

Lab 01 – IBM Robotic Process Automation with Automation Anywhere

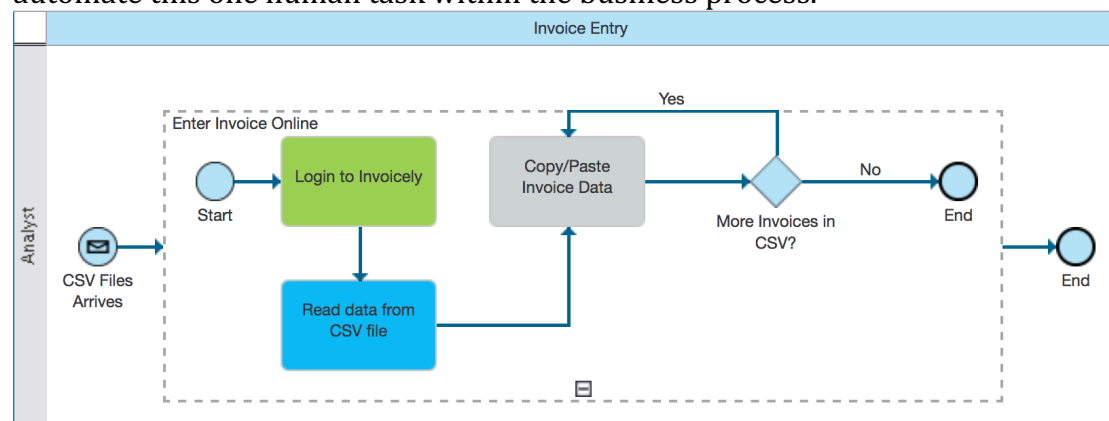
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Business Scenario:

Invoices arrive and are either in a CSV/Excel format or are transformed into that format by another system (the RPA Robot could do this transformation as well, but is outside the scope of this lab). Each row of the file represents a separate invoice. The invoices need to be manually entered (copy/paste) by an analyst into the online invoice system of record (Invoicely).

This task is error prone and tedious/routine; the analysts repeatedly ask if this could be automated but it has never been a company priority. There is also no budget to subscribe to additional third-party web APIs and build an integration.

Note, the below diagram uses IBM Blueworks Live to model a single task in between a start message and an end event. The task Enter Invoice Online could also be part of a larger business process and RPA would therefore be used to automate this one human task within the business process.



Prerequisites

- Automation Anywhere Control Room and Client installed
- Excel or other CSV reader installed
- Invoicely account created (go to invoicely.com and sign up)

Lab Steps

Start

1. Open Automation Anywhere Enterprise Client (AAE Client) and login to Control Room.
2. Create a New task and select the Task Editor.

Launch Invoicely

1. From the Commands at the left side, expand **Web Recorder** and double click **Open Browser**.
2. Enter the web address for the login page of your Invoicely account (if you have a vanity URL created, it might be similar to:
<https://hipenterprises.invoicely.com/login>.
3. Click the **Save** button to add the first command to the **Task Actions List**.
4. NOTE: it is important to note that any time you want to fully playback your bot, the environment will need to be reset/cleaned which will be different with each system. For example, with Invoicely, the login is remembered for a time period even with the browser window closed, thus it is important to both explicitly log out of Invoicely and close the browser window before each bot run.
5. At the top of the AAE Client, click **Save**, provide a file name such as Enter Invoice Online, then wait for a few seconds and click **Run**; do not move your mouse and wait for the bot to start, open the browser to the URL and stop running.
6. NOTE: it is recommended to have Internet Explorer set as your default Windows browser for best recording in the next steps.
7. Do NOT close the browser or logout.

Login

1. In the upper right of the AAE Client, click **Record**.
2. Select the window from the drop down (for example, Log In – Invoicely – Internet Explorer).
3. Click **Start**.
4. IMPORTANT – Be very careful to only click and press keyboard keys you want recorded or extra commands will be created. It is also recommended to click with the mouse rather than use keys such as TAB and ALT+TAB which will also be recorded.
5. Click into the **Email Address** field and enter your email address. Be sure to wait long enough for the field to become active before you type.
6. Click into the **Password** field and enter your password.
7. Click the **Log In** button.
8. Wait for the Dashboard to load and once complete, click **Stop** in the AAE Recording window in the bottom right corner.
9. Review the **Object Cloning** commands entered and optionally remove extra commands that are not required.
10. You should see two **Object Cloning: Set Text** commands and one **Object Cloning: Click** command.
11. Save your work.

Playback Your Automation

1. Before playback, be sure to both logout and close the browser window.
2. From the AAE Client, click the Run button at the top.
3. Do not move your mouse and watch as the bot starts, opens the browser, fills in the fields, click Login and stops running.
4. Success!
5. Do NOT close the browser or logout.

Read the CSV File

1. From the Commands on the left, double click **Read From CSV/Text**.
2. Select the CSV file provided with this lab: **invoice1.csv**.
3. Click **Save**.
4. Review that a new **Read from CSV file** command was created along with a **Loop** (for each record/line in the CSV file).
5. Save your work.
6. Do NOT close the browser or logout.

Create New Invoice

1. In the Task Actions List, click within the **Loop** (on the **Comment** for example)
2. In the upper right of the AAE Client, click **Record**.
3. Select the window from the drop down (for example, Dashboard – Hip Enterprises – Internet Explorer).
4. Click **Start**.
5. In the browser, click first on **Add New** in the upper right.
6. Wait for the drop down to appear and click **Invoice**.
7. Wait for the new screen to load and once complete, click **Stop** in the AAE Recording window in the bottom right corner
8. Review the **Object Cloning** commands entered and optionally remove extra commands that are not required.
9. You should see two **Object Cloning: Click** commands.
10. Save your work.
11. Do NOT close the browser or logout.

