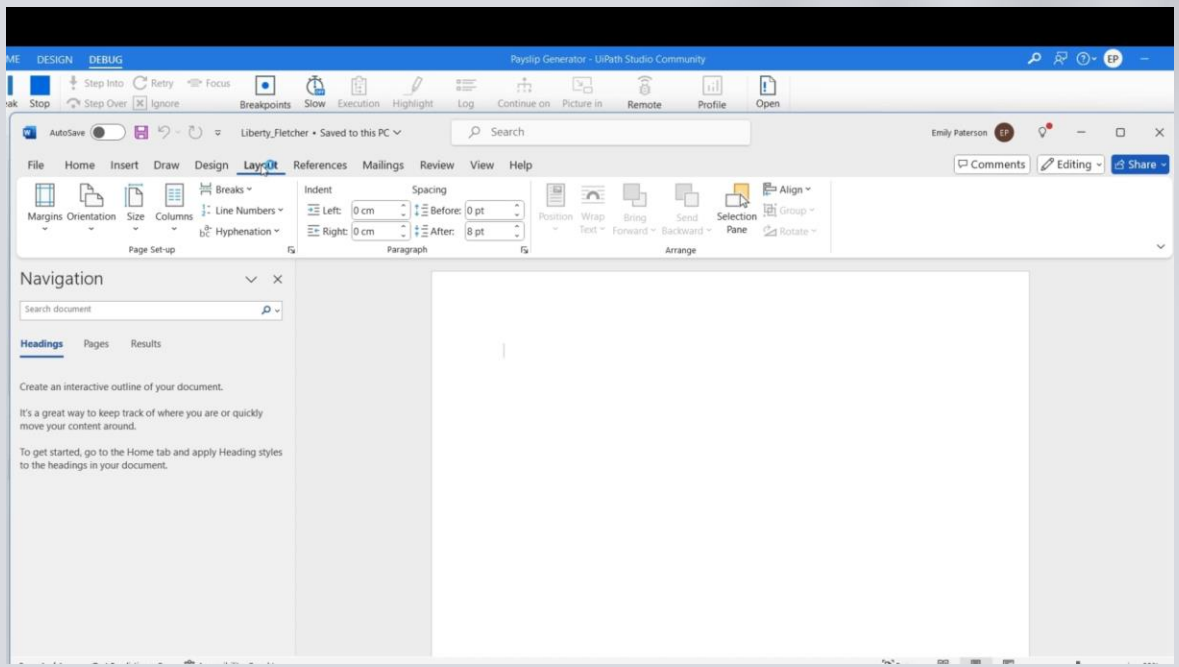
US Pay slip

Videos of process working: (Actions in video are being completed by the bot)

