RPA Developer – Hands On task

## 1. Purpose of the document

This document is created to describe the high-level design approaches taken during development of this process. Also, includes the assumptions and to explain the general logic used.

## 2. Process Objectives

Download the file from RPA Challenge website. Read the information and enter the details to the input fields of the website and click register. After all data is entered to the website results are displayed as a measure of time taken to complete the challenge as well as the accuracy of the data entered.

## 3. Rules considered

1. Completing the challenge with 100% accuracy (which is the core objective).

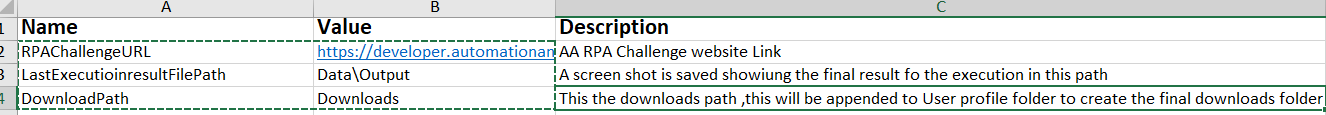
2. Bot must download the file as a part of its execution.

## 4. Assumptions

1. Default download location of chrome browser is not changed.
2. Process will use System user’s profile folder name +\Downloads as the location to download the file. Eg :- C:\Users\ajish\Downloads
3. Wait for Download will be monitoring the above folder to check if the file is downloaded.
4. Chrome setting of “Ask where to save each file before downloading” is disabled to make sure no popup is opened asking user to save the file to a specified location.

## 5. High Level design approaches

1. Default RE framework is used – modified to work with data tables instead of queues.
2. Read CSV is used to read the .csv file and read to a data table.
3. Downloaded .csv file is read and made as Transaction Data, Transaction item is made as data raw, Transaction number is defaulted to 1. Get transaction data will retrieve each raw from the transaction data.
4. Retry scope is used to check and wait till the correct web page is opened.
5. Wait for download is used to elegantly handle file download and wait till it finishes.
6. File Info is kept for cleaning up the file after all the transactions are processed.
7. Application exceptions and a sample business exception are handled.
8. File download and read will happen only once during the execution. In case an application exception, file download and read will not be redone even if Initialization step reruns. This is done to avoid expensive file handling operation.
9. Soft closing of the chrome browser and clearing the downloaded file done.
10. Achieving accuracy of the data entry by using correct selectors.
11. Speed is achieved through classic selectors, using simulate type/click and delay before and after is made to 0 at project level only for Run.
12. Configuration file has 3 settings defined.



1. A screenshot is taken when the result appears on the screen after all the transactions are completed. This will be stored in the output path. LastExecutionresultFilePath configuration is used for this. This is done as the browser will be closed as part of final clearing of the applications.

Graphical user interface

Description automatically generated

1. Additional Workflows used are placed inside a Workflow folder in the project.

Graphical user interface, text, application

Description automatically generated

1. **DownloadCSVFile.xaml** – This will download the file from the website and used inside Initialization step.

2.**ReadDwonloadedFiletoDT.xaml** – this workflow is used to read the file to a DT. Separated to have single responsibility for each workflow considering reusability and testability, and avoided lengthy workflows.

3.**TypeAllData.xaml**- this workflow will type the individual transaction item to the UI.

## 6. Speed Considerations

1. Speed is achieved by using type and click activities to use **Simulate click/type**.

2. At project level Delay Before and Delay after is set to 0 only for Run value as shown below.

Graphical user interface, text, application

Description automatically generated

3. Used classic selectors instead of modern selectors which is taking a bit more time.

4. Parallel execution is tried but avoided as it will accuracy is compromised.

## 7. Business Rule exception

1. A sample business rule exception is handled to check if email address supplied is in correct format. This is available in the TypeAllData.xaml workflow.
2. Regular expression matching is done to verify if the supplied value is a correct email address or not.
3. This can be replicated by editing the file after download and changing the email column value to some other format. A business exception will be thrown where email address is not a proper format.

Graphical user interface, text, application, email

Description automatically generated

## 8. Application Exception

1. Application exceptions are handled and thrown from the process workflow. This can be replicated with a selector change.
2. In case of application error and Initialization step is rerun, file download, and read will not be redone. This is done with checking TransactionData is null or not in 1.DownloadCSVFile.xaml file.

Graphical user interface, application

Description automatically generated

## 9. Studio version and additional dependency

1. Studio version 2021.4.4 is used.

2. Workflow Manager Activities is used to add Is True activity which was used in retry scope.