DAYANANDA SAGAR COLLEGE OF ENGINEERING

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Mini Project Report

on

"Attendance Automation Bot For Zoom Lobbies"

Submitted By

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ABSTRACT

Since working and studying at home has become a new normal due to this pandemic, many organizations and educational institutions are having a hard time adapting to remote culture. This project aims to simplify and automate one of the tasks in online teaching, which is the time consuming process of taking attendance.

"Zoom" has been used as a platform to take online classes and meetings during the coronavirus pandemic. It is fairly tedious for the meeting host to manually enter the names of the meeting attendees into an attendance sheet since there is no option to do so in the Zoom app which adds hassle for the teacher. To Reduce the workload of the teachers we automate the mundane task of taking attendance in the zoom app which is the goal of the project. To achieve this goal, a bot will be created which takes the names of all the people attending a zoom meeting and stores it in an Excel sheet. It will then Email the document to the required personnel.

The project also aims to enforce joining using their respective USN's, otherwise the attendance won't be considered in further processing. So coming up with such a simple hassle-free solution, our project helps to solve the problems like Automatic virtual attendance, reducing the human errors in logging the attendance and predominantly gives the authority to make changes in case of any discrepancies in attendance.

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CHAPTER 1

INTRODUCTION

1.1 Introduction to RPA

Robotic process automation (or RPA) is an evolving type of business process automation technology based on the concept of automated robots or AI employees. "A preconfigured software instance that uses business rules and pre-defined operation choreography to complete the autonomous execution of a combination of procedures, operations, transactions and tasks in one or more unrelated software systems to produce a human exception management outcome or service".

These instances of preconfigured software reproduce the work done by humans and are called robots, or robots of software. In short, RPA robots automate human tasks. RPA uses state of the art software systems to manage highly structured, routine and repetitive computer tasks automatically. A robot can take the wheel and get the job done for tasks that are largely driven by rules, schedules, or events.

In fact, typical back office staff spend up to 80% of their day on such mundane activities. Such employees fill in paperwork, conduct routine calculations, and process orders for all items that are important to customer satisfaction but mundane to employees. RPA converts these systems to a robotic workforce. It can also be much more efficiently organized than a human workforce.

■ Introduction to Automation Anywhere Platform

Automation Anywhere is one of the popular RPA vendors offering powerful & user-friendly RPA capabilities to automate any complex tasks. It is one of the "Revolutionary Technology" that changes the way the enterprise operates. This tool combines conventional RPA with intellectual elements like natural language understanding and reading any unstructured data.

Automation Anywhere is one of the popular RPA tools that provides powerful features to automate complex business tasks. It is used to automate complex business tasks. It is used to automate such processes that are repetitive, rule-based, and manually performed by humans. It offers an end to end automation strategy for organizations. Automation Anywhere is a web- based management system. It has a Control Room that helps in managing automated tasks. It is mainly used at the enterprise level and changes the way the enterprises operate. The primary aim of Automation Anywhere is to offer scalable, secure and resilient services to its users.

■ About RPA in Automation Anywhere

- ❖ No programming knowledge is required. You can record your actions or point and click the action wizards.
- ❖ Eliminates the element of the human error

- ❖ Increases transaction speed and allows saving time and costs
- ❖ Quick Time to Value.
- ❖ Helps to automate data transfers and import or export data between files or applications.
- ❖ Scale from Desktop to Data Centre

1.2 Objectives of the Project

1. Fetch the attendance of the Zoom class
2. Save the attendance of current session in a temporary file
3. Update the attendance in the attendance sheet
4. Mail the attendance sheet to the respective faculty

1.3 Problem Statement

Automating the process of taking attendance through Zoom lobbies.

1.4 Scope of the Work and its importance

- ❖ The Bot will be used mainly by teachers who regularly take classes through Zoom lobbies.
- ❖ This Bot is built using Automation Anywhere platform which helps to extract required data from the web version of Zoom platform.
- ❖ This Bot removes the need to take attendance manually which takes quite a lot of time.
- ❖ Once attendance is taken through the Bot, it will mail it to the required faculty.

1.5 System Requirements

■ Basic System Requirements

- ❖ Storage : Minimum of 256GB
- ❖ Memory : Minimum of 4GB to run the bot
- ❖ The CPU should have a base speed of at least 1.70 GHz.