UK Payslip

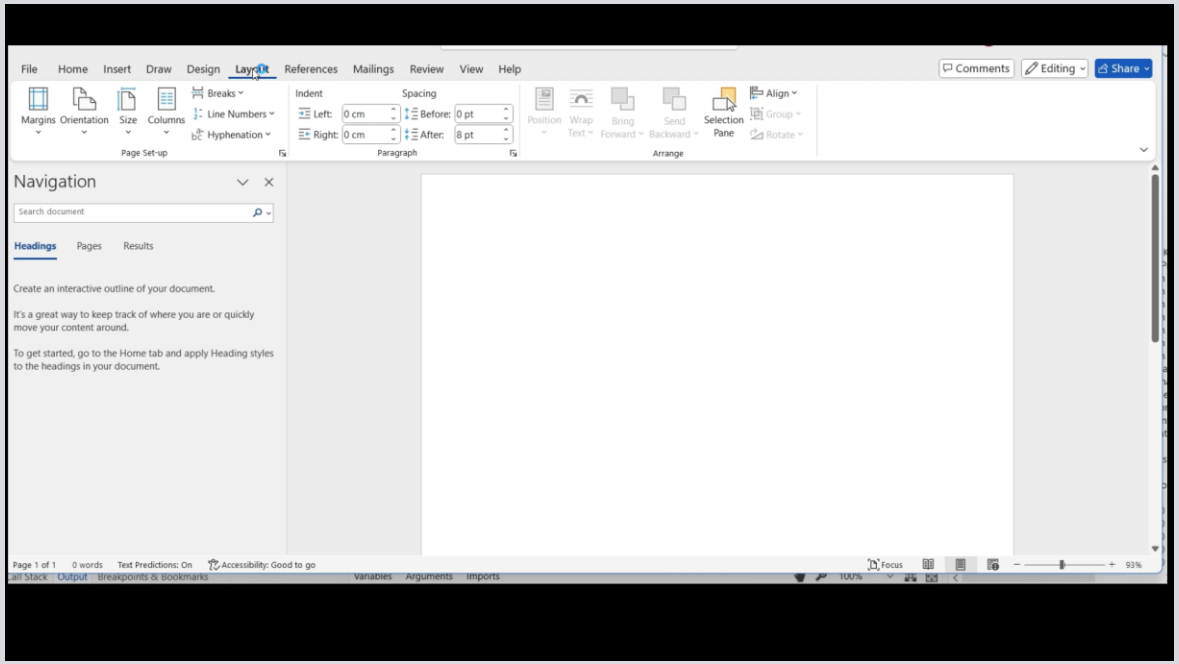


US Payslip

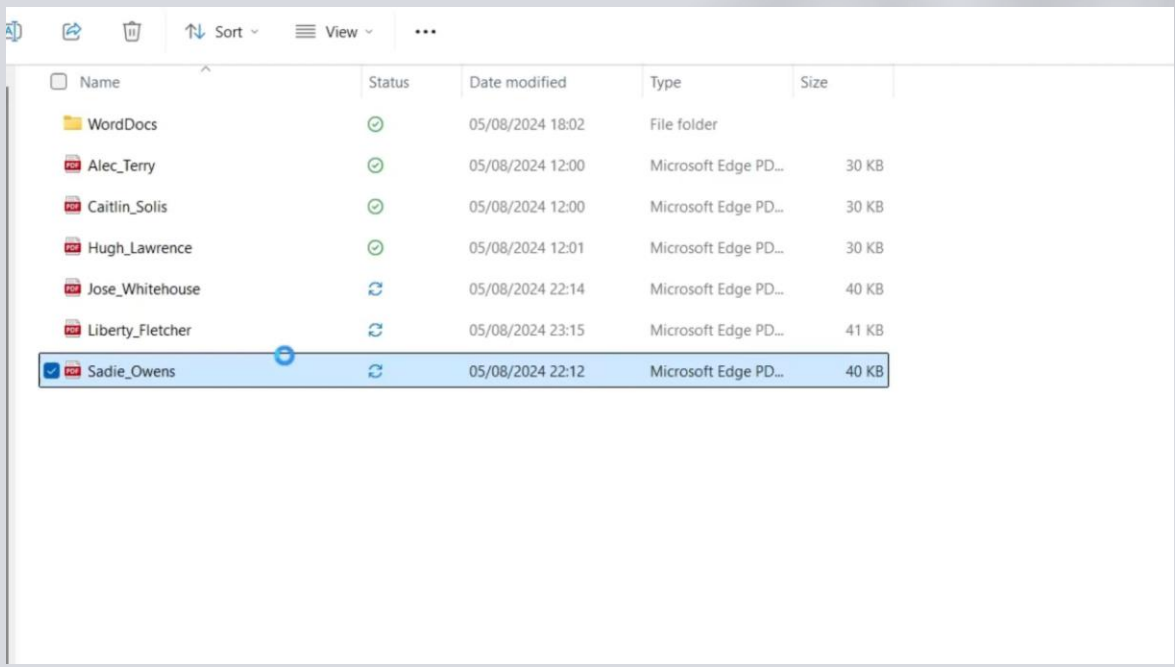


Videos of process working: (Actions in video are being completed by the bot)

