Automating workflows of SDN Orchestrator

Project Description:
To automate workflows inside the Current-Alarms Page of the SDN orchestrator platform. The workflow involves:

- Automatic login and navigation.
- Extracting alarms based on selected filters in the form of CSV files.
- Saving them in the local storage.
- Automatically mailing the files to desired clients.

Technologies used:

- TagUI:

TagUI is an open-source RPA (Robotic Process Automation) tool that allows for the automation of web interactions. It is used to automate tedious and repetitive human actions such as clicking, typing, and navigating through web pages. TagUI is used here to automate the process of logging into the SDN Orchestrator, applying filters, and extracting data.

- Python:

Python is a versatile programming language used for its powerful libraries and ease of integration with other technologies. This project uses Python mainly for file handling and data processing, such as creating new files with timestamps and manipulating CSV data.

❖ Python libraries used:

1. Smtplib:
   The `smtplib` package in Python is a built-in module that provides a simple way to send email from your Python applications. It abstracts the complexities of SMTP (Simple Mail Transfer Protocol) and provides an easy-to-use interface for sending email.
   - **SMTP Server Connection**: You use `smtplib.SMTP()` or `smtplib.SMTP_SSL()` to connect to an SMTP server. `SMTP_SSL()` is used when connecting to servers that require SSL/TLS encryption.
   - **Authentication**: Most SMTP servers require authentication. You can use methods like `login()` or `starttls()` followed by `login()` to authenticate using credentials (username and password).
   - **Sending Email**: The `sendmail()` method is used to send an email. You provide the sender's address, recipient's address(es), and the email content as parameters.
   - **Email Content**: You need to construct your email message as a string adhering to the RFC 2822 standard, which includes headers like From, To, Subject, and the body of the message.
   - **Handling Errors**: `smtplib` raises various exceptions for different errors that may occur during the sending process. It's important to handle these exceptions appropriately in your code.
2. email.mime:
   The `email.mime` package in Python provides modules that help you construct and manipulate email messages according to the MIME (Multipurpose Internet Mail Extensions) standard.

- email.mime.multipart:
  The `MIMEMultipart` class from `email.mime.multipart` is used to create a MIME object that represents a multipart message, which can include both text and attachments.

3. Pandas
   Pandas is a Python library for data manipulation and analysis. It provides data structures and functions needed to work seamlessly with structured data. In this automation process, Pandas is used to read, modify, and save CSV files efficiently.

4. Glob
   The glob module, which is short for global, is a function that's used to search for files that match a specific file pattern or name.It is used here for creating file paths.

Modules:

- sdn_launch_and_login.tag:This block launches the SDN Orchestrator platform and logs in using suitable credentials. It also takes instincts to confirm new sessions if there is any prompt.
- newfilename.tag: Creates a unique filename with timestamp for every session
- filter_data.tag :This module navigates to the Current Alarms page, applies the predefined filters and starts the extraction process.
- extract_multitables.tag:Performs table extraction across multiple pages and compiles all the tables into a single file.
- Createfolder_clear.py: Creates CSV_Downloads folder if not present to store extracted CSVs and clear old extracted CSV files.
- main.tag:Combines all the modules and runs in a single flow.
- mail_stml.py:This module creates a SMTP connection with a SMTP server ,logins with user credentials and sends a file provided by the user from user mail to the destination address provided by the user.
- Tagui_local.csv: Local object repository that stores all variables and their values.

Limitations:

- The automation can be interrupted by mouse and keyboard actions. Thus, the user must avoid interacting with the computer while it is running. This one is an intrinsic weakness of visual automation tools, such as TagUI, which replicate human actions on screen.
- Certain workflows are time-consuming because of the sequential execution pattern and the human actions mimicking nature of TagUI.