- ❖ Should have High Speed Internet Connection to be able to deploy the Bot to the System.
- ❖ Should have Browsers such as Google Chrome or Microsoft Edge to be able to work with Automation Anywhere Platform.

■ Installation

The Bot agent is a lightweight application that enables you to run bots on your device by connecting the device to the Enterprise Control Room. To run bots on a local machine, install the Bot agent and add the local device to the list of enabled host devices.

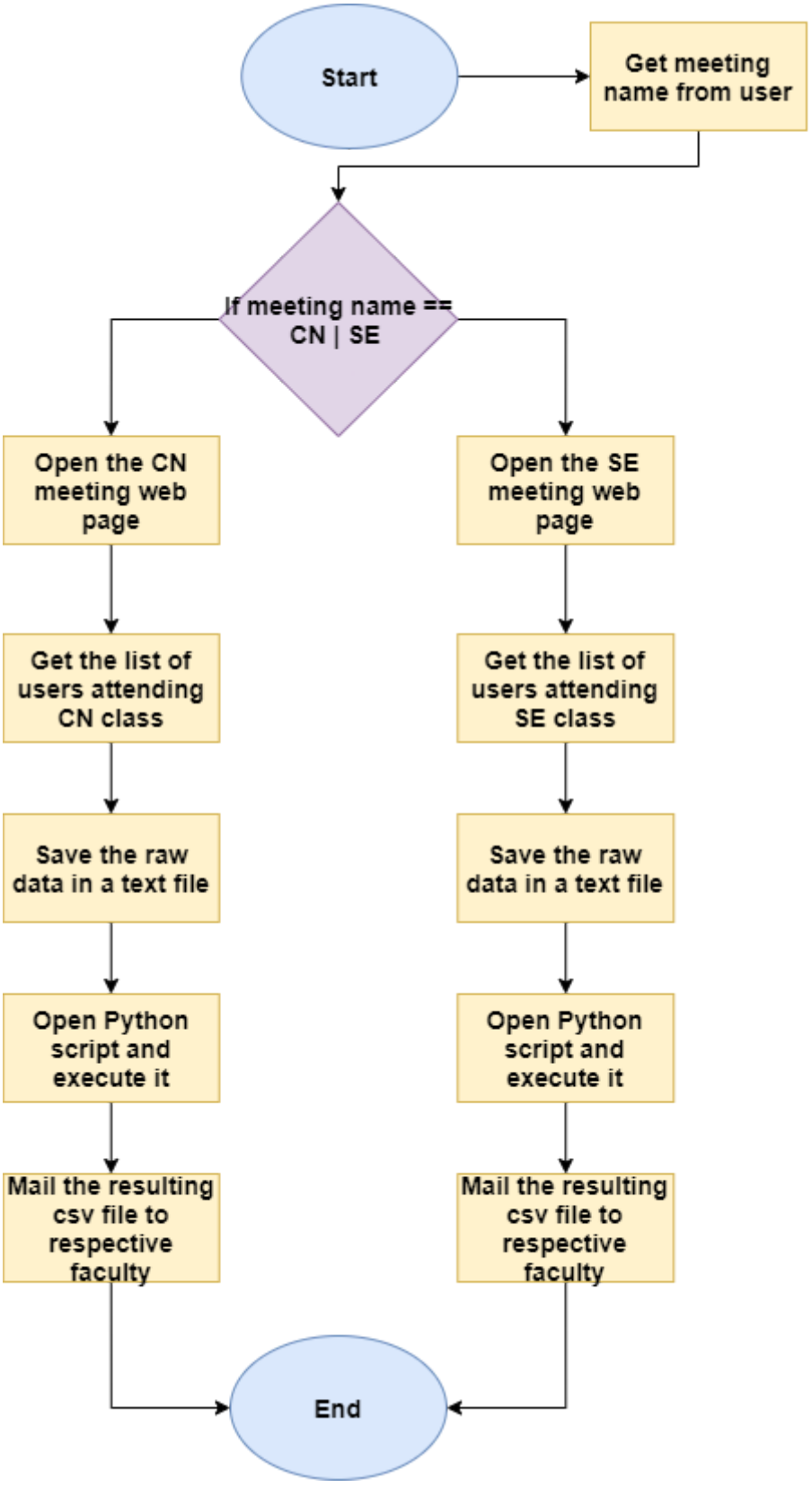
■ Installation Procedure

- ❖ Log in to the Enterprise Control Room through your Automation Anywhere Enterprise URL.
- ❖ Install the Bot agent and add a local device by choosing one of the following options:
  - ➢ From the taskbar on the top-right of the screen, click the device icon and then click Add local device.
  - ➢ Go to the MY DEVICES page and click the Add local bot agent icon located at the top-right of the Devices list.
- ❖ Click Connect to my computer.
- ❖ Follow the steps outlined in the wizard.
- ❖ Enter the following in the Additional information screen:
- ❖ Device nickname (optional)
- ❖ Device type (single user or multi-user)
- ❖ Click Save.
- ❖ Refresh the My Devices page and verify that the local device is added.