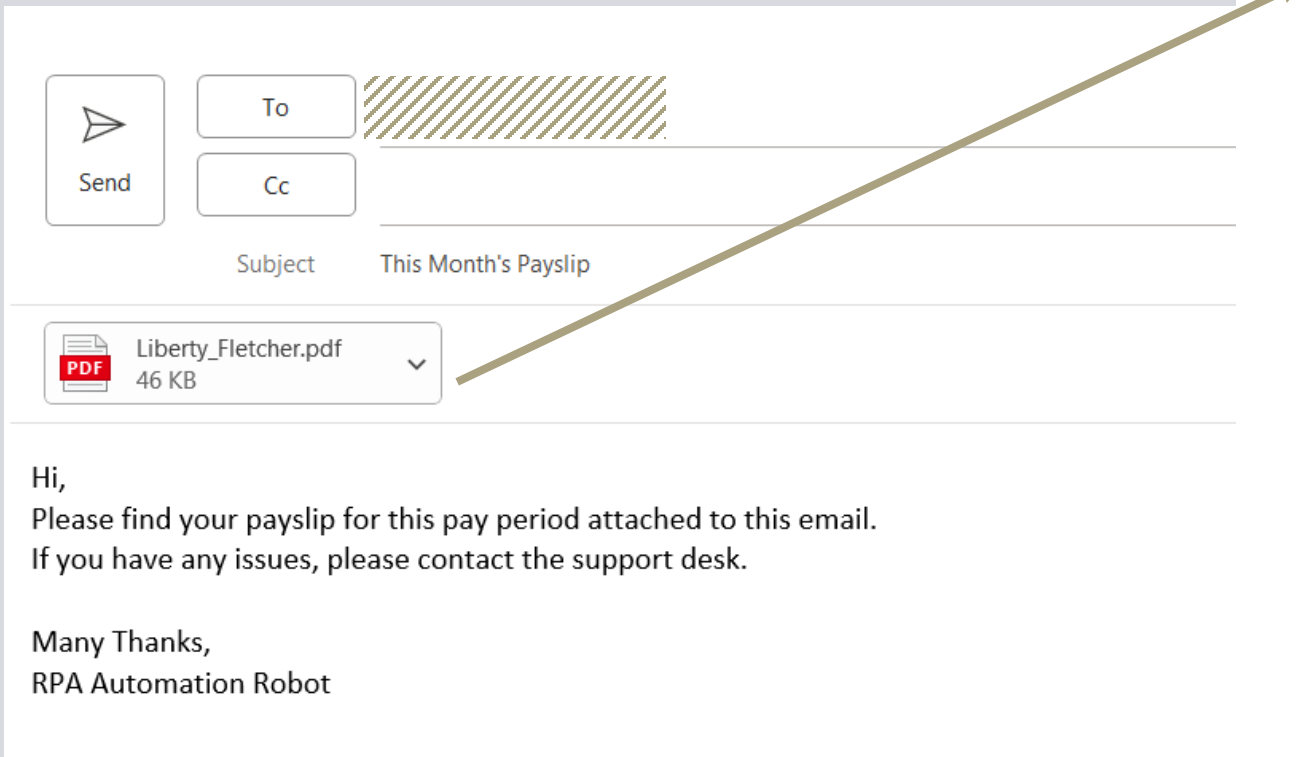
European Payslip



Emailing/PDFs



Final Result



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EARNINGS	HOURS	RATE	TOTAL
STANDARD PAY	120	14	1680
OVERTIME PAY	8	21	168
HOLIDAY PAY (3 DAYS)	24	10	252