Enter Invoice Data

1. Ensure that the second **Object Cloning: Click** command is selected.
2. In the upper right of the AAE Client, click **Record**.
3. Select the window from the drop down (for example, New Invoice – Hip Enterprises – Internet Explorer).
4. Click **Start**.
5. Click into the **Purchase Order Number** field and enter any number, for example “12345”.
6. Click the **New Client** link and in the resulting modal dialog, select **Organization** at the top and enter any name, for example “My Customer”.
7. Click **Save and Return** at the bottom.
8. Click into the **Description** field at the top of the invoice and enter any description, for example “My Invoice Description”.

9. Click the **Description** (or **Client Name & Description**) field in the middle of the invoice and enter any description, for example "My Item Description".
10. Click the **Quantity** field of that item and enter any number, for example "100".
11. Click the **Rate** field of that item and enter any number, for example "500".
12. Click **Stop** in the AAE Recording window in the bottom right corner.
13. Review the **Object Cloning** commands entered and optionally remove extra commands that are not required.
14. You should see nine (9) **Object Cloning** commands that are placeholders to be modified next to use the CSV file data.
15. Double click the first **Object Cloning** command (it should start with **Object Cloning: Set Text of TextBox "statement_po_number"**).
16. On the right under **Select Action**, change the **Text To Set** field to the following which represents the CSV file's first column: \$Filedata Column(1)\$. Alternatively, remove the text in **Text To Set**, and hit F2 (Fn+F2 on Mac) and select Filedata Column, then enter 1 for the Column Number.
17. Repeat the last step five more times for each **Object Cloning: Set Text** command and increment the column number, for example \$Filedata Column(2)\$ and so forth.
18. IMPORTANT: Be sure to skip the **Click** commands and do not edit them.
19. Save your work.
20. Do NOT close the browser or logout.

Save the Invoice

1. Ensure that the last **Object Cloning** command within the **Loop** is selected.
2. In the upper Left of the AAE Client, click **Record**.
3. Select the window from the drop down (for example, New Invoice – Hip Enterprises – Internet Explorer).
4. Click **Start**.
5. Click on **Save** in the upper right corner.
6. Wait for the drop down and click on **Save**.
7. Wait for the invoice to display and click on **Dashboard** on the left side of the screen.
8. Wait for the Dashboard to display and click **Stop** in the AAE Recording window in the bottom right corner.
9. Review the **Object Cloning** commands entered and optionally remove extra commands that are not required.
10. You may notice the window within the last Object Cloning command is specific to the invoice number you just created and not generic.
11. Double click the last Object Cloning command and set the window at the top to Currently Active Window.
12. You should see three (3) **Object Cloning: Click** commands.
13. Save your work.

Playback Your Automation

1. Make sure that you log out of Invoicely and close all IE windows.

2. At the top of the AAE Client, click **Save** and then **Run** and DO NOT TOUCH YOUR MOUSE OR KEYBOARD.
3. Watch the bot run, login to Invoicely, create and fill an invoice, save and do it again for the second record in the file.
4. Check your work and see if all the fields have data entered.
5. Do not close the browser or logout.

Optionally Debug Your Automation

1. If there is a field where data is not entered, optionally try debugging by adding error handling and/or message boxes to stop the bot in the middle and see variable values, etc.
2. One specific situation I found (but not consistently) while developing this lab is as follows:
 - a. The third column of data (invoice description at the top of the invoice) is not entered into the form but there is no AAE error.
 - b. The **Object Cloning** command does appear to retrieve the correct DOMXPath: `//textarea[@name='statement[description]']`
 - c. It appears the algorithm used by **Object Cloning** during runtime does not find the field with the default search criteria selection.
 - d. Double click the **Object Cloning** command within the **Task Actions List**.
 - e. Click the binocular icons next to the following criteria to deactivate them from being used during the **Object Cloning** search: **HTML Name, HTML Tag, HTML Type**.
 - f. Only the **Path** and **DOMXPath** criteria remain.
 - g. This appears to allow the **Object Cloning** command to successfully locate the field and set the text.

Logout and Close

1. Ensure that the **End Loop** command is selected.
2. In the upper right of the AAE Client, click **Record**.
3. Select the window from the drop down (for example, Dashboard – Hip Enterprises – Internet Explorer).
4. Click **Start**.
5. Click on the name of your company in the upper left, for example Hip Enterprises.
6. Click on **Log Out**.
7. Click **Stop** in the AAE Recording window in the bottom right corner.
8. Review the **Object Cloning** commands entered and optionally remove extra commands that are not required.
9. You should see two (2) **Object Cloning** commands.
10. From the Commands at the left side, expand **Web Recorder** and double click **Close Browser**.
11. Click **Save** to save the command to the **Task Actions List**.

Run the Task

1. Make sure that you log out of Invoicely and close all IE windows.

2. Click **Save** and then **Run** at the top of the AAE Client to see the bot run, create two invoices (and two related clients) from the CSV file and close.
3. If there were errors, try to debug them.
4. Open and login to Invoicely to check the invoices and clients were created successfully.
5. If needed, compare your robot with the solution.

Extensions to the Lab (Extra Credit)

- What if you do not want to embed the credentials directly in the task (which will be exported/imported and is not secure)? How would you go about changing that?
- In the above lab, we assume the customer we find in the CSV is always new. How could this task be extended to support searching for existing customers?
- What ways could you trigger the robot automatically rather than running it manually?
- There are many ways to accomplish the task robot. For example, what other recorders would be possible to use instead of the Smart Recorder and Object Cloning commands?