CHAPTER 2

DESIGN IMPLEMENTATION

2.1 Flow Diagram



"Zoom" has been used as a platform to take online classes and meetings during the coronavirus pandemic. It is fairly tedious for the meeting host to manually enter the names of the meeting attendees into an attendance sheet since there is no option to do so in the Zoom app which adds hassle for the teacher. To Reduce the workload of the teachers we automate the mundane task of taking attendance in the zoom app which is the goal of the project. To achieve this goal, a bot will be created which takes the names of all the people attending a zoom meeting and stores it in an Excel sheet. It will then Email the document to the required personnel.

- Why should it be automated?

Since working and studying at home has become a new normal due to this pandemic, many organizations and educational institutions are having a hard time adapting to remote culture. This project aims to simplify and automate one of the tasks in online teaching, which is the time consuming process of taking attendance.

2.2 Step by step implementation:

The attendance automation bot is built using Automation Anywhere A2019 platform and Python Script.

Step 1: Log in to the desired meeting through browser

Step 2: Prompt: For value - get meeting name from user i.e. CN or ET

Step 3: If: string condition = "CN" Recorder: Capture computer networks listview

Step 4: Else if: string condition = "et" Recorder: Capture emerging technologies list view

Step 5: Log to file: listview content into RawData.csv

Step 6: Python script:open

Step 7: Python script:execute script which parses the raw data and increments attendance into another csv file

Step 8: Python script:close script

Step 9: Email:send an email to respective email address with the python script result "Today's Attendance.csv"

CHAPTER 3

TESTING / RESULT AND ANALYSIS

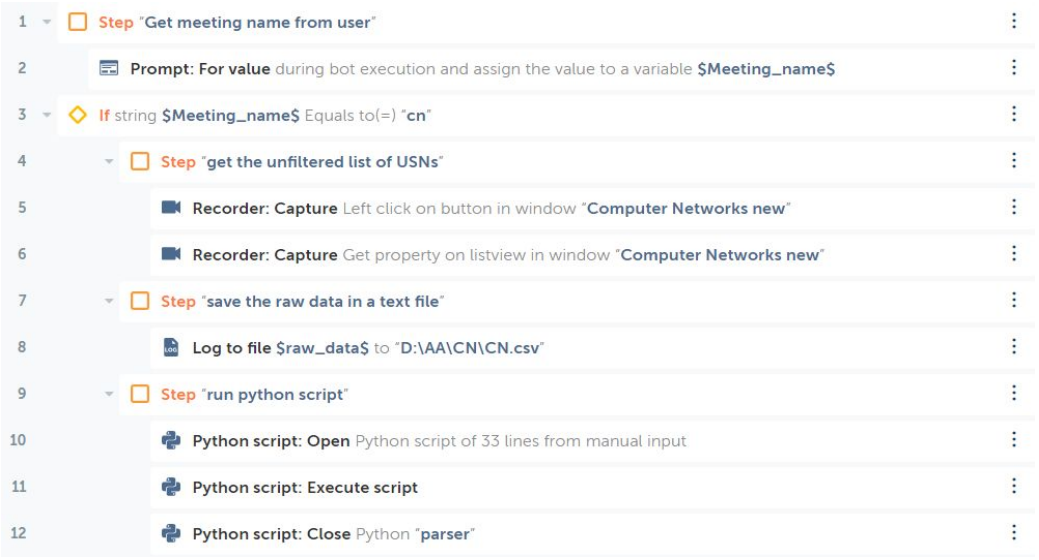
3.1 Bot Execution Procedure

- Every time the bot is executed it first looks for the meeting name that is the subject name for which the class is being taken.
- The classes for which it looks are ET and CN
- Then It looks for the meeting attendees and captures all the USNs who are attending the class
- The List of attendees captured is then saved in a text file with the name [subject_name].txt
- Data in the text file is raw data that needs to be parsed into a CSV format file using a python script.
- Then the bot runs the python script.
- The python script extracts a text file for the specified subject as the name of the text file, then creates a CSV file and loads the USNs present in the CSV file.
- Now, the CSV file created is mailed to the faculty.