DEDUCTIONS	TOTAL
NATIONAL INSURANCE	84
INCOME TAX	210
PENSION CONTRIBUTION	105
STUDENT DEBT REPAYMENT	189

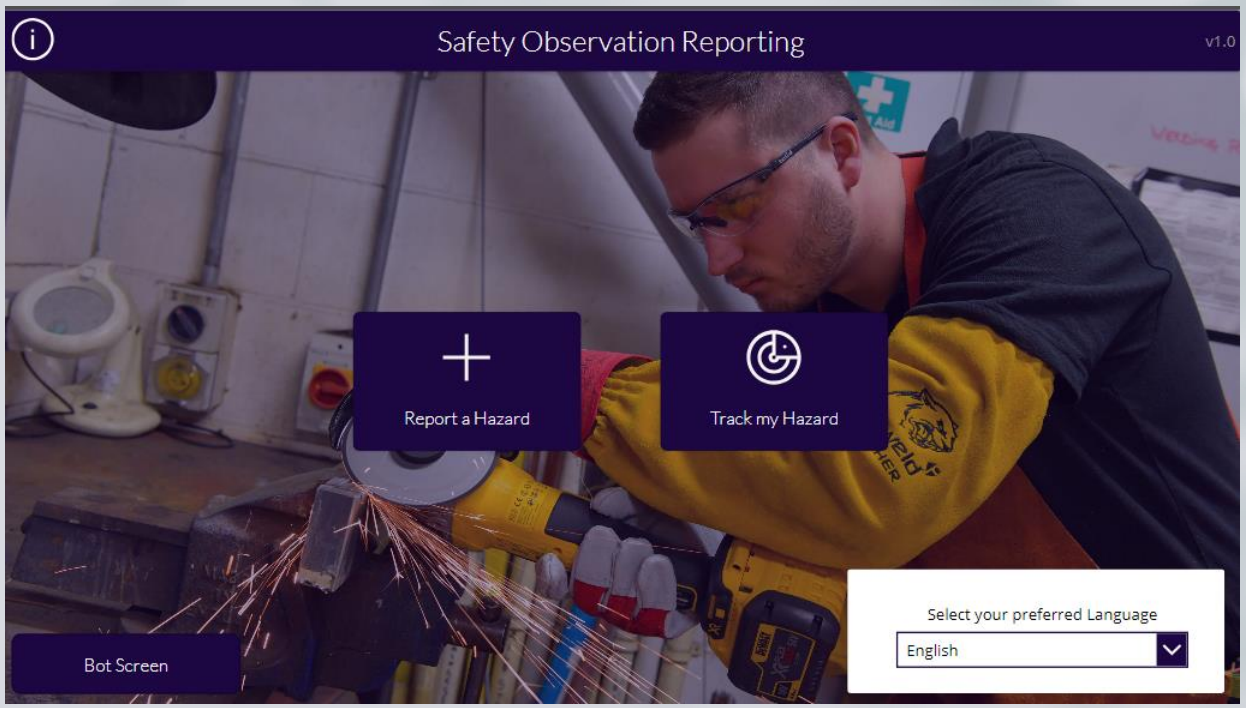
GROSS PAY : £2100, **TOTAL DEDUCTIONS**: £588.66

NET PAY : £1511.34

Safety Observations App

- **PROBLEM:** Finding an autonomous solution to adding Safety Reports to Assure from a Power App, logging all the details & dealing with any exceptions
- **CURRENT SOLUTION:** Using paper-based forms which are then manually inputted by managers on site (Inefficient & Time Consuming, also not inclusive to other languages)
- The solution I've developed in the next slides has been refined to make it as efficient as possible. By making these changes I improved the process time for 5 reports from almost 2 minutes to around 30 seconds.

- **DEFINITION**: Assure is Serco's internal incident reporting platform



New Power App Developed to allow workers to digitally submit Safety Reports

Week 4 – Site Visit & Continued Development

Site Visit to the Restart Team

- Went on a site visit to the Restart Team
- This team aids people get new job opportunities through job coaching and upskilling candidates through courses in key skills such as IT.
- The site visit was focused on solutions analysis. We had several discussions with team members about new automations and improvements to current solutions!

Continued work on the performer for Safety Observations

- Continued to work on the development of the performer section of the automation process
- Moved on from extracting the data to inputting that data into Assure and creating a new report

Site visit to Restart Team

- I was very grateful to have gone on a 1-day site visit to the Restart team who aid people in getting new jobs via coaching and sessions in crucial skills such as IT.
- The site visit was extremely informative and was focused on the solutions analyst part of the RPA team. We talked to various key team members and discussed possible new automation solutions and improvements for current solutions to be implemented in further iterations.
- Discussions with team members involved going through the processes step-by-step to understand how they are implemented. By watching the process, we could see various areas that could be automated, and we discussed with the team how these automations would work so that they were well-informed. We also looked at how efficiently the current solutions were working.
- One particular solution we looked at had been previously implemented. However, it was only able to automate around 1/3 of cases. This meant the team still had to manually process around 200 data forms daily which is very time-consuming and wasteful of employee's time. By reviewing how the automation bot was working, we were able to notice that by adding one extra check into the process, we should be able to significantly reduce the number of reports the robot can successfully process.
- It was great to see how work done behind the scenes has a real-life impact!

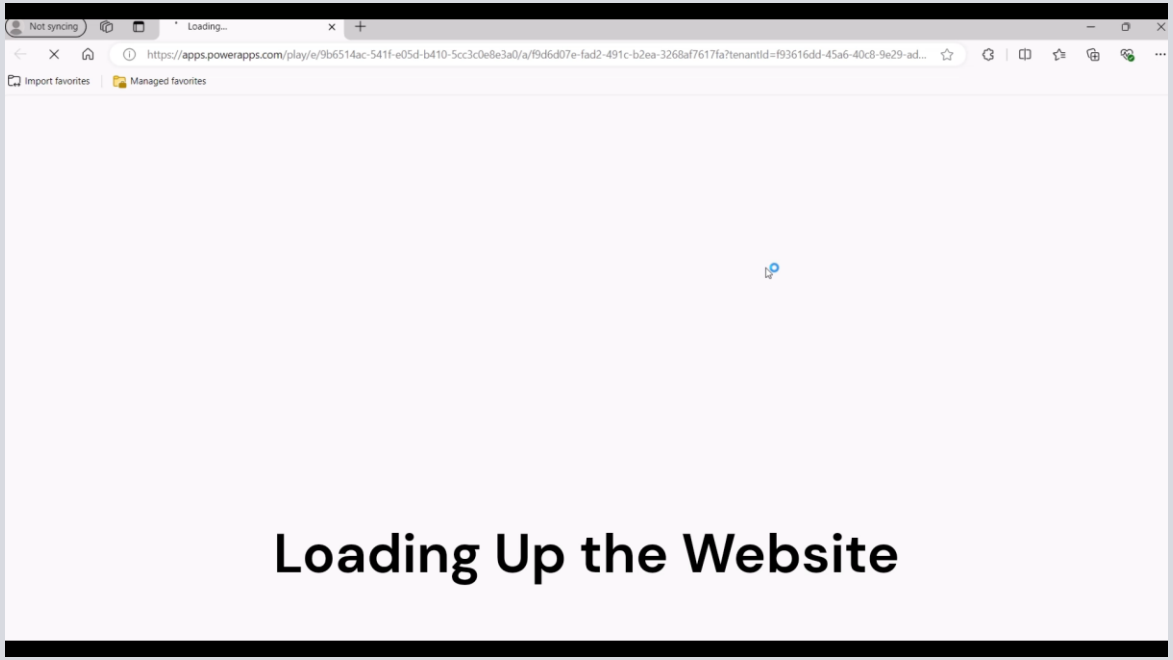
- Link for more information on the Restart Team: https://www.serco-ese.com/restart-scheme