■ Information of Data Sets used

The dataset used here is the Zoom App attendee list which has USNs of students. This information is stored as a listView on the Zoom webpage.

3.2. Screenshots of instructions on control room



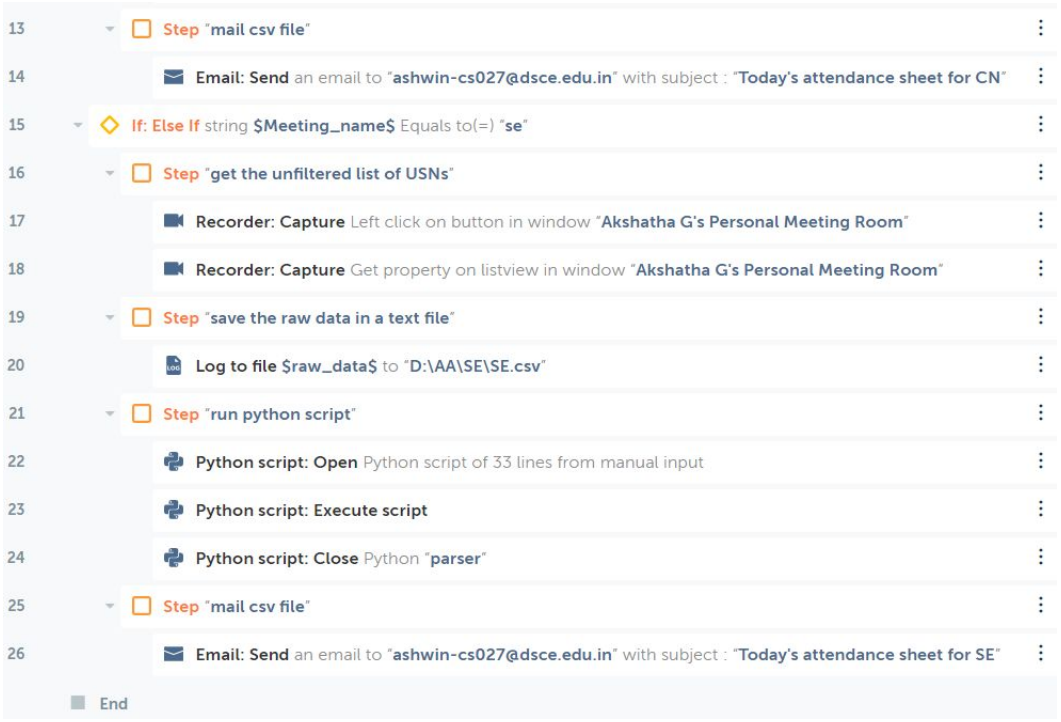


Figure 3.2.1: Main Task Bot.

There are a total of 26 steps, Major Steps are:

1) Get the meeting name as the subject name

2) Capture the attendee list from the App window

3) Save the attendee list in a text file as raw data

4) Parse the data using python script

5) Email the CSV file to the faculty

```python
import csv
import re

usn_pattern = '1[Dd][Ss]1[1-9][a-zA-Z][a-zA-Z][0-9][0-9][0-9]'
raw = []
curr_attendance = []

with open('D:\AA\SE\SE.csv','r') as rf:
    for line in rf:
        usn = re.search(usn_pattern,line)
        if usn:
            raw.append(str(usn.group(0).upper()))

with open("D:\AA\SE\Today's Attendance.csv",'r') as rf:
    attendance_reader = csv.DictReader(rf)


    for row in attendance_reader:
        for line in raw:
            if line == row['USN']:
                curr_attendance.append({'USN': row['USN'],'Attendance': str(int(row['Attendance'])+1)})
                break
        else:
            curr_attendance.append({'USN': row['USN'],'Attendance': row['Attendance']})

with open("D:\AA\SE\Today's Attendance.csv",'w',newline='') as wf:
    fieldnames = ['USN','Attendance']
    attendance_writer = csv.DictWriter(wf,fieldnames=fieldnames)
    attendance_writer.writeheader()

    for usn in curr_attendance:
        attendance_writer.writerow(usn)
```

Figure 3.2.4: Python Script

3.3 Results

Following is the sample screenshot of the final CSV file generated.