Development of Healthcare App

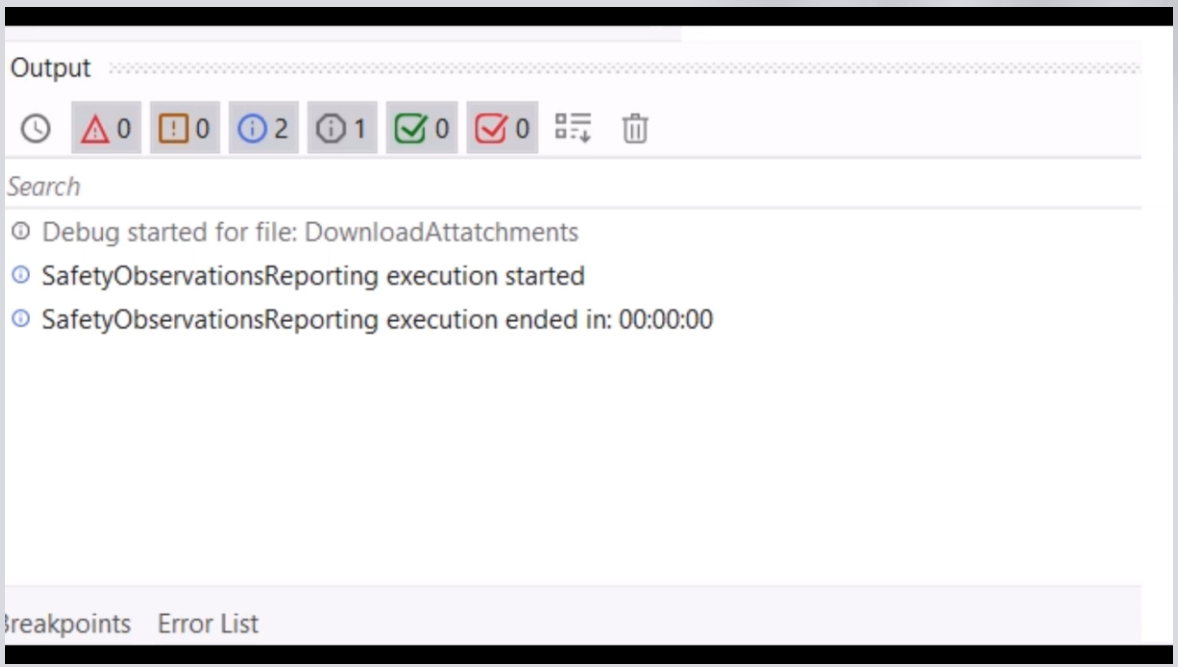
- This process involves opening the Safety Observations power app which is where users can enter a new observation
- The bot will read all the current open reports and add these to a queue
- Then one by one the bot will extract the data from the report and then add this data into the observation management system used by Serco (Assure)
- As long as no exceptions are thrown, the report can be closed and the next one is processed.
- If an exception is thrown, it's handled by the exception handler
- (This is not a complete solution due to some technical issues with the Assure platform which limited the amount I could automate at that date)