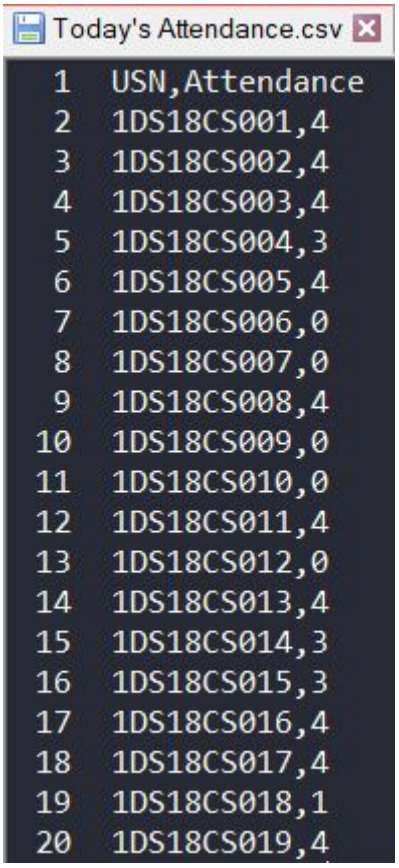


Figure 3.3.1: Generated csv file

● The final output is the list of updated attendance counts for respective subjects of each USN after this particular Zoom App meeting of the class, formatted in a CSV file.

e.g. 1DS18CS042 -> 4 i.e. the student with USN has attended 4 classes of this particular subject as updated after this Zoom App meeting

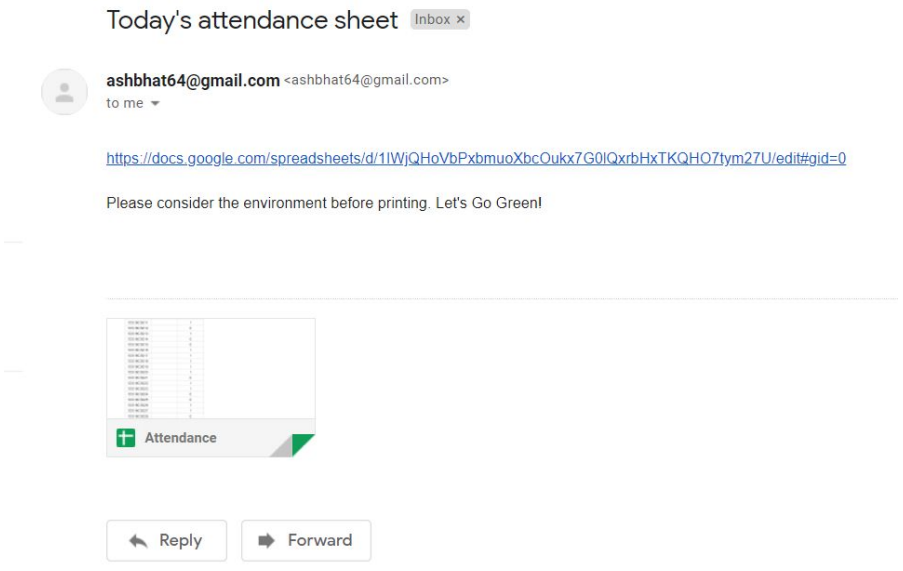


Figure 3.3.1: Mail sent by bot

CHAPTER 4

CONCLUSIONS AND FUTURE ENHANCEMENTS

4.1 Conclusion

During this pandemic colleges and schools were forced to conduct online classes and assignments on online platforms like Zoom App and Google Meet. The teachers were supposed to take attendance, they either called each student's name or took screenshots of the participants of the meeting and later marked them present. This method is very time consuming, hence not efficient.

All these steps can be automated like taking the attendance, updating some sheets on a daily basis. This reduces paperwork and saves time for teachers and students and money with an automated attendance management system. It also eliminates duplicate data entry and errors in time and attendance entries. Improves visibility to track and manage student attendance across multiple subjects. Keeps students and teachers updated about the current attendance percentage of the individuals.

4.2 Future Enhancements

1. Adding more number of classes as opposed to the 2 current preset ones.

2. An Excel sheet to store and update the attendance, instead of the use of a csv file could be an elegant approach.

3. Logging into the class using the bot itself.