Videos of Process Working

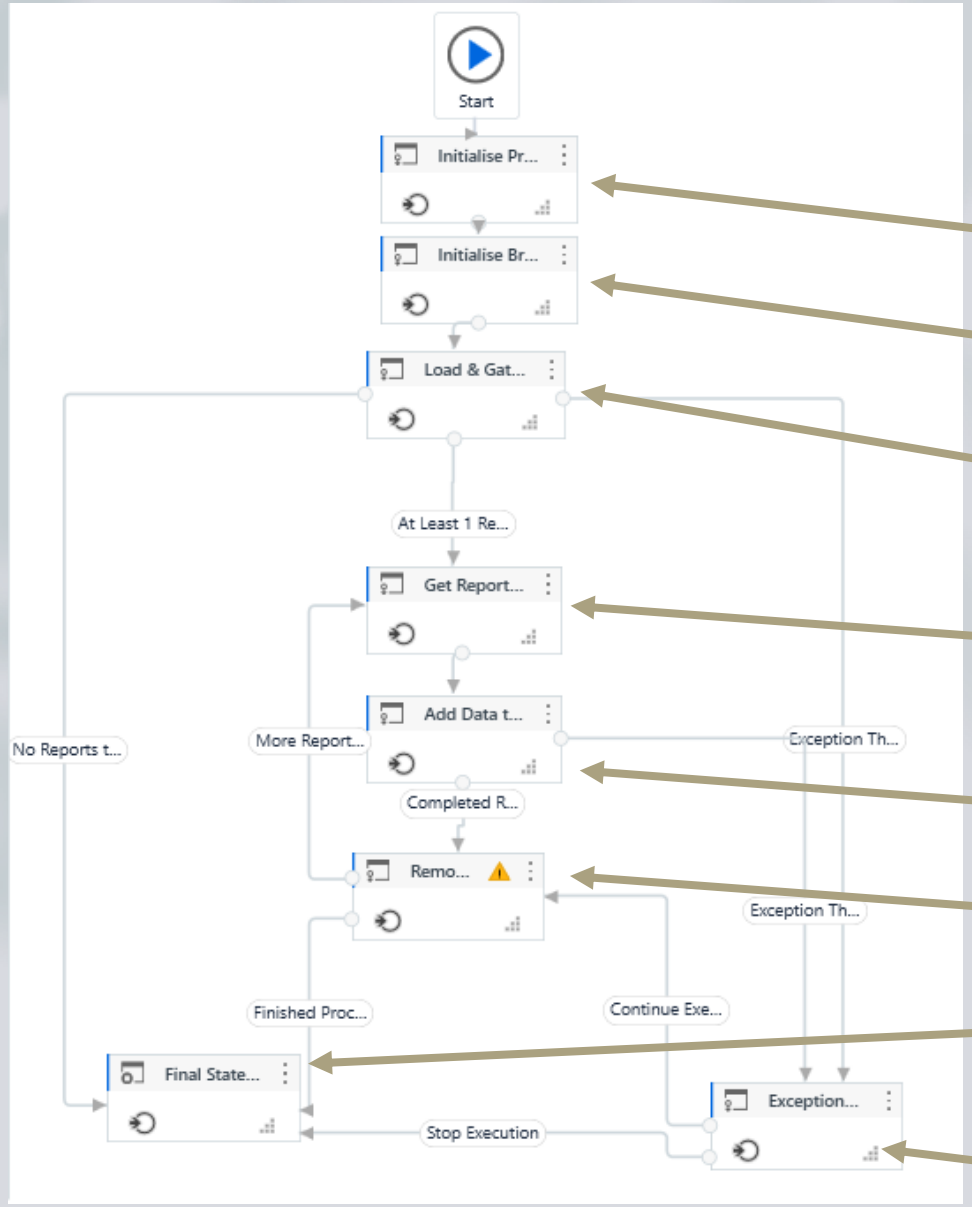
View in PowerApp/Assure



Logs



Overview of Process



1. Initialise Process – Set data variables
2. Initialise Browsers – Open web browsers
3. Load & Gather Reports – Get report numbers
4. Get Report Data – Extract data from report
5. Add Data into Assure
6. Remove report from queue
7. Close down applications as process finished
8. Error handler

Limitations of the current solution

- This solution is not fully complete
- With further work, this solution would have been able to send emails to a staff member with the failed reports and reason for failure
- It would also have been able to correctly implement the adding action information and attachment processes in Assure
- Due to limited time and technical issues with Assure, this was as far as I was able to program during this work experience program
- This solution took approximately 4 days to implement

- I used an agile method of programming and initially implemented a basic version of this code that often failed and had no exception handling. The code itself also had no structure to it so was hard to read and understand.
- Therefore, I took the time to improve my solution by restructuring the code using state machines, flowcharts, and individual workflows.
- I also added error handling and ways for the program to automatically retry certain steps of the process which often caused the failures. This meant that my final solution run much more reliably and could be more easily understood by the main developer of this process.